ANNUAL PUBLICATIONS

2014

Graduate School of
Medical and Dental Sciences
Tokyo Medical and Dental University

CONTENTS

Gerontology and Gerodontology

Comprehensive Patient Care

Cognitive and Behavioral Medicine

Bio-Environmental Response

Systemic Organ Regulation

Advanced Therapeutic Sciences

Life Science and Technology

Life Science and Technology

Oral Pathology

Professor
Akira Yamaguchi

Junior Associate Professor
Kei Sakamoto

Assistant Professor
Kou Kayamori

Technical Staff
Miwako Hamagaki

Graduate Students
Rei Toyama
Kenji Ogura (Maxillofacial Orthognathics)
Ryosuke Nakamura (Maxillofacial Surgery)
Masita Mandasari
Enkhbold Uyanga (Maxillofacial Surgery)
Nguyen Thi Kim Chi
Akane Yukimori
Sawangarun Wanlada
Yae Ohata
Yuko Ymagata (Oral and Maxillofacial Surgery)

Secretary
Yumi Tanaka

(1) Research

1)Clinico-patological research on oral and maxillofacial regions
2)Molecular mechanism of bone formation and bone regeneration
3)Roles of Notch signaling in skeletal formation and regeneration
4)Molecular mechanism of bone destruction by oral cancers
5)Evolutional changes in skeletal formation

(2) Education

Oral Pathology section lectures the Module "Pathology" to 3rd grade students. This Module is comprised of two categories; General Pathology and Oral Pathology. Main objective of General Pathology is to provide students various opportunities and knowledge about general aspects of various diseases. Oral Pathology provides details of pathogenesis, pathophysiology and histopathological characteristics in various oral diseases.

(3) Clinical Services & Other Works

Our Dental Hospital has over 2,000 biopsy cases a year. Oral Pathology Section is involved in histopathological diagnosis of these biopsy cases.

(4) Publications

[Original Articles]

1. Masamitsu Oshima, Kaoru Inoue, Kei Nakajima, Tetsuhiko Tachikawa, Hiromichi Yamazaki, Tomohide Isobe, Ayaka Sugawara, Miho Ogawa, Chie Tanaka, Masahiro Saito, Shohei Kasugai, Teruko Takano-Yamamoto, Takashi Inoue, Katsunari Tezuka, Takuo Kuboki, Akira Yamaguchi, Takashi Tsuji. Functional tooth restoration by next-generation bio-hybrid implant as a bio-hybrid artificial organ replacement therapy. Sci Rep. 2014; 4; 6044

2. Ji-Won Lee, Akira Yamaguchi, Tadahiro Iimura. Functional heterogeneity of osteocytes in FGF23 production: the possible involvement of DMP1 as a direct negative regulator. Bonekey Rep. 2014; 3; 543

3. Aragaki T, Michi Y, Nakamura S, Toriihara A, Kayamori K, Harada K, Kurabayashi T. A Case of Oral Squamous Cell Carcinoma with Scattered Metastases Open Journal of Radiology. 2014; 4(3);

4. Zhao Xin, Akira Yamaguchi, Kei Sakamoto. Aberrant expression and altered cellular localization of desmosomal and hemidesmosomal proteins are associated with aggressive clinicopathological features of oral squamous cell carcinoma. Virchows Arch.. 2014.07; 465(1); 35-47

5. Sakamoto Kei, Morita Kei-Ichi, Shimada Yasuyuki, Omura Ken, Izumo Toshiyuki, Yamaguchi Akira. Peripheral odontogenic keratocyst associated with nevoid basal cell carcinoma syndrome: a case report. Oral Surg Oral Med Oral Pathol Oral Radiol. 2014.07; 118(1); e19-e23

6. Sakamoto K, Morita K, Shimada Y, Omura K, Izumo T, Yamaguchi A. Peripheral odontogenic keratocyst associated with nevoid basal cell carcinoma syndrome: a case report. Oral Surg Oral Med Oral Pathol Oral Radiol. 2014.07; 118(1); e19-e23

7. Xin Z, Yamaguchi A, Sakamoto K. Aberrant expression and altered cellular localization of desmosomal and hemidesmosomal proteins are associated with aggressive clinicopathological features of oral squamous cell carcinoma. Virchows Archiv. 2014.07; 465(1); 35-47

8. Hiroki Ishii, Masao Saitoh, Kei Sakamoto, Tetsuo Kondo, Ryohei Katoh, Shota Tanaka, Mitsuyoshi Motizuki, Keisuke Masuyama, Keiji Miyazawa. Epithelial splicing regulatory proteins 1 (ESRP1) and 2 (ESRP2) suppress cancer cell motility via different mechanisms. J. Biol. Chem.. 2014.10; 289(40); 27386-27399

9. Ji-Won Lee, Midori Asai, Sang-Kyung Jeon, Tadahiro Iimura, Takayuki Yonezawa, Byung-Yoon Cha, Je-Tae Woo, Akira Yamaguchi. Rosmarinic acid exerts an anti-osteoporotic effect in the RANKL-induced mouse model of bone loss by promotion of osteoblastic differentiation and inhibition of osteoclastic differentiation. Mol Nutr Food Res. 2014.11;

10. Ryo Aizawa, Atsushi Yamada, Dai Suzuki, Tadahiro Iimura, Hidetoshi Kassai, Takeshi Harada, Masayuki Tsukasaki, Gou Yamamoto, Tetsuhiko Tachikawa, Kazuki Nakao, Matsuo Yamamoto, Akira Yamaguchi, Atsu Aiba, Ryutaro Kamijo. Cdc42 is required for chondrogenesis and interdigital programmed cell death during limb development. Mech. Dev.. 129(1-4); 38-50

11. Yuki Tokugawa, Tatsuo Shirota, Kohsuke Ohno, Akira Yamaguchi. Effects of bisphosphonate on bone reaction after placement of titanium implants in tibiae of ovariectomized rats. Int J Oral Maxillofac Implants. 18(1); 66-74

12. S Nishida, A Yamaguchi, T Tanizawa, N Endo, T Mashiba, Y Uchiyama, T Suda, S Yoshiki, H E Takahashi. Increased bone formation by intermittent parathyroid hormone administration is due to the stimulation of proliferation and differentiation of osteoprogenitor cells in bone marrow. Bone. 15(6); 717-723

[Conference Activities & Talks]

1. Yamaguchi A. Bone destruction by oral cancer. Molecular mechanism in bone and tooth, its clinical implication.. Tokyo Medical and Dental University Grants for Excellent Graduate Schools Symposium 2014.02.17 Tokyo

2. Yamaguchi A. Bisphosphonate-related osteonecrosis, update. . Workshop "Update on Jaw Diseases" at Annual Dental Technology and Research Conference in Vietnam 2014.03.29 Ho Chin Min City

3. Kei Sakamoto. Pathology of odontogenic tumor. Workshop 'Update on Jaw Disease' 2014.03.29 Ho Chin Min City

4. Yamaguchi A. Bone destruction by oral cancer. Annual Dental Technology and Research Conference in Vietnam. Annual Dental Technology and Research Conference in Vietnam 2014.03.31 Ho Chin Min City

5. Yasuyuki Shimada, Kei Sakamoto, Kou Kayamori, Akira Yamaguchi. Clonal analysis of keratocystic odontogenic tumor. 17th International Congresson Oral Pathology and Medicine, 2014.05 Istanbul

Molecular Immunology

Professor	Miyuki AZUMA
Associate Professor	Shigenori NAGAI
Assistant Professor	Tatsukuni OHNO
Adjunct instructor	
	Hiroshi KIYONO
	YuzoTAKAHASHI
	Yosuke KAMIMURA(～ Dec.)
	Takeshi AZUMA (Oct. ～)
Graduate Students (Doctor)	
	Chenyang ZHANG(～ Sept.)
	Arundhati C. BHINGARE
	Siwen KANG
	Syougo MAEKAWA(～ Mar.)
	Yuta KONDO
	Hirunwidchayarat Worawalun
	Niken Adiba Nadya (Oct. ～)
Research Student	Niken Adiba Nadya (～ Sept.)
Secretary	Hatsue TADANO

(1) Research

Research Subjects
1)Mechanisms of immune responses in oral diseases
2)Studies on lymphocyte functional molecules
3)Immunotherapy by molecular targetting

(2) Lectures & Courses

Purpose of Education
Main objective of Molecular Immunology in the graduate course is to understand and study how the immune system works for biological defense. Students also learn immunopathology and immunophysiology of systemic and organ-specific immune diseases and how the immune diseases control and regulate.

(3) Publications

[Original Articles]

1. Kojima R, Ohno T, Iikura M, Niki T, Hirashima M, Iwaya K, Tsuda H, Nonoyama S, Matsuda A, Saito H, Matsumoto K, Nakae S. Galectin-9 enhances cytokine secretion, but suppresses survival and degranulation, in human mast cell line. PLoS ONE. 2014.01; 9(1); e86106

2. Bhingare AC, Ohno T, Tomura M, Zhang C, Aramaki O, Otsuki M, Tagami J, Azuma M. Dental pulp dendritic cells migrate to regional lymph nodes. J. Dent. Res.. 2014.03; 93(3); 288-293

3. Sunthamala N, Pientong C, Ohno T, Zhang C, Bhingare AC, Kondo Y, Azuma M, Ekalaksananan T. HPV16 E2 protein promotes innate immunity by modulating immunosuppressive status. Biochem. Biophys. Res. Commun.. 2014.04; 446(4); 977-982

4. Fujiwara H, Maeda Y, Kobayashi K, Nishimori H, Matsuoka K, Fujii N, Kondo E, Tanaka T, Chen L, Azuma M, Yagita H, Tanimoto M. Programmed death-1 pathway in host tissues ameliorates Th17/Th1-mediated experimental chronic graft-versus-host disease. J. Immunol. 2014.09; 193(5); 2565-2573

5. Zhang C, Ohno T, Kang S, Takai T, Azuma M. Repeated antigen painting and sublingual immunotherapy in mice convert sublingual dendritic cell subsets. Vaccine. 2014.09; 32(43); 5669-5676

6. Kenji Yoshioka, Ken Ishii, Tetsuya Kuramoto, Shigenori Nagai, Haruki Funao, Hiroko Ishihama, Yuta Shiono, Aya Sasaki, Mamoru Aizawa, Yasunori Okada, Shigeo Koyasu, Yoshiaki Toyama, Morio Matsumoto. A novel mouse model of soft-tissue infection using bioluminescence imaging allows noninvasive, real-time monitoring of bacterial growth. PLoS ONE. 2014.09; 9(9); e106367

7. Patcharee R, Azuma M. Intrinsic and extrinsic control of expression of the immunoregulatory molecule PD-L1 in epithelial cells and squamous cell carcinoma. Oral Oncol. 2014.12;

[Books etc]

1. translator:Fumiko Shiroki, Shigenori Nagai . translation supervisor; Kouji Matsushima, Yukihiro Yamada. Chapter12 Effector Mechanisms of Humoral Immunity;Cellular and Molecular Immunology,Seventh Edition. Elsevier, 2014.11

[Conference Activities & Talks]

1. Kang S, Zhang C, Kondo Y, Maekawa S, Ohno T, Azuma M. Differential expression of immunoregulatory co-signal ligand CD274 (B7-H1) on oral mucosal epithelium. The 68th Annual Meeting of The Japanese Stomatological Society 2014.05.07 Tokyo,Japan

2. Bhingare AC, Ohno T, Kondo Y, Azuma M. Identification of migrating dental pulp dendritic cells to the regional lymph nodes using photoconvertible protein transduced Kik-GR mice. The 68th Annual Meeting of The Japanese Stomatological Society 2014.05.07 Tokyo,Japan

3. Kunishige T, Taniguchi H, Ohno T, Azuma M, Hori J. The V-domain Ig suppressor of T cell activation1(VISTA) plays an essential role in the acceptance of corneal allografts. International Society for Eye Research 2014 2014.07.20 USA

4. Zhang C, Ohno T, Kang S, Bhingare AC, Takai T, Azuma M. Repeated antigen painting and sublingual immunotherapy convert sublingual dendritic cell populations. 13th International Symposium on Dendritic cells 2014.09.14 Tours, France

5. Bhingare AC, Ohno T, Tomura M, Zhang C, Azuma M. Demonstration of dental pulp DC migration to regional Lymph nodes using photoconvertible fluorescent protein transduced mice. 13th International Symposium on Dendritic cells 2014.09.14 Tours, France

6. Ohno T, Kondo Y, Zhang C, Azuma M. T cell-dependent and –independent regulatory roles of a new inhibitory molecule VISTA. 13th International Symposium on Dendritic cells 2014.09.14 Tours, France

7. Sunthamala N, Pientong C, Kongyingyoes B, Thierry F, Azuma M, Ekalaksananan T. 29th HPV16E2 protein modulates host gene transcription and promotes immunosuppressive status in tumor microenvironment. HPV 2014 2014.09.20 Seattle, USA

8. Kang S, Ohno T, Azuma M. Prickle cells in the dorsal surface of tongue and gingiva spontaneously express an immunoregulatory molecule CD274 (B7-H1). The 56th Annual Meeting of Japanese Association for Oral Biology 2014.09.25 Fukuoka,Japan

9. Yamada K, Nakamura M, Nagai S,Honda M, Aizawa M. Cellular Responses of Immune Cells Derived from Mouse Spleen to Hydroxyapatite Ceramics Surface-modified with Inositol Phosphate. The 24th Discussion Meeting of The Inorganic Phosphorus Chemistry held in Kochi 2014.09.25

10. Ohno T, Azuma M. T cell-dependent and -independent regulatory roles of a new inhibitory molecule VISTA . The 56th Annual Meeting of Japanese Association for Oral Biology 2014.09.25 Fukuoka,Japan

11. Yamada K, Nakamura M, Nagai S, Honda M, Aizawa M. Cellular Responses of Immune Cells Derived from Mouse Spleen to Hydroxyapatite Ceramics Surface-modified with Inositol Phosphate. 26th Symphosium and Annual Meeting of the International Society for Ceramics in Medicine 2014.11.06 Barcelona, Italy

12. Nagai S,Kurebayashi Y. Phosphorylation of Akt and Foxos induced by TGF-β negatively controls the differentiation of induced regulatory T cells. The 37th Annual Meeting of The Molecular Biology Society of Japan 2014.11.25

Advanced Biomaterials

Professor UO Motohiro
Associate Professor
HONGO Toshio
Assistant Professor
NAKAMURA Hideo
Assistant Professor
WADA Takahiro

(1) Research

1. Analysis of Dental and biomedical materials and biological tissue using the synchrotron radiation.
Research is aimed to apply the new analysis method using synchrotron radiation for the estimation of various properties of the dental and biomedical materials.

2. Development of the functional dental and biomedical materials using glass and ceramics.
Research is aimed to develop and evaluate the new glass and ceramics based materials as the dental and biomedical materials, e.g. composite resins, glass ionomer cements, dental porcelains and zirconia ceramics.

(2) Education

1. Lecture of unit "Biomaterials and Dental Materials"
A series of lectures on the "science on biomaterials", "properties of dental and biomedical materials", "application of dental materials" will be taught through the lecture and practice.
2. Lecture of unit "Advanced Biomaterials" (graduate school)
Evaluation methods of various dental and biomedical materials will be taught.

(3) Publications

[Original Articles]

1. Takahiro Wada, Naoyoshi Murata, Hiromitsu Uehara, Takuya Suzuki, Makoto Kobayashi, Yukari Okada, Yasuhiro Niwa, Hiroaki Nitani, Motohiro Uo, Kiyotaka Asakura. Micro XAFS Analysis of Micro Gas Sensor Photon Factory Activity Report 2013 PART B. 2014; 31; 109

2. Kanako Noritake, Shinji Kuroda, Myat Nyan, Yuji Atsuzawa, Motohiro Uo, Keiichi Ohya, Shohei Kasugai. Use of a gelatin hydrogel membrane containing β-tricalcium phosphate for guided bone regeneration enhances rapid bone formation. Dent Mater J. 2014; 33(5); 674-680

3. Chowdhury RU, Churei H, Takahashi H, Wada T, Uo M, Fukasawa S, Abe K, Shahrin S, Ueno T.. Combined analysis of shock absorption capability and force dispersion effect of mouthguard materials with different impact objects. Dental Materials Journal. 2014.08; 33(4); 551-556

4. Marie Saito, Manabu Kanazawa, Hidekazu Takahashi, Motohiro Uo, Shunsuke Minakuchi. Trend of change in retentive force for bar attachments with different materials. J Prosthet Dent. 2014.12; 112(6); 1545-1552

5. Tomoko Sugiyama, Motohiro Uo, Takahiro Wada, Toshio Hongo, Daisuke Omagari, Kazuo Komiyama, Hitoshi Sasaki, Heishichiro Takahashi, Mikio Kusama, Yoshiyuki Mori. Novel metal allergy patch test using metal nanoballs Journal of Nanobiotechnology. 2014.12; 12(51); 1-6

6. Maho Shiozawa, Hidekazu Takahashi, Naohiko Iwasaki, Takahiro Wada, Motohiro Uo. Effect of immersion time of restorative glass ionomer cements and immersion duration in calcium chloride solution on surface hardness. Dent Mater. 2014.12; 30(12); e377-e383

[Conference Activities & Talks]

1. Motohiro Uo, Takahiro Wada, Tomoko Sugiyama, Mikio Kusama, Daisuke Omagari, Kazuo Komiyama, Naoko Taniguchi, Takasi Inomata, Satoshi Konno, Masahiko Nishimura. Application of SR-XRF and XAFS for the trace element analysis contained in histopathological specimens. Synchrotron Radiation for Nano-medicine and Advanced Health Care 2014.01.09

2. Takahiro Wada, Naoyoshi Murata, Hiromitsu Uehara, Takuya Suzuki, Makoto Kobayashi, Yukari Okada, Yasuhiro Niwa, Hiroaki Nitani, Motohiro Uo, Kiyotaka Asakura. Analysis of Deactivated Micro Gas Sensor Using Micro XAFS. IMSS science festa 2013 2014.03.18 Ibaraki, Japan

3. Hongo T,Wada T,Uo M. Migration of aromatic amines from an autopolymerizing resin into food simulants. The 64th General Session of the Japanese Society for Dental Materials and Devices 2014.04.05 Hiroshima

4. Fukasawa S,Churei H,Wada T,Uo M,Takahashi H,Ueno T. Gluing acrylic soft denture liner to mouth guard sheet. 2014.04.12 Tokyo, JAPAN

5. Ueno T, Churei H,Fukasawa S, Wada T,Uo M,Takahashi H. Usefulness of a mobile tooth fixation adhesive material at temporary fixation in dental trauma. 2014.04.12 Tokyo, JAPAN

6. Hongo Toshio,Kawaguchi Minoru,Hirabayashi Shigeru,Wada Takahiro,Uo Motohiro. Literature research regarding human health effects of bisphenol A. The 63th General Session of the Japanese Society for Dental Materials and Devices 2014.04.13 Tokyo

7. Motohiro Uo, Tomoko Sugiyama, Yoshinori Jinbu, Mikio Kusama, Daisuke Omagari, Kazuo Komiyama, Noriyuki Takashi, Kanchu Tei. Distribution and chemical state analysis of eroded alloy elements from various dental alloys. 68th Annual Meeting of Japanese Stomatological Society 2014.05.08

8. Kiyotaka Asakura, Hua Huang, Takahiro Wada, Yui Haraguchi, Hiroko Ariga, S. Takakusagi. Precise control of the mesostructure of a $Sb_2O_4/VSbO_4$ catalysts prepared by electron beam lithography and their catalystic properties. The Seventh Tokyo Conference on Advanced Catalytic Science and Technology 2014.06.01 Kyoto, Japan

9. Hiroshi CHUREI, Takahiro WADA, Motohiro UO, Shintaro FUKASAWA, Ruman Uddin CHOWDHURY, Keisuke ABE, Takatoshi FUKUDA, Hidekazu TAKAHASHI, Toshiaki UENO. Effectiveness of the exterior cushioning materials in face guard. 2014.06.29 Osaka, JAPAN

10. Effect of ultraviolet surface treatment on bond strength between mouthguard sheet and dental silicone. 2014.06.29 Osaka, JAPAN

11. Ruman Uddin CHOWDHURY, Hiroshi CHUREI, Hidekazu TAKAHASHI, Takahiro WADA, Motohiro UO, Shintaro FUKASAWA, Keisuke ABE, Sharika SHAHRIN, Toshiaki UENO. Combined analysis of shock absorption capability and disperse force of mouthguard material. 2014.06.29 Osaka, JAPAN

12. Motohiro Uo, Tomoko Sugiyama, Takahiro Wada. Application of synchrotron radiation X-ray fluorescence (SR-XRF) for the detection of the trace elements contained in human tissues. Biometals 2014 2014.07.14

13. Fukasawa S,Churei H,Wada T,Uo M,Takahashi H,Ueno T . Effect of ultraviolet surface treatment and application of primers on bond strength between mouthguard sheet and dental silicone. 2014.10.04 Hiroshima, JAPAN

14. Takahiro Wada, Hiroshi Churei, Toshiaki Ueno, Toshio Hongo, Motohiro Uo. Application of super soft elastomer to face guard cushioning material. The 64th General Session of the Japanese Society for Dental Materials and Devices 2014.10.04 Hiroshima, Japan

15. Mechanical properties of super engineering plastic made orthodontic wires. 2014.10.19

16. Takahiro Wada, Hiroshi Churei, Toshiaki Ueno, Toshio Hongo, Motohiro Uo. Application study of soft elastomer for face guard cushioning materials. 2014.12.06

17. Takahiro Wada. Chemical State Analysis of Calcium on MDP/tooth Interface using XAFS. The 33th Annual Meeting of Japan Society for Adhesive Dentistry 2014.12.13 Kobe, Japan

Diagnostic Oral Pathology

Associate Professor Toshiyuki IZUMO
Visiting Lecturer Yasuo YAGISHITA, Yasumasa MORI
Hospital Stuff Yuka HIROTA,
Yuuichi YAMADA, Kiyoko NAGUMO,
Kana NANBA, Akiko ASANO,
Mayuko MINAMI, Yukiko Kuroki

(1) Outline

Diagnostic oral pathology is a branch of pathology which studies human pathology, and aims at practice and development of the oral science as clinical medicine. The main object is to bring up graduate students and post-doctoral residents for pathology specialist to the great oral pathologists through the lecture of surgical pathology and pathology diagnosis and research instruction of oral and general diseases for the time being.

(2) Research

Research Subjects
1) Surgical pathology of oral cancer.
2) New diagnostic approach and reconstruction of oral diseases.

(3) Clinical Services & Other Works

Diagnostic oral pathology is playing three roles, pathological diagnosis (3,200 cases in a year), clinical laboratory (205,000 tests in a year) which consist of hematological, biochemical, bacteriological, physiological and pathological parts, and blood transfusion (100 cases in a year) in the dental hospital.

(4) Publications

[Original Articles]

1. Uzawa N, Suzuki M, Miura C, Tomomatsu N, Izumo T,. Primary ameloblastic carcinoma of the maxilla: A case report and literature review. Oncology Letters.. 2014;

2. The Working Committee for New Histopathological Criteria for Borderline Malignancies of the Oral Mucosa, the Japanese Society of Oral Pathology (JSOP).. Carcinoma in-situ of the oral mucosa: Its pathological diagnostic concept based on the recognition of histological varieties proposed in the JSOP Oral CIS Catalog. J Oral and Maxillofacial Surgery, Medicine, and Pathology . 2014; 26; 397-406

3. Sakamoto T, Konishi F, Yoshida T, Yoshinaga Y, Izumo T, LeforA. . Adeno- carcinoma arising from an anal gland - Report of a case. Int J Surg Case Rep.. 2014; 5(5); 234-236

Organic Biomaterials

Professor:Nobuhiko YUI
Assistant Professor:Ji-Hun SEO
Assistant Professor:Atsushi TAMURA
Secretary:Nanae NISHI

(1) Research

1. Design of Dynamic Biomaterials Surfaces
Biomaterials surfaces with dynamic properties are designed by utilizing a molecularly movable architecture of polyrotaxanes, and examined their effects on a variety of interactions with living body.

2. Modulation of Cellular Functions by Dynamic Ligand-Polymers
Biologically active ligands are introduced into cyclic molecules in polyrotaxanes, and examined the effects of their movability on multivalent interactions with receptor proteins and the subsequent events including intracellular metabolisms.

3. Modulation of Cellular Functions by Complexation of Intracellular Functional Supermolecules with Biomolecules
Cytocleavable polyrotaxanes to form complexes with biomolecules such as nucleic acid and protein are designed and their cellular functions are evaluated.

4. Cytocleavable Polyrotaxanes as Molecular Therapeutics for Congenital Metabolic disorders
Cyclodextrins released from cytocleavable polyrotaxanes specifically at lysosomes are effective to reduce excess cholesterol accumulation in lysosomes as well as ameroliate impaired autophagy in lysosomal disorders.

(2) Publications

[Original Articles]

1. Heejin Kim, Wonmin Choi, Seonju Lee, Sooyeol Kim, Jiyeon Ham, Ji-Hun Seo, Sangmok Jang, Yan Lee. Synthesis of biomembrane-mimic polymers with various phospholipid head groups. Polymer. 2014; in press;

2. Nanako Yokoyama, Ji-Hun Seo, Atsushi Tamura, Yoshihiro Sasaki, Nobuhiko Yui. Tailoring supramolecular structure of aminated polyrotaxanes directed toward enhancing cellular internalization. Macromol. Biosci.. 2014.01; 14; 359-368

3. S. Hama, Y. Kimura, A. Mikami, K. Shiota, H. Tsuchiya, A. Tamura, Y. Nagasaki, K. Kanayama, K. Kigasawa, K. Kajimoto, K. Kogure. Imperceptible electric stimulus opens intracellular spaces in skin. J. Biol. Chem.. 2014.01; 289(4); 2450-2456

4. A. Tamura, N. Yui. Lysosomal-specific cholesterol reduction by biocleavable polyrotaxanes for ameliorating Niemann-Pick type C disease. Sci. Rep.. 2014.03; 4; 4356

5. N. Yokoyama, J.-H. Seo, A. Tamura, Y. Sasaki, N. Yui. Tailoring the supramolecular structure of aminated polyrotaxanes toward enhanced cellular internalization. Macromol. Biosci.. 2014.03; 14(3); 359-368

6. A. Tamura, M. Tokunaga, Y. Iwasaki, N. Yui. Spontaneous assembly into pseudopolyrotaxane between cyclodextrins and biodegradable polyphosphoester ionomers. Macromol. Chem. Phys.. 2014.04; 215(7); 648-653

7. A. Tamura, H. Tanaka, N. Yui.. Supramolecular flower micelle formation of polyrotaxane-containing triblock copolymers prepared from macro-chain transfer agent bearing molecular hooks. Polymer Chemistry. 2014.05; 5(15); 4511-4520

8. K. Nam, J.-H. Seo, T. Kimura, N. Yui, A. Kishida.. Relationship between molecular mobility, fibrillogenesis of collagen molecules, and inflammatory response: an experimental study in vitro and in vivo. Journal of Colloid and Interface Science. 2014.07; 433(1); 16-25

9. A. Tamura, H. Tanaka, N. Yui. Supramolecular flower micelle formation of polyrotaxane-containing triblock copolymers prepared from macro-chain transfer agents bearing molecular hooks. Polym. Chem.. 2014.08; 5(15); 4511-4520

10. Ji-Hun Seo, Sachiro Kakinoki, Tetsuji Yamaoka, Nobuhiko Yui. Directing stem cell differentiation by changing the molecular mobility of supramolecular surfaces Adv. Healthcare Mater.. 2014.09; in press;

11. Ji Ung Park, Jiyeon Ham, Sukwha Kim, Ji-Hun Seo, Sang-Hyon Kim, Seonju Lee, Hye Jeong Min, Sunghyun Choi, Ra Mi Choi, Heejin Kim, Sohee Oh, Ji An Hur, Tae Hyun Choi, Yan Lee. Alleviation of capsular formations on silicone implants in rats using biomembrane-mimic coatings Acta Biomater.. 2014.09; 10; 4217-4225

12. Kwangwoo Nam, Ji-Hun Seo, Tsuyoshi Kimura, Nobuhiko Yui, Akio Kishida. Relationship between molecular mobility, fibrillogenesis of collagen molecules, and inflammatory response: an experimental study in vitro and in vivo J. Colloid. Interf. Sci.. 2014.10; 433; 16-25

13. Ji-Hun Seo, Shino Nakagawa, Koichiro Hirata, Nobuhiko Yui. Synthesis of resin monomer-soluble polyrotaxane crosslinker containing cleavable end-groups Beilstein J. Org. Chem.. 2014.11; 10; 2623-2629

14. J.-H. Seo, S. Nakagawa, K. Hirata, N. Yui.. Synthesis of a resin monomer-soluble polyrotaxane crosslinker containing cleavable end groups. Beilstein Journal of Organic Chemistry. 2014.11; 10; 2623-2629

[Misc]

1. A. Tamura, N. Yui. Threaded macromolecules as a versatile framework for biomaterials. Chem. Commun.. 2014.11; 50(88); 13433-13446

[Conference Activities & Talks]

1. N. Yui. Significance of supramolecular frames of CD-based polyrotaxanes as biomaterials: extracellular and intracellular approaches.. The 17th International Cyclodextrin Symposium 2014.05.31 Saarbrucken, Germany

2. Tamura, N. Yui.. Lysosomal CD release from biocleavable polyrotaxanes directed toward ameliorating lysosomal storage disorders.. The 17th International Cyclodextrin Symposium 2014.05.31 Saarbrucken, Germany

3. N. Yui. Designing cytocleavable polyrotaxanes as a vehicle for molecular logistics of biomacromolecular delivery into target cells.. The 6th Forum on New Materials 2014.06.19 Montecatini Terme, Italy

4. J.-H. Seo, S. Kakinoki, T. Yamaoka, N. Yui.. Regulation of mesenchymal stem cell differentiation by changing the molecular structure of supramolecular surfaces.. 26th Annual Conference of the European Society for Biomaterial 2014.08.31 Liverpool, UK

5. N. Yui. Directing cell fate by surface molecular mobility of supramolecular biomaterials.. JSPS A3 Foresight International Symposium on Nano-Biomaterials and Regenerative Medicine 2014.10.08 Tokyo, Japan

6. A. Tamura, N. Yui.. Polyrotaxanes ameliorate impaired autophagy flux in lysosomal storage disorders.. JSPS A3 Foresight International Symposium on Nano-Biomaterials and Regenerative Medicine 2014.10.08 Tokyo, Japan

7. N. Yui. Supramolecular Biomaterials exploit new paradigm of modulating cellular functions.. 2014 Annual Meeting of the Korean Society for Biomaterials 2014.11.06 Seoul, Korea

8. A. Tamura, N. Yui.. Biocleavable cyclodextrin-based polyrotaxanes for the therapy of lysosomal storage disorders.. The 10th International Polymer Conferences 2014.12.05 Tsukuba, Japan

[Awards & Honors]

1. Japanese Government Scholarship, 2005-2010

Functional Material

Tsuyoshi KIMURA
Naoko NAKAMURA
Mitsuki UEKI

(1) Research

1) Decellularization of native tissue for regenerative medicine
In order to obtain a novel scaffold, which can be applied for regenerative tissue, ultra-high pressurization method was developed for the complete elimination of the cells and inactivation of the viruses.
2) Inducing molecular aggregation using ultra-high pressurization
The basic and applied science on molecular aggregation triggered by hydrogen bonding at over 6,000 atm is studied. This technique is being applied for hybridization of DNA with polymer for drug delivery system.
3) Bio-interface
To investigate how the materials interact with biological cues such as phospholipids, proteins, or cells, precisely controlled surface via atomic transfer radical polymerization was prepared. The basic research on physical and biological properties of this surface is being investigated.
4) Specific capture of Treg cells
In order to remove Treg cells, which induce immunotolerance, a device of capturing of Treg cells is developed.

(2) Education

In order to develop technology, which may contribute to the advance in the medical science, lectures on functional molecules from basic to advanced knowledge on molecular design for specific purpose, mainly concentrated on medical application would be executed. Theories on functional molecules and overviews on medical system would be lectured in Graduate School of Medical and Dental Sciences. Students would have chances to learn about Genomics and Bio-intelligent system in Graduate School of Biomedical Science.

(3) Clinical Services & Other Works

The development of functional molecules can provide novel materials for the clinical application such as blood vessel, cornea, skin, or bone. Unlike the conventional materials which have been used in clinics so far, it would be possible to promote or suppress specific biological response using functionalized materials. Furthermore, the screening essential drug compound for certain purpose, it would help the patients to be treated with higher efficiency and less pain.

(4) Publications

[Original Articles]

1. Naoko Nakamura, Kiriko Sugano, Kwangwoo Nam, Tsuyoshi Kimura, Toshiya Fujisato, Akio Kishida. A Basic Study of Osteogenesis between Decellularized Cortical Bone Pieces for Bone Graft Construction Advanced Biomedical Engineering. 2014.01; 2; 95-100

2. Rie Matsushima, Kwangwoo Nam, Yukiko Shimatsu, Tsuyoshi Kimura, Toshiya Fujisato, Akio Kishida. Decellularized dermis-polymer complex provides a platform for soft-to-hard tissue interfaces. Mater Sci Eng C Mater Biol Appl. 2014.02; 35; 354-362

3. Yuki Nagaoka, Hiroshi Yamada, Tsuyoshi Kimura, Akio Kishida, Toshiya Fujisato, Kazuo Takakuda. Reconstruction of small diameter arteries using decellularized vascular scaffolds. J Med Dent Sci. 2014.03; 61(1); 33-40

4. Jun Negishi, Yoshihide Hashimoto, Kwangwoo Nam, Tsuyoshi Kimura, Seiichi Funamoto, Akio Kishida. Application of a vacuum pressure impregnation technique for rehydrating decellularized tissues. Tissue Eng Part C Methods. 2014.09; 20(9); 724-730

5. Jun Negishi, Kwangwoo Nam, Tsuyoshi Kimura, Yoshihide Hashimoto, Seiichi Funamoto, Tetsuya Higami, Toshiya Fujisato, Akio Kishida. Fabrication of a heparin-PVA complex hydrogel for application as a vascular access. J Biomed Mater Res B Appl Biomater. 2014.10; 102(7); 1426-1433

6. Ping Li Wu, Tsuyoshi Kimura, Hiroko Tadokoro, Kwangwoo Nam, Toshiya Fujisato, Akio Kishida. Relation between the tissue structure and protein permeability of decellularized porcine aorta. Mater Sci Eng C Mater Biol Appl. 2014.10; 43; 465-471

7. Tsuyoshi Kimura, Akira Okuno, Yuichi Ohya, Akio Kishida. Assembly of poly(vinyl alcohol) and DNA via Hydrogen Bonds Induced by High Hydrostatic Pressurization Sensors and Materials. 2014.10; 26(8); 607-614

8. Kwangwoo Nam, Takuya Iwata, Tsuyoshi Kimura, Hiroki Ikake, Shigeru Shimizu, Toru Masuzawa, Akio Kishida. Adhesion Between Polymer Surface Modified by Graft Polymerization and Tissue During Surgery Using an Ultrasonically Activated Scalpel Device Journal of Applied Polymer Science . 2014.10; 131(20);

9. Kwangwoo Nam, Yukiko shimatsu, Rie Matsushima, Tsuyoshi Kimura, Akio Kishida. In-situ polymerization of PMMA inside decellularized dermis using UV photopolymerization European Polymer Journal. 2014.11; 60; 163-171

10. Kwangwoo Nam, Ji-Hun Seo, Tsuyoshi Kimura, Nobuhiko Yui, Akio Kishida. Relationships between molecular mobility, fibrillogenesis of collagen molecules, and the inflammatory response: An experimental study in vitro and in vivo Journal of Colloid and Interface Science . 2014.11; 433; 16-25

11. Kwangwoo Nam, Rie Matsushima, Tsuyoshi Kimura, Toshiya Fujisato, Akio Kishida. In vivo characterization of a decellularized dermis-polymer complex for use in percutaneous devices. Artif Organs. 2014.12; 38(12); 1060-1065

[Misc]

1. Aki Matsuhashi, Kwangwoo Nam, Tsuyoshi Kimura, Akio Kishida. Fundamental study on controlling preparative condisition of fibrillized collagen microsphere resembling the extracellular matrix mcrostructure Annual Reports of the Institute of Biomaterials and Bioengineering. 2014.12; 48; 17-21

Oral Radiation Oncology

Professor	Masahiko MIURA
Assistant Prifessor	Atsushi KAIDA
Graduate Students	Tatsuki GOTOU
	Chisato YAMADA
	Eri TSUCHIDA
	Kouhei OKUYAMA
	Hiroyuki ONOZATO
Special Reserch Student	Taito ASAHINA
Graduate International Reserch Student	Nisha GOWRI MANILA

(1) Outline

Main objective of this branch is to provide opportunities to study radiation oncology for oral cancer and translational research for radiosensitization of oral cancer.

(2) Research

1) Visualization of tumor radioresponse by moleculr imaging
2) Radiosensitization mechanism by novel anti- microtubule agents
3) Radioresistant signal transduction pathways
4) Radiotherapy for oral cancer

(3) Education

Oral Radiation Oncology is a branch of radiation oncology dealing with basic radiobiology, translational research, and radiotherapy for oral cancer. Main objective of this branch in the graduate course is to provide opportunities to study biological strategies for radiosensitization, development of radiosensitizers, molecular mechanism of tumor radioresistance, the state of the art technology of radiotherapy, and basis of individualized radiotherapy depending on each student' s research projects.

(4) Lectures & Courses

The educational policy is to cultivate researchers to be able to extract problems and to work out solutions to them.

(5) Clinical Services & Other Works

Oral Radiation Oncology clinic provides radiotherapeutic treatment for head and neck cancer patients, especially brachytherapy for oral cancer, in cooperation with Diagnostic and Therapeutic Radiology clinic in the Medical Hospital.

(6) Clinical Performances

We are performing brachytherapy for oral cancer, which is now the only treatment modality without surgical excision, as a center institution in Japan.

(7) Publications

[Original Articles]

1. Kamrun Nahar, Tatsuaki Goto, Atsushi Kaida, Shifumi Deguchi, Masahiko Miura. Effects of Chk1 inhibition on the temporal duration of radiation-induced G2 arrest in HeLa cells. Journal of Radiation Research. 2014.06; 55(5); 1021-1027

2. Yoshiki Hayashi, Haruka Takeno, Takumi Chinen, Kyohei Muguruma, Kohei Okuyama, Akihiro Taguchi, Kentaro Takayama, Fumika Yakushiji, Masahiko Miura, Takeo Usui, Yoshio Hayashi. Development of a new benzophenone-diketopiperazine-type potent antimicrotubule agent possessing a 2-pyridine structure. ACS Med Chem Lett. 2014.10; 5(10); 1094-1098

3. Eslami A, Miyaguchi K, Mogushi K, Watanabe H, Okada N, Shibuya H, Mizushima H, Miura M, Tanaka H.. PARVB overexertion increased cell migration capability and defines high risk for endophytic growth and metastasis in tongue squamous cell carcinoma. British Journal of Cancer. 2014.11; 112(2); 338-344

Oral and Maxillofacial Surgery

Associate Professor Hiroyuki HARADA
Junior Associate Professor Yuji KABASAWA, Eriko MARUKAWA
Assistant Professor Minoru IKUTA, Hiroaki SHIMAMOTO,
Fumihiko TSUSHIMA, Kae TANAKA,
Hirofumi TOMIOKA, Hideaki HIRAI
Project Junior Associate Professor Keiichi MORITA

Graduate Student
Namiaki TAKAHARA, Seiichiro ODA, Dilruba AKTER, Yu OIKAWA,
Yusuke ONOZATO, Toru TAKEMOTO, Yuko YAMAGATA, Naoto NISHII

(1) Outline

Purpose of Education
The program is designed for acquiring the broad knowledge and basic skills of oral and maxillofacial surgery, mainly concerning the diagnostic procedure, treatment technique and the perioperative patient care. Also throughout the professional education, we promote the system in which each graduate student can select his or her special field in the full scope of oral and maxillofacial surgery in the future.

Research Subjects
1) Development of multidisciplinary treatment of oral cancer.
2) Clinical study on sentinel node navigation surgery for oral cancer.
3) Study on molecular markers for lymph node metastasis of oral cancer.
4) Clinical study on skeletal and dental changes after distraction osteogenesis in patients with cleft lip and palate.
5) Clinical study on maxillomandibular skeletal and dental changes after orthognatic surgery.
6) Study on neurosensory disturbances using the heat flux technique.
7) Clinical study on pre-surgical nasoalveolar molding in patients with cleft lip and palate.
8) Clinical study on alveolar bone grafting with platelet rich plasma.
9) Multidisciplinary treatment of temporomandibular disorders.
10) Clinical and experimental studies on bone regeneration using β-TCP and/or platelet rich plasma.
11) Development of multidisciplinary treatment of oral mucosal diseases.

Clinical Services
The Oral and Maxillofacial Surgery Clinic examines yearly more than 6,200 new patients with various diseases arising in oral and maxillofacial regions. The clinic has diplomat of the Japanese Society of Oral and Maxillofacial Surgeons and accepts many referrals from dentists and medical doctors. We provide a full range of services including extractions, removal of wisdom teeth and management of facial trauma, jawbone defect, facial deformity, temporomandibular joint disease, cleft lip and palate, oral mucosal disease, and benign and malignant tumors. The special outpatient clinics are organized by the specialists to offer the best service, especially for patients with malignant tumor, temporomandibular joint disease, cleft lip and palate, facial deformity and oral mucosal disease which need high degree of specialty and long term follow up. We also prepare some groups for inpatients with an emphasis on specialties, to provide the recent and advanced treatment.

(2) Publications

[Original Articles]

1. Rushatamukayanunt Pradit, Morita Kei-ichi, Matsukawa Sho, Harada Hiroyuki, Shimamoto Hiroaki, Tomioka Hirofumi, Omura Ken. Lack of association between high-risk human papillomaviruses and oral squamous cell carcinoma in young Japanese patients. Asian Pac J Cancer Prev. 2014; 15(10); 4135-4141

2. Kudoh Masanori, Harada Hiroyuki, Sato Yuriko, Omura Ken, Ishii Yoshimasa. A case of Basal cell adenoma of the upper lip. Case Rep Med. 2014; 2014; 795356

3. Yamamoto S, Inoue J, Kawano T, Kozaki K, Omura K, Inazawa J. The Impact of miRNA-Based Molecular Diagnostics and Treatment of NRF2-Stabilized Tumors. Mol Cancer Res. 2014.01; 12(1); 58-68

4. Matsumoto Kanako, Morita Kei-Ichi, Jinno Shigeharu, Omura Ken. Sensory changes after tongue reduction for macroglossia. Oral Surg Oral Med Oral Pathol Oral Radiol. 2014.01; 117(1); e1-e2

5. Hatakeyama Ichiro, Marukawa Eriko, Takahashi Yukinobu, Omura Ken. Effects of platelet-poor plasma, platelet-rich plasma, and platelet-rich fibrin on healing of extraction sockets with buccal dehiscence in dogs. Tissue Eng Part A. 2014.02; 20(3-4); 874-882

6. Matsukawa Sho, Morita Kei-ichi, Negishi Ayako, Harada Hiroyuki, Nakajima Yusuke, Shimamoto Hiroaki, Tomioka Hirofumi, Tanaka Kae, Ono Masaya, Yamada Tesshi, Omura Ken. Galectin-7 as a potential predictive marker of chemo- and/or radio-therapy resistance in oral squamous cell carcinoma. Cancer Med. 2014.04; 3(2); 349-361

7. Omura Ken. Current status of oral cancer treatment strategies: surgical treatments for oral squamous cell carcinoma. Int J Clin Oncol. 2014.06; 19(3); 423-430

8. Sakamoto Kei, Morita Kei-Ichi, Shimada Yasuyuki, Omura Ken, Izumo Toshiyuki, Yamaguchi Akira. Peripheral odontogenic keratocyst associated with nevoid basal cell carcinoma syndrome: a case report. Oral Surg Oral Med Oral Pathol Oral Radiol. 2014.07; 118(1); e19-e23

9. Kimura Atsushi. Kabasawa Yuji. Tabata Yasuhiko. Aoki Kazuhiro. Ohya Keiichi. Omura Ken.. Gelatin hydrogel as a carrier of recombinant human fibroblast growth factor-2 during rat mandibular distraction. J. Oral Maxillofac. Surg.. 2014.10; 72(10); 2015-2031

10. Namiaki Takahara, Hideki Imai, Satoshi Nakagawa, Kanako Sumikura, Fumihiko Tsushima, Ken Omura. Temporomandibular joint intermittent closed lock: clinic and magnetic resonance imaging findings. Oral Surg Oral Med Oral Pathol Oral Radiol. 2014.10; 118(4); 418-423

11. Mochizuki Yumi, Omura Ken, Harada Hiroyuki, Marukawa Eriko, Shimamoto Hiroaki, Tomioka Hirofumi. Functional outcomes with dental prosthesis following simultaneous mandibulectomy and mandibular bone reconstruction. J Prosthodont Res. 2014.10; 58(4); 259-266

12. Kudoh Masanori, Harada Hiroyuki, Matsumoto Koshi, Sato Yuriko, Omura Ken, Ishii Yoshimasa. Methotrexate-associated lymphoproliferative disorder arising in the retromolar triangle and lung of a patient with rheumatoid arthritis. Oral Surg Oral Med Oral Pathol Oral Radiol. 2014.10; 118(4); e105-e110

13. Shirakawa Jumpei, Ezura Yoichi, Moriya Shuichi, Kawasaki Makiri, Yamada Takayuki, Notomi Takuya, Nakamoto Tetsuya, Hayata Tadayoshi, Miyawaki Atsushi, Omura Ken, Noda Masaki. Migration linked to FUCCI-indicated cell cycle is controlled by PTH and mechanical stress. J Cell Physiol. 2014.10; 229(10); 1353-1358

14. Mochizuki Yumi, Omura Ken, Harada Hiroyuki, Marukawa Eriko, Shimamoto Hiroaki, Tomioka Hirofumi. Functional outcomes and patient satisfaction after vascularized osteocutaneous scapula flap reconstruction of the mandible in patients with benign or cancerous tumours. Int J Oral Maxillofac Surg. 2014.11; 43(11); 1330-1338

15. Haobam Bijaya, Nozawa Takashi, Minowa-Nozawa Atsuko, Tanaka Misako, Oda Seiichiro, Watanabe Takayasu, Aikawa Chihiro, Maruyama Fumito, Nakagawa Ichiro. Rab17-mediated recycling endosomes contribute to autophagosome formation in response to Group A Streptococcus invasion. Cell Microbiol. 2014.12; 16(12); 1806-1821

[Conference Activities & Talks]

1. Oda S, Sakurai J, Tsushima F, Sato M, Uesugi A, Matsumoto K, Omura K. The Long-Term Outcome Of OLP, Patterns of Remission and Relapse. 2014 Joint Oral Medicine Meeting April 9-12, 2014 2014.04.09 Orland

2. Matsumoto K, Tsushima F, Sakurai J, Sato M, Uesugi A, Oda S, Omura K. Oral lichen planus: a retrospective study of 416 Japanese patients. 2014 Joint Oral Medicine Meeting April 9-12, 2014 2014.04.09 Orland

3. Marukawa E, Tamai M, Takahashi Y, Hatakeyama I, Sato M, Higuchi Y, Harada H, Omura K. Comparison of magnesium alloy and poly-L-lactide screws as degradable implant in canine fracture model. 6th Symposium on Biodegradable Metals. August 24-29, 2014 2014.08.24 Maratea, Italy.

4. Kudoh M, Harada H, Sato Y, Omura K, Ishii Y. Massive odontoameloblastoma arising in the maxilla. 96th AAOMS Annual Meeting, Scientific Sessions and Exhibition September 8-13, 2014 2014.09.08 Honolulu

5. Kimura A, Kabasawa Y, Sato M, Takahara N, Matsumoto K, Higuchi Y, Tabata Y, Aoki K, Ohya K, Omura K. The feasibility of gelatin hydrogel as a carrier of basic fibroblast growth factor for bone formation in rat mandibular distraction. The 22nd Congress of the European Association for Cranio-Maxillo-Facial Surgery September 23-26, 2014 2014.09.23 Prague

6. Tanaka K, Taguchi T, Mochizuki H, Tomioka H, Shimamoto H, Ikuta M, Harada H, Bertolus C, Goudot P, Omura K. A clinical study on 74 cases of salivary gland carcinoma. The 22nd Congress of the European Association for Cranio-Maxillo-Facial Surgery September 23-26, 2014 2014.09.23 Prague

7. Marukawa E, Hatakeyama I, Takahashi Y, Omura K. Effects of Platelet-Poor Plasma, Platelet-Rich Plasma, and Platelet-Rich Fibrin on healing of extraction sockets with buccal dehiscence in dogs. 23rd The European Association for Osseointegration September 25-27, 2014 2014.09.25 Rome, Italy

8. Haraguchi M, Yamashiro M, Sumita YI, Mizutani M, Michi Y, Tachikawa N, Kasugai S, Harada H, Harada K, Taniguchi H. Impact factors for chewing function in maxillectomy patients. The 38th annual conference of the European prosthodontic association and 21st scientific congress of the Turkish prosthodontic and implantology association 2014.09.26 Istanbul, Turkey

Oral and Maxillofacial Radiology

Professor: Tohru KURABAYASHI
Associate Professor: Hiroshi WATANABE
Junior Associate Professor: Naoto OHBAYASHI, Norio YOSHINO
Assistant Professor: Akemi TETSUMURA, Shin NAKAMURA, Ami KURIBAYASHI, Junichiro SAKAMOTO
Hospital Staff: Yoshikazu NOMURA, Takanobu ARAGAKI, Akihiko MACHIDA
Graduate Student: Kretapirom KORNKAMOL, Akira TAKAHASHI, Madoka SUZUKI, Yoshihiro OZAKI, Lam Dai PHONG, Shinya KOTAKI, Ngamsom SUPAK, Hiroko ISHII, Chutamas DEEPHO
Research Student: Sakurako ASAI
Secretary: Izumi MOTOHASHI

(1) Research

1) Diagnosis of maxillofacial diseases by CT, MRI and PET imaging
2) Advantages of cone-beam CT for clinical dentistry
3) Development of high resolution MRI technology.
4) Novel MRI techniques for TMJ disorders.
5) Factors determining radioresistance of oral and maxillofacial cancers.

(2) Lectures & Courses

Oral and maxillofacial radiology is a branch of dental science which deals with the effective application of radiation energy to the diagnosis and treatment of oral and maxillofacial diseases. Main objective of oral and maxillofacial radiology in the graduate course is to provide students opportunity to study advanced imaging modalities including digital imaging, cone-beam CT, multi-detector row CT and MRI, and also to study image processing and image analysis technology. Students are also taught on basic radiation oncology and its related laboratory technology depending on their research project.

(3) Clinical Services & Other Works

Oral and maxillofacial radiology clinic provides a full spectrum of imaging examinations and diagnosis, including CT and MRI. Non-invasive, interventional radiology for patients with salivary gland stone is also performed in the clinic.

(4) Publications

[Original Articles]

1. Kawakubo N, Miyamoto JJ, Katsuyama N, Ono T, Honda E, Kurabayashi T, Taira M, Moroyama K.. Effects of cortical activations on enhancement of handgrip force during teeth clenching: An fMRI study. Neurosci Res.. 2014; 79; 67-75

2. Kamio T, Imaizumi A, Nishikawa K, Shibui T, Inoue K, Matsuzaka K, Sakamoto J, Sano T. Utility of preoperative imaging diagnosis for a malignant tumor of the mandible: a malignant tumor of the mandible

is difficult to discriminate from bisphosphonate-related osteonecrosis of the jaw. Oral Radiol. 2014; 30; 236-242

3. Imaizumi A, Sasaki Y, Sakamoto J, Kamio T, Nishikawa K, Otonari-Yamamoto M, Wako M. Effects of compression force on elasticity index and elasticity ratio in ultrasound elastography Dentomaxillofac Radiol. 2014; 43(4); 20130392

4. Kodama S, Otonari-Yamamoto M, Sano T, Sakamoto J, Imoto K, Wakoh M. Signal intensity on fluid-attenuated inversion recovery images of condylar marrow changes correspond with slight pain in patients with temporomandibular joint disorders. Oral Radiol. 2014; 30(3); 212-218

5. Wakoh M, Sakamoto J, Kamio T, Imaizumi A, Otonari-Yamamoto M, Sano T, Matsuzaka K. A case of myoepithelioma emerging in the buccal region: verification of the primary site based on magnetic resonance imaging, computed tomography, histopathological, and anatomical findings. Oral Radiol. 2014; 30(1); 123-128

6. Aragaki T, Michi Y, Nakamura S, Toriihara A, Kayamori K, Harada K, Kurabayashi T. A Case of Oral Squamous Cell Carcinoma with Scattered Metastases. Open Journal of Radiology. 2014.04; 4; 270-274

7. Shiozaki F, Fukami K, Kuribayashi A, Shimoda S, Kobayashi K.. Mandibular lingual canals distribute to the dental crypts in prenatal stage. Surg Radiol Anat. 2014.07; 36(5); 447-453

8. Fujioka T, Toriihara A, Kubota K, Machida Y, Nakamura S, KIshimoto S, Ohashi I, Shibuya H. Long-term follow-up using 18F-FDG PET/CT for postoperative olfactory neuroblastoma Nuclear medicine communications. 2014.08; 35; 857-863

9. Nomura Y, Watanabe H, Kamiyama Y, Kurabayashi T. Physical quality evaluation of voxel values in cone-beam computed tomography for dental use: three-dimensional fluctuation of voxel values in uniform materials placed inside a phantom Oral Radiol. 2014.09; 30(3); 226-235

10. Sakamoto J, Imaizumi A, Sasaki Y, Kamio T, Wakoh M, Otonari-Yamamoto M, Sano T. Comparison of accuracy of intravoxel incoherent motion and apparent diffusion coefficient techniques for predicting malignancy of head and neck tumors using half-Fourier single-shot turbo spin-echo diffusion-weighted imaging. Magn Reson Imaging. 2014.09; 32(7); 860-866

11. Eslami A, Miyaguchi K, Mogushi K, Watanabe H, Okada N, Shibuya H, Mizushima H, Miura M, Tanaka H.. PARVB overexertion increased cell migration capability and defines high risk for endophytic growth and metastasis in tongue squamous cell carcinoma. British Journal of Cancer. 2014.11; 112(2); 338-344

[Conference Activities & Talks]

1. Kurabayashi T. Imaging characteristics of odontogenic tumors. multilocular radiolucent lesions. International oral pathology workshop: update of jaw diseases, 36th Annual Scientific Conference on Dental Research and Continuing Education 2014.03.29 Ho-Chi-Minh City

2. Nakamura S. Imaging findings of bisphosphonate-related osteonecrosis of jaw (BRONJ). Updates on jaw diseases, 36th Annual Scientific Conference on Dental Research and Continuing Education 2014.03.29 Ho-Chi-Minh City

3. Nakamura S. PET/CT imaging for the head and neck tumor. 36th Annual Scientific Conference on Dental Research 2014.03.31 Ho-Chi-Minh city

4. Nakamura S, Kurabayashi T. The Prognostic Usefulness of FDG-PET/CT for Head and Neck Malignant Lymphoma Patients. The 10th Asian Congress of Oral and Maxillofacial Radiology 2014.11.20 Bali, Indonesia

5. Kotaki S, Sakamoto J, Kurabayashi T. The visualization and evaluation of healthy inferior alveolar nerve using diffusion tensor imagina and tractography . The 10th Asian Congress of Oral and Maxillofacial Radiology 2014.11.20 Bail, Indonesia

6. Watanabe H, Ozaki Y, Nomura Y, Honda E, Sumi Y, Kurabayashi T. Location dependency of the spatial resolution of cone-beam computed tomography for dental use. The 10th Asian Congress of Oral and Maxillofacial Radiology 2014.11.22 Bali, Indonesia

[Patents]

1. Method of Predicting Metastasis of Oral Cavity Cancer into Cervical Lymph Node and Diagnostic Kit to be used in the Prediction, Patent Number：8129122 United States Patent

Anesthesiology and Clinical Physiology

Professor
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Associate Professor
Hikaru Kohase(～ AUG),
Ryo Wakita（NOV ～）
Junior Associate Professor
Shigeharu Jinno
Assistant Professors
Fumihiro Yoshikawa(～ DEC),
Tomoyuki Miyamoto,
Ryo Wakita(～ OCT)
Hospital Staffs
Tomoka Matsumura(～ DEC),
Kiyoshi Kamiya(～ OCT),
Yukiko Baba,
Takuya Funayama,
Yuusuke Kuramoto,
Keiko Abe
Graduate Students
Tomoko Ebisawa,
Katsuhiro Matsumoto(～ MAR),
Takutoshi Inoue,
Joh Ishida(～ SEPT),
Kaeko Araki
Research Students
Tatsuya Harada
Secretary
Natsu Sato

(1) Outline

For safety and comfortable dentistry for both patients and dentists, educations, researches and clinical practices are performed in the department. Education includes basics and pracitices of local and general anesthesia, sedation, monitoring (monitored anesthesia care, MAC)in addition to cardio-pulmonary resuscitation, or, basic life support during dental treatment. Our researches are consisted of basic and clinical trials for the purposes. Many cases give us many chances to keep the patients safe and comfortable during local and general anesthesia. Local groups, such as dental associations, are welcomed to promote safe and comfortable dental treatments.

(2) Research

1) Non-invasive drug delivery system
2) New methods for local anesthesia in dentistry
3) Neuropathic pain in oral and maxillofacial regions
4) Diffuse noxious inhibitory control or controlled pain modulation

5) Sedation for dentistry

(3) Education

Anesthesia and anesthesiology for dentisry, which are not only local anesthesia but also general anesthesia are given to the both under and post graduate students. Lectures and trainings are consisted of local and general anesthesia, sedation and cardio-pulmonary-resuscitation (CPR), or, basic life support (BLS). For local anesthesia, the students learn mechanism of local anesthesia, local anesthetics, techniques and local and systemic comoplications due to local anesthesia. Physiology, biochemistry and pharmacology are also provided for general anesthesia which indludes possible mechanism of general anesthesia, anesthetics, muscle reluxants and what are used for general anesthesia. They also acquire the techniques of topical, infiltration and conductions anesthesia, nitrous oxide inhalation sedation and basic life support.

(4) Lectures & Courses

Anesthesia and anesthesiology for dentisry, which are not only local anesthesia but also general anesthesia are given to the both under and post graduate students. Lectures and trainings are consisted of local and general anesthesia, sedation and cardio-pulmonary-resuscitation (CPR), or, basic life support (BLS). For local anesthesia, the students learn mechanism of local anesthesia, local anesthetics, techniques and local and systemic comoplications due to local anesthesia. Physiology, biochemistry and pharmacology are also provided for general anesthesia which indludes possible mechanism of general anesthesia, anesthetics, muscle reluxants and what are used for general anesthesia. They also acquire the techniques of topical, infiltration and conductions anesthesia, nitrous oxide inhalation sedation and basic life support.

(5) Clinical Services & Other Works

Safe medical and perioperative mangements are give to the patients of our amulatory anesthesia service which has more than 2,000 cases per year and the central operation rooms which has 750 cases per year. Some difficult cases are referred to our hospital because of many clinical experiences.
Several cases that need emergency care also supported by our department. ER members are sometimes called in the medical hospital.
Local groups like dental associations often ask us to hold some lectures, trainings, workshops for safe dental treatment. These proposals are welcomed by our staffs. When intravenous sedation case are introduced, some responsible staff is sent to their own clinic.

(6) Clinical Performances

Any patient is welcomed, especially patients of oral surgery and implant operation who need special care using genearl anesthesia and sedation.
Referred patients from open practitioners are also accepted for safe and comfortable dental treatment.

(7) Publications

[Original Articles]

1. Funayama T, Ikeda Y, Tateno A, Takahashi H, Okubo Y, Fukayama H, Suzuki H. Modanifil augments brain activation associated with reward anticipation in the nucleus accumbens Psychopharmacology. 2014; doi10.1007/s00213-014-3449-0;

2. Ebisawa T, Nakajima A, Haida H, Wakita R, Ando S, Yoshioka T, Ikoma T, Tanaka J, Fukayama H. Evaluation of calcium alginate gel as electrode material for alternating current iontophoresis of lidocaine using excised rat skin J Med Dent Sci. 2014; 61; 41-48

3. Fujii KA, Umino M, Fukayama H, Kawahara H. Enhancement of analgesic effect by combination of non-noxious stimulation and noxious stimulation in humans Pain Medicine. 2014;

[Misc]

1. Ogami S, Yamada M, Kanazawa M, Takeda K, Kimura N, Mizutani H, Kohase H, Fukayama H. The effectiveness of a mouth guard to protect against strong occlusion caused by modified electroconvulsive therapy Dental Traumatology. 2014; 30(5); 368-373

[Conference Activities & Talks]

1. Fukayama H. Intravenous Sedation for Dental Implant. 34tn Myanmar Dental Conference & 15th FDI-MDA joint Educational Meeting 2014.01.23 Yangon,Myanmar

2. Hiromi Funayama,Takaaki Munemasa,Ryo Wakita,Haruhisa Fukayama,Yoshinobu Asada. new administration strategy to reduce the side effects of bisphosphonates using iontophoresis. Japanese Society of Pediatric Dentistry 2014.05.17 Tokyo

3. Y. Hemmi, T. Yoshioka, T. Ikoma, N. Ohashi, K. Matsumoto, T. Ebisawa, R. Wakita,H. Fukayama and J. Tanaka. Equivalent Circuit Analysis of an Iontophoresis Electrode/Rat Skin system. STAC8 2014.06.26 Yokohama

4. Fukayama H. Safe Management of Medically Compromised Patients. Mandalay Dental Conference 2014 2014.08.02 mandalay,Myanmar

5. Fukayama H. Safe Management of Medically Compromised Patients. Special Lecture for the undergraduates and house surgeons 2014.08.04 Yangon,Myanmar

6. Yasuka Kusumoto, Osamu Shinozuka, Haruhisa Fukayama. Prevention of postdental treatment infections in a patient with agammaglobulinaemia. Journal of Disability and Oral Health . 22nd Congress IADH 2014.10.02 Berlin

Orofacial Pain Management

Professor Masahiko SHIMADA
Assistant Professor Yoko YAMAZAKI
Hospital Staff Tomoko TAKAHASHI
Yuko ANDOH
Daisuke TOMIZAWA
Graduate Student Akitoshi HOSODA,
Hiroko IMURA
Nguyen Ho QUYNH ANH

(1) Outline

Orofacial Pain Management is a branch of dental science which deals with dental anesthesiology. Main objective of orofacial pain management in the graduate course is to provide students opportunity to study the pain, abnormal sensation, sensory paralysis, abnormal movement and motor paralysis in the orofacial area and the treatment for the patients of orofacial pain.

(2) Research

1)New Treatment methods for neuropathic pain
2)Analyses of abnormal orofacila pain
3)Study on Biological Response to Dental Interventions
4)Analyses and new treatment of dysgeusia

(3) Clinical Services & Other Works

Orofacial Pain Clinic is concerned with the pain, abnormal sensation, sensory paralysis, abnormal movement and motor paralysis. Management of orofacial pain clinic is pharmacotherapy, nerve block, stimulation of the pheripheral nerves including acupuncture and psychotherapies.

(4) Publications

[Original Articles]

1. Yumiko Tomoyasu, Hitoshi Higuchi, Megumi Mori, Kumiko Takaya, Yuka Honda, Ayaka Yamane, Akiko Yabuki, Tomoko Hayashi, Minako Ishii-Maruhama, Ayako Jinzenji, Shigeru Maeda, Atsushi Kohjitani, Masahiko Shimada, and Takuya Miyawaki. Chronic Orofacial Pain in Dental Patients: Retrospective Investigation over 12 Years Acta medica okayama. 2014; 68(5); 269-275

[Others]

1. Developmennto of the method of treatment for neuropathic pain- Basic study of the effect of iontoforesis , 2014

The study aimed to compare the effect of alternating iontophoresis(AC IOP)with direct current iontophoresis(DC IOP). As a result behavior and immunohistological experiment, DC IOP have fast onset time and a short effect time, while AC IOP have a slow onset time and a long effect time. According to the result of the blood cocentration of lidocaine, we confirmed that those effects were not caused by systemic administration of lidocaine. Additionally, those electrical powers we applied did not lead to extravascular of Evans Blue in the skins under the electrodes.
Thus, these finding of this study suggest that AC IOP is useful for patients suffering from chronic pain because of its long time.(Masahiko Shimada, Yoko Yamazaki)

Pediatric Dentistry

Associate Professor Michiyo MIYASHIN(Oct. ～)
Junior Associate Professor Yoshiaki ONO, Zenzo MIWA
Assistant Professor Yoshiaki HASHIMOTO,Michiyo MIYASHIN(～ Sep.),
Haruko FUJITA, Mizuho MOTEGI
Clinical Professor Youichirou SHIMADA
Adjunct Lecturer Yoshiharu MUKAI, Mitsurou TANAKA
Hitoyata SHIMOKAWA,Kiichi TAKEI,
Hiroaki NAGAI,Nobutaka ISOGAWA,
Yuki IMAMURA(Apr. ～),Makiko TAKASHI(Apr. ～)
Hospital staff Satoko KAKINO, Makiko TAKASHI(～ Mar.),
Naoko UEHARA, Yukie NAKAJIMA,
Atsushi OISHI,Sachi GOTOH,
Taki SEKIYA(Apr. ～)
Graduate Student Yuki IMAMURA(～ Mar.), Ayako NAKANE(～ Mar.),
Taki SEKIYA(Mar.), Sachiko ITOH,
Tomoki UEHARA, Kuniomi NAKAMURA,
Shizuka TANAKA, SHEN Dong He,
GANBOLD Khongorzul, Erika KUBOTA(Apr. ～),
Aoi AKAIKE(Apr. ～ Sep.),
Yasuhito KANAGAKI(Apr. ～ Dec.),
IJBARA Manhal M.A.(Oct. ～),
ZUMULAITI Shaokelati(Oct. ～)
Research Student Shuko MURATA, Ayako NAKANE(Apr. ～),
Chika MIYAJIMA(～ Mar.)
Mami AOKI, Miki IIDA, Anri OHTA,
Chikako SATOH(Apr. ～), Aoi AKAIKE(～ Oct.)
International Research Student ZUMULAITI Shaokelati(～ Sep.),
WIT Yee Wint(～ Oct.)
Enrolled dentist Tomoko KAWAMURA, Kimiko TANIGAWA(Apr. ～),
Kanae WADA(Oct. ～)

(1) Outline

The Department of Pediatric Dentistry was founded in 1955, as the first in Japan. Pediatric dentistry is a subject of clinical dentistry that deal with education and research of not only developmental oral health sciences but also prevention and treatment methods of the diseases which disturb oro-facial growth and development of children.

(2) Research

Research Subjects
1) Physiological and biological studies on the stomatognathic function of children
2) Studies on the development and developmental disturbance of the teeth
3) Studies on the growth and development of the maxillofacial cranium and the dentition

4) Development of new Endodontics and Traumatology for deciduous and immature permanent teeth
5) Basic research on clinical pediatric dentistry

(3) Education

Lecture subjects
Pediatric dentistry, Oral pediatrics

(4) Lectures & Courses

The main objective of pediatric dentistry in this graduate course is to provide students an opportunity to study the theory and the method for the guidance of the oro-facial growth and development and for the diagnosis,prevention and treatment of diseases and malfunctions which disturb the oro-facial growth and development during the period of childhood.
Oral pediatrics is a subject of clinical dentistry that deal with education and research of not only maintenance and promotion of the oral health for growing children but also prevention and treatment methods of diseases and malfunctions which disturb oral health of growing children. The main objective of oral pediatrics in this graduate course is to provide students an opportunity to understand that a child is a living body with mental, physical, and physiological characteristics which are different from those of adults and to study the pathogenesis, prevention, and treatment of the particular oral diseases in childhood. Students are also taught the theory and the method of ongoing health care that is necessary for maintaining and promoting oral health from infant to adult. In addition, they are taught the clinical significance and importance of the behavioral management of child patients and the necessity and importance of understanding and cooperation of the parents to it.

(5) Clinical Services & Other Works

The pediatric dentistry clinic in the department of oro-facial development and function provides the comprehensive dental treatment for a child while growing.

(6) Clinical Performances

The examination, diagnosis, and treatment of the oral diseases and the oral abnormalities are performed in the clinic. In addition, health guidance, preventive measures, and the long-term oral health management by the periodical checking system are carried out, in order to keep and promote oral health from infant to adult.

(7) Publications

[Original Articles]

1. Nakane A, Sasaki Y, Miwa Z, Kitasako Y, Tagami J. Prevalence of dental erosion and related factors in the deciduous dentition. Pediatric Dental Journal. 2014; 24(2); 97-105

2. Nakajima Y, Shimada Y, Sadr A, Wada I, Miyashin M, Takagi Y, Tagami J, Sumi Y. Detection of occlusal caries in primary teeth using swept source optical coherence tomography Journal of Biomedical optics. 2014; 19(1); 16020

3. Takashi M, Motegi M, Takagi Y. Complete resorption of an impacted and inverted supernumerary tooth: Report of an unusual case. Pediatric Dental Journal. 2014; 24(2); 132-135

4. Kobayashi N, Fujita H, Kikuchi K, Ishikawa M. Long Term Follow-up of Two Cases of Gingival Fibromatosis. Jpn.j.Ped.Dent.. 2014; 52(1); 103-109

5. Murata S, Shimokawa H, Shoi K, Miyashin M. Effects of Strage Media on Human Periodontal Ligament Cells. Jpn.j.Ped.Dent. 2014; 52(1); 62-68

6. Miyashin M. Determination of H-file sizes being more suitable for measuring of working length in immature teeth using an EAL. Pediatric Dental Journal. 2014; 24(1); 53-57

[Misc]

1. Satoko Kakino, Zenzo Miwa. Dental Pulp Diagnosis by Transmitted-light Plethysmography Associated with Pulpal Blood Flow J.Jpn.Soc.Laser. Dent. 2014; 25(3); 153-158

2. Miyashin M. Traumatic dental injuries follow-up and prognosis. Ann.Jpn.Prosthodont.Soc. 2014; 6(2); 125-132

[Conference Activities & Talks]

1. Oishi A, Fujita H, Miyashin M. Early prosthetic treatment of a child with oligodontia: A case report. 52th Congress of Japanese Association of Pediatric Dentistry (JAPD) 2014.05.17

2. Miyajima C, Sekiya T, Khongorzul G , Ito S, Kawamura T, Fujita H, Ono Y. Evaluation of treatment results of cases with anterior crossbite of deciduous dentition by using the prediction model. 52th Congress of Japanese Association of Pediatric Dentistry. 2014.05.17 Tokyo, Japan

3. Miyashin M,Murata S,Nakamura K,Wada K,Kudo M,Kanazawa H. Immediate Protection of the Dental Tissues during General Anesthesia. 52th Congress of Japanese Association of Pediatric Dentistry 2014.05.17 Tokyo, Japan

4. Kanazawa H,Miyashin M,Kudo M,Wada K,Kindaichi J. Prevention of Late Complications on Teeth Due to Electron Beam Therapy for Children with Malignant tumors:A case report. 52nd Annual Meeting of Japanese Society of Pediatric Dentistry 2014.05.17

5. Miki Iida,Haruko Fujita,Tomoki Uehara,Kuniomi Nakamura,Satoko Kakino,Michiyo Miyashin,Yoshiaki Ono. Severe bone loss of permanent maxillary central incisors caused by an orthodontic elastic band:Report of a case. 52nd Annual Meeting of Japanese Society of Pediatric Dentistry 2014.05.17

6. Miyashin M. Intentional replantation of root-less immature tooth. Anual meeting of Japan Endodontic Association 2014.07.12 Nigata, Japan

7. Fujita H, Iida M, Ishikawa M, Shimoyama K, Imai K, Tezuka M, Morio T. Hyper-IgE syndrome: relations between oral infections and physical conditions. 2014.10.03 Berlin, Germany

8. Nakamura Z, Izumikawa H, Yoshino A, Morishita J, Tanaka A, Yoshikawa F, Ishikawa K, Hironaka S, Fukayama H, Fujita H. Oral health and dental management in Sotos Syndrome: 5 cases. 2014.10.03 Berlin, Germany

Orthodontic Science

Professor	Takashi ONO
Associate Professor	
Junior Associate Professor	Yoshiro MATSUMOTO, Zuisei KANNO, Jun HOSOMICHI
Assistant Professor	Kazuo SHIMAZAKI, Ippei WATARI, Satoshi KOKAI, Ikuo YONEMITSU, Takayoshi ISHIDA
Project Assistant Professor (International Exchange Center)	Yuji ISHIDA
Dental Resident	Yasuhiro SHIMIZU, Hiroko OMORI, Risa USUMI, Chiho KATO, Mariko MIZUMACHI (-Mar), Haruki IMAI (Apr-), Sarina KOIKE (Apr-)
Graduate Students	Yukiha FUNAKI (-Mar), Ayako KAWABE (-Mar), Hidemasa OKIHARA (-Mar), Rieko ONO (-Mar), Arisa SAWADA (-Mar), Emina WAKASUGI (-Mar), Jutiporn PRIVATANANUPUNT (-Mar), Jui-Chin HSU, Yuhei IKEDA, Toshihiro IMAMURA, Minami MIYASAKA, Mutsumi MIYAZAKI, Asuka OKITO, Kulthida NUNTHAYANON, Shuji OISHI, Souma KITA, Yoichiro KUMA, Tomomi SAKAGUCHI, Mio MAKIGUCHI, Hiroyuki YAMAGUCHI, Jin-Gyu AN, Wei-Jen LAI, Yasunori ABE, Yukano FUKUSHIMA, Yuki KASAHARA, Takuya OGAWA, Iku SHIBATA, Karin Harumi UCHIMAKOECKLIN, Akemi KANAGUCHI, Velusamy PAVETHY NATH, Eri SAITO (Apr-), Kayo KIMURA (Apr-), Yuta NAKAI (Apr-), Kenzo WATAKABE (Apr-), Erusu NIN (Apr-), Huan TANG (Apr-), Roody BEAUBOEUF (Apr-)
Graduate School Research Students	Maya HIRANUMA (-Mar), Keiichi SAKAI (-Mar), Haruki IMAI (-Mar), Takako KANESHIMA (-Mar), Sarina KOIKE (-Mar), Chisa SHITANO (-Mar), Takeru KYURAGI, Yukiha FUNAKI (Apr-), Ayako KAWABE (Apr-), Hidemasa OKIHARA (Apr-), Rieko ONO (Apr-), Arisa SAWADA (Apr-), Emina WAKASUGI (Apr-), Ayako KIRII, Syusuke UESUGI, Tomonari MATSUMURA, Eri SAITO (-Mar), Junpei SUZUKI, Kyohei YAMADA, Misako KOKETSU, Takahiro SHIMAMINE, Katsuhiko SUZUKI, Huan TANG (-Mar), Mirei HAGIWARA (Apr-), Chiho SATOKAWA (Apr-), Asuka MANABE (Apr-)

(1) Outline

Orthodontic Science is one of the dental sciences which propose to control the craniofacial growth and develop- ment in equilibrium with the whole body, and also deals with the prevention and/or treatment of malocclusion and related disorders, by which the alteration of maxillofacial function with aging could be kept to the most suitable condition.

(2) Research

Research Subjects

1) Biomechanical study of occlusion
2) Studies on biological response and functional adaptation followed by orthodontic and occlusal stimulation
3) Clinical application of autotransplantation in orthodontic treatment
4) Studies on interrelation between malocclusion and temporomandibular joint

5) Studies on occlusion and age-related changes in cranio-maxillofacial morphology and function
6) Studies on interrelation between cranio-maxillofacial complex and whole body
7) Development of mechanics and materials for orthodontic treatment
8) Pathophysiological studies on sleep and breathing disorders
9) Studies on interrelation between breathing and body function

(3) Education

Subjects of Education:
Orthodontic Science, Pathophysiology for Malocclusion, Biology for Functional Adaptation

(4) Lectures & Courses

Orthodontic Science
1) To explain the unhealthy physiological condition of malocclusion and deepen the scientific basis for orthodontic treatment.
2) To understand the biological reaction and adaptation of occlusal tissues to mechanical stresses such as occlusal force or orthodontic force, and also the changes with aging.
3) To explain the art for controlling the morphologic and functional problems of occlusion in orthodontic treatment, from the view points of biomaterials and biomechanics.
4) To enlighten the social dentistry for the needs and demands of orthodontic treatment.

Pathophysiology for Malocclusion
To understand the alteration of occlusal function and morphology with aging, and to explain the pathological condition of malocclusion from the viewpoint of physiology, biomechanics, biology and sociology.

Biology for Functional Adaptation
To understand the procedure of biological reaction and adaptation of occlusal system to the orthodontic stimuli, including the influence of aging, and to provide the control of the surroundings of the occlusal system.

(5) Clinical Services & Other Works

Clinical Services
In the field of practical orthodontic, with the development of materials and treatment techniques, we have taken initiatives in two big turning points at all time. Namely, one is the Direct Bonding System which has made it possible to attach brackets directly to the teeth surface without orthodontic metal bands. Another is the development of Super-Elastic Ti-Ni Alloy Wire, and following Improved Super-Elastic Ti-Ni Alloy Wire. With these new wires, we have provided an epoch-making orthodontic technique, where teeth could be moved more e□ciently and safely with light continuous forces, and in consequences, the limits for teeth movement are expanded and the treatment outcomes are also improved. On the other hand, in order to determine the scientific basis for the needs of orthodontic treatment, we are engaging in the study of pathophysiology of malocclusion, and these research results are getting feedback to the orthodontic practices as soon as possible to stimulate the development of new treatment protocols.
Students in the graduate course not only pursue their scientific researches but also being educated in accordance with our curriculum for the post-graduated clinical program. In this program, we aim to bring up the leading persons of next generation who have highly specialized knowledge and skills of orthodontics as well as prominent minds of clinical researches.

(6) Clinical Performances

Highlights of Clinical Services
1) Orthodontic treatments by using Improved Super-Elastic Ti-Ni Alloy Wire
2) Comprehensive Orthodontic Treatments
With the cooperation of related field, we provide comprehensive treatments for those patients with cleft lips and palates and other congenital anomalies, jaw deformities, maxillofacial functional disorders, periodontal diseases, impacted teeth, autotransplantation combined cases, and usages of implant anchorages.

(7) Publications

[Original Articles]

1. Shimizu Y, Yonemitsu I, Ono T. Facilitating mandibular horizontal growth in a Class II high-angle case with modified functional appliance. J World Fed Orthod. 2014; 3; e27-39

2. Funaki Y, Hiranuma M, Shibata M, Kokai S, Ono T. E□ects of nasal obstruction on maturation of the jaw-opening reflex in growing rats. Arch Oral Biol. 2014; 59(5); 530-538

3. Kawakubo N, Miyamoto JJ, Katsuyama N, Ono T, Honda E, Kurabayashi T, Taira M, Moroyama K. E□ects of cortical activations on enhancement of handgrip force during teeth clenching: An fMRI study. Neurosci Res. 2014; 79; 67-75

4. Shimazaki K, Otsubo K, Yonemitsu I, Kimizuka S, Omura S, Ono T. Severe unilateral scissor bite and bimaxillary protrusion treated by horse-shoe Le Fort I osteotomy combined with mid-alveolar osteotomy. Angle Orthod. 2014; 84(2); 374-379

5. Kawabe A, Nakagawa I, Kanno Z, Tsutsumi Y, Hanawa T, Ono T. Evaluation of biofilm formation in the presence of saliva on poly (ethylene glycol) deposited titanium. Dent Mater J. 2014; 33(5); 638-647

6. Yoon HS, Ishida T, Ono T. Influences of lymphoid tissues on facial pattern. J World Fed Orthod. 2014; 3(4); 163-168

7. Privatananupunt J, Watari I, Podyma-Inoue KA, Kubono M, Ono T. Expression of glucose-dependent insulinotropic polypeptide and its receptor in the rat major salivary glands. Acta Histochemica. 2014; 116(4); 545-550

8. Okihara H, Ito J, Kokai S, Ishida T, Hiranuma M, Kato C, Yabushita T, Ishida K, Ono T, Michikawa M. Liquid diet induces memory impairment accompanied by a decreased number of hippocampal neurons in mice. J Neurosci Res. 2014; 92(8); 1010-1017

9. Aoyama E, Watari I, Podyma-Inoue KA, Yanagishita M, Ono T. Expression of glucagon-like peptide-1 receptor and glucose-dependent insulinotropic polypeptide receptor is regulated by the glucose concentration in mouse osteoblastic MC3T3-E1 cells. Int J Mol Med. 2014.08; 34(2); 475-482

10. Shimizu Y, Hosomichi J, Nakamura S, Ono T. Micro-computed tomography analysis of changes in the periodontal ligament and alveolar bone proper induced by occlusal hypofunction of rat molars. Korean J Orthod. 2014; 44(5); 263-267

11. Ishida T, Ono T. Asymmetric severe skeletal Class II division 1 patient with temporo- mandibular joint disorder treated with zygomatic anchorage devices and Ni-Ti alloy wires. Angle Orthod. 2014; 84(5); 919-930

12. Kuma Y, Usumi-Fujita R, Hosomichi J, Oishi S, Maeda H, Nagai H, Shimizu Y, Kaneko S, Shitano C, Suzuki J, Yoshida K, Ono T. Impairment of nasal airway under intermittent hypoxia during growth period in rats. Arch Oral Biol. 2014; 59(11); 1139-1145

13. Hsu JC, Watari I, Ono R, Privatananupunt J, Mizumachi-Kubono M, Honda K, Ishida Y, Ono T. Degeneration of fungiform and circumvallate papillae following molar extraction in rats. Acta Odontol Scand. 2014; 72(8); 880-886

14. Ikeda Y, Yonemitsu I, Takei M, Shibata S, Ono T. Mechanical loading leads to osteoarthritis-like changes in the hypofunctional temporomandibular joint in rats. Arch Oral Biol. 2014; 59(12); 1368-1376

[Conference Activities & Talks]

1. Nunthayanon K, Honda E, Ohmori H, Inoue-Arai MS, Shimazaki K, Kurabayashi T, Ono T. 3T MRI Movie: The Next Step in Articulatory Observation. The 43rd Annual Meeting & Exhibition of the AADR 2014.03.20 Charlotte, NC, USA

2. Kuma Y, Usumi-Fujita R, Hosomichi J, Oishi S, Nagai H, Shimizu Y, Kaneko S, Shitano C, Suzuki J, Yoshida K, Ono T. Impairment of nasal airway under intermittent hypoxia during growth period in rat. The 36th Annual Scientific Conference on Dental Research 2014.03.31 Ho Chi Minh City, Vietnam

3. Oishi S, Shimizu Y, Hosomichi J, Kuma Y, Maeda H, Nagai H, Kaneko S, Suzuki J, Yoshida K, Ono T. The Intermittent hypoxia induced discrepancy of bone growth and density in rat maxillofacial bone. The 36th Annual Scientific Conference on Dental Research 2014.03.31 Ho Chi Minh city, Vietnam

4. Sakaguchi T, Fujishiro H, Shimazaki K, Ono T, Akita K. Anatomical study about the condylar process and the lateral pterygoid muscle. The 36th Annual Scientific Conference on Dental Research 2014.03.31 Ho Chi Minh City, Vietnam

5. Hosomichi J, Oishi S, Kuma Y, Maeda H, Nagai H, Kaneko S, Shitano C, Suzuki J, Yoshida K, Ono T. Intermittent-hypoxia-induced expression of autophagy accelerates BNIP3 in the geniohyoid muscles in contrast to gastrocnemius muscle in rats. 28th Annual Meeting of the Associated Professional Sleep Societies (SLEEP2014) 2014.05.29 Minneapolis, MN, USA

6. Oishi S, Shimizu Y, Hosomichi J, Kuma Y, Maeda H, Nagai H, Kaneko S, Suzuki J, Yoshida K, Ono T. Disturbance of maxillofacial bone growth induced by intermittent hypoxia in growing rats. 28th Annual Meeting of the Associated Professional Sleep Societies (SLEEP2014) 2014.05.29 Minneapolis, MN, USA

7. Kuma Y, Usumi-Fujita R, Hosomichi J, Oishi S, Nagai H, Maeda H, Kaneko S, Suzuki J, Yoshida K, Ono T. Growth impairment of nasal airway under intermittent hypoxia during growth period in rats. 28th Annual Meeting of the Associated Professional Sleep Societies (SLEEP2014) 2014.05.31 Minneapolis, MN, USA

8. Sakaguchi T, Fujishiro H, Hayashi N, Yamaguchi K, Shimazaki K, Ono T, Akita K. Positional relationship between articular disc and condylar process. 31st Annual Meeting of American Association of Clinical Anatomists 2014.07.08 Orlando, FL, USA

9. Watari I, Aoyama-Wakasugi E, Podyma-Inoue KA, Yanagishita M, Ono T. Changes in the expression of incretin receptors in a mouse osteoblastic cell line in response to various glucose concentrations. 17th International Symposium on Molecular Medicine 2014.10.09 Athens, Greece

10. Watari I, Aoyama-Wakasugi E, Inoue KA, Yanagishita M, Ono T. Expression of incretin receptor (GLP-1 receptor and GIP receptor) on osteoblastic cell line and it's expression alter by the glucose concentration. 17th International Symposiumon Molecular Medicine 2014.10.09 Athens, Greece

11. Honda K, Fujita K, Shibutani N, Yonemitsu I, Shimazaki K, Murata S, Takasu H, Yamashita Y, Iwai T, Ono T, Omura S, Tohnai I. A clinical survey of facial deformity patients at the Yokohama City University Medical Center. 47th Annual Scientific Congress, Korean Association of Orthodontists 2014.10.30 Seoul, Korea

12. Fujita K, Omura S, Shibutani N, Honda K, Nozato T, Yamashita Y, Takasu H, Murata S, Tohnai I, Ono T. Medium-term stability of Le Fort I sliding osteotomy. 47th Annual Scientific Congress, Korean Association of Orthodontists 2014.10.30 Seoul, Korea

13. Honda K, Fujita K, Shibutani N, Yonemitsu I, Shimazaki K, Murata S, Takasu H, Yamashita Y, Iwai T, Ono T, Omura S, Tohnai I. Clinical survey of facial deformity patients in Yokohama City University Medical Center. 47th Scientific Congress of Korean Association of Orthodontists 2014.11.01 Seoul, Korea

14. Hayashi N, Sakaguchi T, Fujishiro H, Yamaguchi K, Akita K. Positional relationships between the muscle bundle of temporalis and lateral pterygoid muscle. Proceeding of the 11th ANZACA Conference 2014.12.03 Queenstown, New Zealand

15. Ohmori H, Ono T. A case with mandibular functional lateral shift who underwent functional evaluation of gravity fluctuation. The 73rd Annual Meeting of Japanese Orthodontic Society 2014.10.20 Chiba

16. Kato C, Fujita K, Hiranuma M, Yabushita T, Kokai S, Ono T. Bite-raising induces plastic changes in jaw motor representations within the face somatosensory cortex of rats. The 73th Annual Meeting of the Japanese Orthodontic Society 2014.10.21 Chiba

17. Sakai S, Kokai S, Kirii A, Uesugi T, Inukai S, Yonemitsu I, Omura S, Hideshima M, Ono T. Comparison of maxillofacial and upper airway morphology after mandibular advancement: surgery and oral appliance. The 73th Annual Meeting of the Japanese Orthodontic Society 2014.10.21 Chiba

18. Nunthayanon K, Honda E, Ohmori H, Inoue-Arai MS, Shimazaki K, Kurabayashi T, Ono T. Variation of Fricative /S/ sound in Anterior Open bite Subject: 3T MRI movie Study. The 73th Annual Meeting of the Japanese Orthodontic Society 2014.10.22 Chiba

19. Hiranuma M, Funaki Y, Kato C, Kokai S, Ono T. Nasal obstruction during growth induces modulation of circulatory dynamics and jaw reflex. The 73th Annual Meeting of the Japanese Orthodontic Society 2014.10.22 Chiba

20. Hosomichi J, Kuma Y, Oishi S, Nagai H, Kaneko S, Usumi-Fujita R, Shimizu Y, Shitano C, Suzuki J, Yoshida K, Ono T. Intermittent hypoxia prompts tongue hypertrophy and mandibular arch expansion with maxillofacial growth retardation in rats. The 73th Annual Meeting of the Japanese Orthodontic Society 2014.10.22 Chiba

21. Oishi S, Shimizu Y, Hosomichi J, Kuma Y, Maeda H, Usumi-Fujita R, Kaneko S, Shitaono C, Suzuki J, Yoshida K, Ono T.. Intermittent hypoxia induces skeletal growth disturbance with osteocleotic changes in growing rats. The 73th Annual Meeting of the Japanese Orthodontic Society 2014.10.22 Chiba
22. Kato C, Yabushita T, Fujita K, Ishida Y, Hosomichi J, Ono T.. Two cases treated with selective extraction of upper lateral incisors. The 73th Annual Meeting of the Japanese Orthodontic Society 2014.10.22 Chiba
23. Okito A, Nakahama K, Hosomichi J, Shitano C, Ususmi-Fujita R, Shimizu Y, Ishida Y, Kaneko S, Morita I, Ono T. Involvement of G protein-coupled receptor 4 in osteoclastogenesis mediated by osteoblasts.. The 73th Annual Meeting of the Japanese Orthodontic Society 2014.10.22 Chiba
24. Uchima Koecklin KH, Kato C, Funaki Y, Hiranuma M, Ishida T, Fujita K, Yabushita T, Kokai S, Ono T. Nasal obstruction increases the tongue protrusion forces in growing rats. The 73th Annual Meeting of the Japanese Orthodontic Society 2014.10.22 Chiba
25. Nunthayanon K, Honda E, Ohmori H, Inoue-Arai MS, Shimazaki K, Kurabayashi T, Ono T. Comparison of fricative sound between anterior open bite and normal subjects: 3T MRI movie method. The 73th Annual Meeting of the Japanese Orthodontic Society 2014.10.22 Chiba
26. Hayashi N, Sakaguchi T, Fujishiro H, Yamaguchi K, Akita K. Insertion areas of the lateral pterygoid muscle and the temporalis on the condylar process of mandible. 2nd Asian Joint Congress of Clinical Anatomy 2014.11.08 Tokyo

[Symposiums & Seminars]

1. Ono T. Diagnosis and modern treatment options for subjects with facial asymmetry. 8th Saudi Orthodontic Society Annual Meeting 2014.01 Jeddah, Saudi Arabia
2. Ono T. Autotransplantation for future orthodontics. 8th Saudi Orthodontic Society Annual Meeting 2014.01 Jeddah, Saudi Arabia
3. Ono T. Neuro-Orthodontics: Backgrounds and clinical implications. Invited lecture at the University of Geneva 2014.01 Geneva, Switzerland
4. Ono T. Recent works on basic and clinical aspects of Orthodontics at TMDU. Invited lecture at the University of Geneva2014.01 Geneva, Switzerland
5. Ono T. Autotransplantation for future orthodontics. Lifelong Study Seminar by Tokyo Medical and Dental University 2014.02 Bangkok, Thailand
6. Ono T. OSAHS. International Symposium on Dental Sleep Medicine 2014 .09 Yinchuan, China
7. Ono T. Diagnosis and modern treatment options for subjects with facial asymmetry. International Symposium on Dental Sleep Medicine 2014.09 Yinchuan, China
8. Ono T. Two sides of a coin: Esthetics and function in skeletal Class III treatment. The 5th Class III Symposium 2014 .10.Seoul, Korea
9. Ono T. History, research and clinical activities of Orthodontic Science at TMDU. The 5th Class III Symposium 2014 .10.Seoul, Korea

[Awards & Honors]

1. Kokai S, Fukuyama E, Omura S, Kimizuka S, Shimazaki K, Yonemitsu I, Fujita K, Tohnai I, Ono T. The 38th Annual Meeting of the Japanese Cleft Palate Association, Excellent Exhibition Award, Japanese Cleft Palate Association, 2014.05
2. Yonemitsu I, Kaneshima T, Hattori I, Sakai K, Uesugi T, Hsu JC, Kokai S, Omura S, Tohnai I, Ono T. The 24th Annual Meeting of the Japanese Society for Jaw Deformities, Excellent Exhibition Award, Japanese Society for Jaw Deformities, 2014.06
3. Hiranuma M, Funaki Y, Kato C, Kokai S, Ono T. The 73th Annual Meeting of the Japanese Orthodontic Society, Excellent Exhibition Award, Japanese Orthodontic Society, 2014.10
4. Maekawa M, Kanno Z, Wada T, Uo M, Ono T. The 73th Annual Meeting of the Japanese Orthodontic Society, Excellent Exhibition Award, Japanese Orthodontic Society, 2014.10
5. Okito A, Nakahama K, Hosomichi J, Shitano C, Ususmi-Fujita R, Shimizu Y, Ishida Y, Kaneko S, Morita I, Ono T. The 73th Annual Meeting of the Japanese Orthodontic Society, Excellent Exhibition Award, Japanese Orthodontic Society, 2014.10

6. Nunthayanon K, Honda E, Ohmori H, Inoue-Arai MS, Shimazaki K, Kurabayashi T, Ono T. The 73th Annual Meeting of the Japanese Orthodontic Society, Excellent Exhibition Award, Japanese Orthodontic Society, 2014.10
7. Oishi S, Shimizu Y, Hosomichi J, Kuma Y, Maeda H, Usumi-Fujita R, Kaneko S, Shitaono C, Suzuki J, Yoshida K, Ono T. The 73th Annual Meeting of the Japanese Orthodontic Society, Excellent Exhibition Award, Japanese Orthodontic Society, 2014.10
8. Kita S, Shimazaki K, Yajima Y, Oshima M, Omura S, Ono T. The 73th Annual Meeting of the Japanese Orthodontic Society, Excellent Exhibition Award, Japanese Orthodontic Society, 2014.10
9. Uchima Koecklin KH, Kato C, Funaki Y, Hiranuma M, Ishida T, Fujita K, Yabushita T, Kokai S, Ono T. The 73th Annual Meeting of the Japanese Orthodontic Society, Excellent Exhibition Award, Japanese Orthodontic Society, 2014.10

Cariology and Operative Dentistry

Professor Junji Tagami
Associate Professor　Masayuki Otsuki, Yoshiyuki Sasaki
Junior Associate Professor Toru Nikaido, Masatoshi Nakajima
Assistant Professor Takako Yoshikawa, Yasushi Shimada, Yuichi Kitasako, Go Inoue, Keiichi Hosaka, Tomohiro Takagaki, Naoko Harada, Rena Takahashi
Specially Appointed Junior Associate Professor Syozi Nakashima, Alireza Sadr
Specially Appointed Assistant Professor Noriko Hiraishi, NHM Khairul Matin
Hospital Staff Masahiro Takahashi, Oto Aramaki, Hidenori Hamba, Tomoko Mizutani, Iori Sugita
Foreign Researcher Ilnaz Hariri, Patricia Makishi
Technical Staff Toshikazu Nakagawa
Secretary Shiori Ogi, Noriyo Yamada, Noriyo Yamada
Graduate Student
Gerardo Jose Joves Mendez（～March）、Azusa Tanaka（～March）、Kimisuke Kainose（～March）、Mona Mohammad Mandurah（～March）、Md. Sofiqul Islam（～March）、Haidil Akmla Mahdan、Ena Lodha、Shigeyuki Nagai, Mohannad Issa Michael Nassar, Naoko Matsui, Ikumi Wada, Yumiko Uesugi, Nariaki Yoshimine, Megumi Oshima, Ornnicha Thanatvarakorn, Alaa Turkistani, Teerapong Mamanee, Sahar Jameel Khunkar, Ka Kyou, Ehab Zaki Alsayed, Junichi Shinagawa, Rena Oguro, Takahide Ibusuki, Asami Aida, Ayaka Chiba, Kei Horie, Tomoka Ueno, Hiroki Tezuka, Kento Sato, Takaaki Sato, Masami Arai, Maria Nakamura, Ritsuko Mashiko, Alaa Turkistani, Teerapong Mamanee , Sahar Jameel Khunkar, Kong Kalyan, Baba Bista, Maria Jacinta Rosario Hernandez Romero, Patrycja Zakilna Majkut, Rui Guan, Ayaka Kusanagi, Yuka Tsuda, Nami Takashino, Takashi Hatayama, Chihiro Matsuura, Yukinori Kano, Yuuki Naruse, Juri Hayashi, Miho Sugiura, Yuta Sumitani, AtsukoTagami, Keiki Nakamura, Yukari Noda, Mari Okada, Yuan Zhou, Keita Taguchi, Jorge Espigares, Junji Atomura, Thwe Zin Ei, Hamed Atrgiran Yazdi, Sumifumi Atomura, Tomoko Tabata, Ayako Nakamoto, Narifumi Takahashi, Takuya Nakata, Daisuke Araoka, Thwe Zin Ei, Hamed Atrgiran Yazdi, Luong Dao Minh Nguyet, Khin Yupar Kyaw
Research Student Shinji Ogura, Mineo Kijima

(1) Outline

TMDU possesses the longest history as a national dental university in Japan. We have contributed to the progress of science and education through presenting a number of world leading graduates in the field of dentistry. Many of their achievements are now recognized as global standards in the field of dental research and clinical practice.

At Cariology and Operative Dentistry, we believe that the ultimate goal of the oral health care programs is to provide well-being of the patients. In order to achieve this goal, besides the clinical training that we offer to the licensed graduate students, high-caliber research projects are being carried out aimed at developing, enhancing and evaluation of the materials and techniques in dentistry; particularly for adhesives, caries prevention, diagnosis and treatment, and oral health maintenance.

Cariology and Operative Dentistry is a home to the late professor Takao Fusayama, who developed the “Caries Detector” for removal of the caries, and promoted “Total-etch technique” and other restorative techniques using adhesive resin composite for the minimally invasive caries treatment.

Our group, consisting of members of the faculty, staff and graduate students, is among the international leaders in the ongoing dental research. I would hereby like to extend an invitation to those fellows and prospect graduate students interested in perusing high-level research and gaining an insight into modern concepts to join our diverse international team of scientists.

(2) Research

1) Evaluation of dentin bonding systems
Adhesion of bonding materials to enamel, dentin and cementum of tooth are evaluated using methods such as the microshear and the microtensile bond strength tests. Factors affecting adhesion such as the region and caries state of tooth substrate, light-curing irradiation, release of fluoride from material, tooth preparation methods, root canal treatment of the tooth, etc. have been investigated. We have also focused on the difference between various adhesives system in terms of their composition, performance and bonding durability.
2) Super Enamel and Super Dentin
Using various electron microscopy techniques, we have demonstrated that resistance of enamel and dentin to acid attack could be increased in an acid-base resistant zone which was formed following the application of some self-etching dental adhesives. We proposed that the diffusion of such acidic monomers beyond the classic hybrid layer (interfacial zone) and their ion-exchange interactions with the available hydroxyapatite could result in formation of stable organic-inorganic complexes, and that the structures should be termed "super tooth", which includes the reinforced enamel and dentin.
3) Development of OCT for establishing its clinical application
Optical coherent tomography (OCT) is a noninvasive, cross-sectional imaging system that can visualize the internal structures nondestructively and without exposure to X-ray or ionizing radiation. Our research has aimed to further develop OCT and introduce a dental OCT system that can be used to diagnose dental defects and diseases such as tooth cracking and caries.
4) Resin coating technique
Resin coating using a bonding agent and flowable composite benefits the adaptation of indirect restorations to dentin surface which is a key interface within a restoration. We have proposed that this resin coating technique should be technique of choice for placement of indirect restorations.
5) Non-destructive test of adhesive restorations
We are working to establish a method for non-destructive detection of gap and secondary caries beneath composite restorations sing optical coherence tomography (OCT), which has shown a great potential for such assessment.
6) Research on optical properties of the dental structure
As a part of the OCT development project, we work on characterization of the basic optical properties such as attenuation coefficient and refractive index of dentin and enamel, and their changes following demineralization and remineralization.
7) Research on direct core build up materials
Adhesive performance to the root canal dentin by resin core build up systems has been evaluated. These materials can be used in combination with fiber posts.
8) Study on dental erosion
Erosive loss of enamel due to consumption of acidic beverages and some drugs has been evaluated using 3D focus-variation microscopy as well as profilometry.
9) Caries risk assessment
We have investigated caries risk based on the measurement of saliva buffering capacity in samples collected from patients. We have also probed the association between the pH of lesion surface and caries activity.
10) Characterization of polymerization characteristics of light-cured resin composites
Aiming to establish appropriate clinical techniques to overcome polymerization shrinkage stress of composite resins, we have investigated the influence of the adhesives, composite resins, light irradiation methods and cavity configuration (C-factor) on the development of polymerization shrinkage stress using various techniques such as optical coherence tomography (OCT) and micro-focus X-ray computed tomography (micro-CT).
11) Adhesion of cariogenic bacteria to dentin surface
We have developed a model to experimentally evaluate factors affecting the ability of cariogenic bacteria such as S.mutans to attach to the tooth surface in the initial phase of biofilm formation.
12) Biocompatibility of resin-based dental adhesives
Immunohistochemical studies have been performed to evaluate the effects of various adhesive materials on dental

pulp tissue.
13) The potential of fluoride- and/or Calcium containing materials on caries prevention
Inhibitory effects of CPP-ACP paste and fluoride on the enamel and dentin demineralization have been evaluated by the micro-focus X-ray computed tomography (micro-CT) non-destructively. We have also established a standard methodology for assessment of lesion parameters such as depth and mineral loss for micro-CT.
14) Evaluation of caries removal methods
We have evaluated the effect of caries removal method by the conventional rotary cutting instruments in comparison with new caries removal methods such as chemical removal agents, laser irradiation and abrasion on the adhesion performance and restoration success.
15) Development and evaluation of aesthetic dental materials
We have worked on optical properties and color match of the composite resins, in addition to clinical applications of tooth whitening materials .
16) Clinical research
We have created a protocol to evaluate the long-term and short-term performance of restorative materials in the patients who were admitted to the operative dentistry clinics at TMDU Dental Hospital.

(3) Education

Cariology and Operative Dentistry section offers a four-year graduate program. First-year graduate students attend lectures and seminars given in the graduate school and are expected to gain an understanding of the fundamentals about methodology and the knowledge necessary for their research. The contents of the classes given in our section include topics related to cariology and operative dentistry: caries diagnosis, biocompatibility, caries treatment and restoration, prevention and control, dental materials, new instruments and equipment. In keeping with the internationally orientated philosophy of this section, lectures are conducted in English and are open to all foreign students. First-year graduate students also undergo clinical training the procedures of modern adhesive restorations. Laboratory work, which commences in the first year, is performed under the supervision of our faculty staff. During the four-year program, several papers are required to be presented in domestic and / or international conferences and submitted to journals. The minimum requirements are completing the prescribed courses, a supervised research project and a dissertation for the degree published in a top international journal.

(4) Lectures & Courses

The ultimate goal of the oral health care programs is to provide well-being of the patients. In order to achieve this goal, besides the clinical training that we offer to the licensed graduate students, high-caliber research projects are being carried out aimed at developing, enhancing and evaluation of the materials and techniques in dentistry; particularly for adhesives, caries prevention, diagnosis and treatment, and oral health maintenance.

(5) Clinical Services & Other Works

Full-time faculty see patients in Operative Dentistry and Endodontics, and provide restoration of teeth with fillings for dental cavities, trauma and tooth wear, and root canal treatments. The faculty members supervise both pre-and postdoctoral students in the clinic.

(6) Clinical Performances

Our Operative Dentistry clinic provide restoration of teeth with fillings for dental cavities, trauma and tooth wear under Minimal intervention concept. The clinical services are based on accumulated scientific researches.

(7) Publications

[Original Articles]

1. Takako YOSHIKAWA, Makoto MORIGAMI, Alireza SADR, Junji TAGAMI. Effects of light curing method and resin composite composition to the enamel and dentin cavity wall Asian Pacific Journal

of Dentistry. 2014; 14; 13-18

2. Takako YOSHIKAWA, Makoto MORIGAMI, Alireza SADR, Junji TAGAMI. Effects of light curing method and resin composite composition on composite adaptation to the cavity wall Dental Materials Journal. 2014; 33(1); 499-503

3. Nassar M, Hiraishi N, Islam MS, , Ohya K, Tagami J. (2014)... Age-related changes in salivary biomarkers J Dent Sci . 2014; 9(1); 85-90

4. Nakajima Y, Shimada Y, Sadr A, Wada I, Miyashin M, Takagi Y, Tagami J, Sumi Y. Detection of occlusal caries in primary teeth using swept source optical coherence tomography Journal of Biomedical optics. 2014; 19(1); 16020

5. Tool Sriamporn, Niyom Thamronganankul, Chumphol Busabok, Sushit Poolthong, Motohiro Uo, Junji Tagami. Dental zirconia can be etched by hydrofluoric acid. Dent Mater J. 2014; 33(1); 79-85

6. Mona M Mandurah, Alireza Sadr, Turki A Bakhsh, Yasushi Shimada, Yasunori Sumi, Junji Tagami. Characterization of transparent dentin in attrited teeth using optical coherence tomography. Lasers Med Sci. 2014.02;

7. Nassar Mohannad, Hiraishi Noriko, Shimokawa Hitoyata, Tamura Yukihiko, Otsuki Masayuki, Kasugai Shohei, Ohya Keiichi, Tagami Junji. The inhibition effect of non-protein thiols on dentinal matrix metalloproteinase activity and HEMA cytotoxicity. JOURNAL OF DENTISTRY. 2014.03; 42(3); 312-318

8. Ornnicha Thanatvarakorn, Masatoshi Nakajima, Taweesak Prasansuttiporn, Shizuko Ichinose, Richard M Foxton, Junji Tagami. Effect of smear layer deproteinizing on resin-dentine interface with self-etch adhesive. J Dent. 2014.03; 42(3); 298-304

9. Siriporn Songsiripradubboon, Hidenori Hamba, Chutima Trairatvorakul, Junji Tagami. Sodium fluoride mouthrinse used twice daily increased incipient caries lesion remineralization in an in situ model. J Dent. 2014.03; 42(3); 271-278

10. Hama Y, Kanazawa M, Minakuchi S, Uchida T, Sasaki Y. Reliability and validity of a quantitative color scale to evaluate masticatory performance using color-changeable chewing gum. Journal of Medical and Dental Sciences. 2014.03; 61(1); 1-6

11. Bhingare AC, Ohno T, Tomura M, Zhang C, Aramaki O, Otsuki M, Tagami J, Azuma M. Dental pulp dendritic cells migrate to regional lymph nodes. J. Dent. Res.. 2014.03; 93(3); 288-293

12. A S Bakry, H Takahashi, M Otsuki, J Tagami. Evaluation of new treatment for incipient enamel demineralization using 45S5 bioglass. Dent Mater. 2014.03; 30(3); 314-320

13. Bhingare AC, Ohno T, Tomura M, Zhang C, Aramaki O, Otsuki M, Tagami J, Azuma M. Dental pulp dendritic cells migrate to regional lymph nodes Journal of Dental Reserch. 2014.03; 93(3); 288-293

14. Gerardo José Joves, Go Inoue, Alireza Sadr, Toru Nikaido, Junji Tagami. Nanoindentation hardness of intertubular dentin in sound, demineralized and natural caries-affected dentin. J Mech Behav Biomed Mater. 2014.04; 32; 39-45

15. Syozi Nakashima, Sadr Alireza, Junji Tagami. A theoretical consideration on critical pH in enamel demineralization The Japanese Journal of Conservative Dentistry. 2014.04; 57(2); 111-120

16. Hama Y, Kanazawa M, Minakuchi S, Uchida T, Sasaki Y. Properties of a novel color-changeable chewing gum used to evaluate masticatory performance. Journal of Prosthodontic Research. 2014.04; 58(2); 102-106

17. Noriko Hiraishi, Naoya Tochio, Takanori Kigawa, Masayuki Otsuki, Junji Tagami. Role of 2-hydroxyethyl methacrylate in the interaction of dental monomers with collagen studied by saturation transfer difference NMR. J Dent. 2014.04; 42(4); 484-489

18. Kikuchi Keisuke, Akiba Norihisa, Sadr Alireza, Sumi Yasunori, Tagami Junji, Minakuchi Shunsuke. Evaluation of the marginal fit at implant-abutment interface by optical coherence tomography. J Biomed Opt. 2014.05; 19(5); 055002

19. Jian Jin, Rena Takahashi, Reinhard Hickel, Karl-Heinz Kunzelmann. Surface properties of universal and flowable nanohybrid composites after simulated tooth brushing. Am J Dent. 2014.06; 27(3); 149-154

20. Nakane A, Sasaki Y, Miwa Z, Kitasako Y, Tagami J. Prevalence of dental erosion and related factors in the deciduous dentition of Japanese children. Pediatric Dental Journal. 2014.06; 24; 97-105

21. Yasushi Shimada, Hisaichi Nakagawa, Alireza Sadr, Ikumi Wada, Masatoshi Nakajima, Toru Nikaido, Masayuki Otsuki, Junji Tagami, Yasunori Sumi. Noninvasive cross-sectional imaging of proximal caries using swept-source optical coherence tomography (SS-OCT) in vivo. J Biophotonics. 2014.07; 7(7); 506-513

22. M Nassar, N Hiraishi, M S Islam, Y Tamura, M Otsuki, S Kasugai, K Ohya, J Tagami, F R Tay. The effect of glutathione on 2-hydroxyethylmethacrylate cytotoxicity and on resin-dentine bond strength. Int Endod J. 2014.07; 47(7); 652-658

23. Yasushi Shimada, Hisaichi Nakagawa, Alireza Sadr, Ikumi Wada, Masatoshi Nakajima, Toru Nikaido, Masayuki Otsuki, Junji Tagami, Yasunori Sumi. Noninvasive cross-sectional imaging of proximal caries using swept-source optical coherence tomography (SS-OCT) in vivo. J Biophotonics. 2014.07; 7(7); 506-513

24. Camila Sabatini, Débora L S Scheffel, Régis H Scheffel, Kelli A Agee, Katelyn Rouch, Masahiro Takahashi, Lorenzo Breschi, Annalisa Mazzoni, Leo Tjäderhane, Franklin R Tay, David H Pashley. Inhibition of endogenous human dentin MMPs by Gluma. Dental Materials. 2014.07; 30(7); 752-758

25. Tomihiro Takagaki, Oto Aramaki, Rena Takahashi, Junji Tagami. The Basics and Clinical Application of Direct Crown Adhes Dent. 2014.08; 32(2); 103-106

26. Alaa Turkistani, Alireza Sadr, Yasushi Shimada, Toru Nikaido, Yasunori Sumi, Junji Tagami. Sealing performance of resin cements before and after thermal cycling: evaluation by optical coherence tomography. Dent Mater. 2014.09; 30(9); 993-1004

27. Okamine E, Saito T, Ejima K, Sasaki Y, Suzuki I, Tagai H, Tamagawa H, Tomiyama M, Hitaka M, Morimoto N, Ji S, Endo A. The Present Conditions and Measures of "an Unregistered Disease Name on Japanese Standard Disease Code for Dentistry". Japan Journal of Medical Informatics. 2014.10; 34(4); 159-172

28. Morita T, Yamazaki Y, Fujiharu C, Ishii T, Seto M, Nishinoue N, Sasaki Y, Kawato T, Motohashi M, Maeno M. Serum γ-glutamyltransferase level is associated with periodontal disease independent of drinking habits in Japanese adults. Med Sci Monit. 2014.10; 20; 2106-2119

29. Md Sofiqul Islam, Noriko Hiraishi, Mohannad Nassar, Cynthia Yiu, Masayuki Otsuki, Junji Tagami. Effect of hesperidin incorporation into a self-etching primer on durability of dentin bond. Dent Mater. 2014.11; 30(11); 1205-1212

30. Ogita M, Tsuchida S, Aoki A, Satoh M, Kado S, Sawabe M, Nanbara H, Kobayashi H, Takeuchi Y, Mizutani K, Sasaki Y, Nomura F, Izumi Y. Increased cell proliferation and differential protein expression induced by low-level Er:YAG laser irradiation in human gingival fibroblasts: proteomic analysis Lasers in Medical Science. 2014.11;

31. Ahmed Samir Bakry, Hanadi Y Marghalani, Omayma A Amin, Junji Tagami. The effect of a bioglass paste on enamel exposed to erosive challenge. J Dent. 2014.11; 42(11); 1458-1463

32. Juthatip Aksornmuang, Masatoshi Nakajima, Junji Tagami. Effect of viscosity of dual-cure luting resin composite core materials on bond strength to fiber posts with various surface treatments Journal of Dental Sciences. 2014.12; 9; 320-327

33. Ena Lodha, Hidenori Hamba, Syozi Nakashima, Alireza Sadr, Toru Nikaido, Junji Tagami. Effect of different desensitizers on inhibition of bovine dentin demineralization: micro-computed tomography assessment. Eur. J. Oral Sci.. 2014.12; 122(6); 404-410

34. Noriko Hiraishi, Naoya Tochio, Takanori Kigawa, Masayuki Otsuki, Junji Tagami. Molecular level evaluation on HEMA interaction with a collagen model. Dent Mater. 2014.12;

35. Yasushi Shimada, Junji Tagami, Yasunori Sumi. Potential and limitations of OCT for assessing dental caries and tooth crack J.Jpn.Soc.laser dent. 2014.12; 25(3); 159-164

36. N Li, T Nikaido, S Alireza, T Takagaki, J-H Chen, J Tagami. Phosphoric acid-etching promotes bond strength and formation of acid-base resistant zone on enamel. Oper Dent. 38(1); 82-90

37. Ahmed Jamleh, Alireza Sadr, Naoyuki Nomura, Arata Ebihara, Yoshio Yahata, Takao Hanawa, Junji Tagami, Hideaki Suda. Endodontic instruments after torsional failure: nanoindentation test. Scanning. 36(4); 437-443

38. Farrahnaz Peerzada, Cynthia Kar Yung Yiu, Noriko Hiraishi, Franklin Russell Tay, Nigel Martyn King. Effect of surface preparation on bond strength of resin luting cements to dentin. Oper Dent. 35(6); 624-633

39. Franklin R Tay, David H Pashley, B I Suh, N Hiraishi, C K Y Yiu. Water treeing in simplified dentin adhesives–déjà vu? Oper Dent. 30(5); 561-579

[Misc]

1. Tamagawa H, Saito T, Ejima K, Sasaki Y, Suzuki I, Tagai H, Tomiyama M, Hitaka M, Morimoto N, Ji S, Okamine E, Endo A. Standardization in Dentistry in Japan - Situation of overseas and consideration of Japanese standard masters form the position of international trends. Japan Journal of Medical Informatics. 2014.10; 34(4); 183-195

2. Saito T, Ejima K, Sasaki Y, Suzuki I, Tagai H, Tamagawa H, Tomiyama M, Hitaka M, Morimoto N, Ji S, Okamine E, Endo A. Standard Dental Disease Code Master. Japan Journal of Medical Informatics. 2014.10; 34(4); 173-182

[Conference Activities & Talks]

1. Junji Tagami. Dental Education in Japan. 2014.02.28 Bangok, Thailand

2. R. BACELAR-SÁ, A.K.B. BEDRAN-RUSSO, T. NIKAIDO, J. TAGAMI, G.M.B. AMBROSANO, M. GIANNINI.. Bond strength evaluation of HEMA-free adhesive systems to dentin.. AADR 2014.03.19 Charlotte, USA

3. Junji Tagami. Creation Our Future. 2014.03.21 Khon Koen University

4. Keiichi Hosaka. Esthetic and functional direct composite restoration based on adhesive dentistry. 36th Annual Scientific Conference on Dental Research, University of Medicine and Pharmacy, Ho Chi Minh City 2014.04.01 Ho Chi Minh City

5. Junji Tagami. Session: Concurrent Session 4-Saliva/caries – aspects from child to adult Presentation Topic: Materials and cariology. 22nd Convocation 2014, RACDS 2014.04.11 Surfers Paradise Marriot Resort

6. Junji Tagami. Session: Concurrent 2-Dental Materials Presentation Topic: Adhesive restorative materials. 22nd Convocation 2014, RACDS 2014.04.11 Surfers Paradise Marriot Resort

7. Toru Nikaido.. Current Concept of “Super Tooth” in Adhesive Dentistry.. Pre-105th Convention, The Philippine Dental Association 2014.05.10 Manila, Philippine

8. Toru Nikaido. Minimal Invasive Approach in Direct & Indirect Composite Restorations.. Pre-105th Convention, The Philippine Dental Association 2014.05.10 Manila, Philippine

9. Hidekazu Takahashi, Naoko Harada. How could we contribute to the development of dental devices? -What the industry-academia collaboration should be?-. The 123rd Annual Meeting 2014.05.25

10. Nassar M, Hiraishi N, Tamura Y, Otsuki M, Ohya K, Tagami J. Phytic Acid: An Alternative Root Canal Chelating Agent. 92nd IADR general session 2014.06

11. Junji Tagami. Current Concept, Future Approach in Caries Control. Malaysia-International Dental Exhibition and Conference 2014.06.01 Kuala Lumpur Convention Centre

12. Bakhsh TA, Sadr A, Shimada Y, Mandurah M, Alsayed E, Tagami J. Cryo-FIB/TEM for characterization of dental hard tissue interface. IADR General Session 2014.06.01 Cape Town, South Africa

13. Oto ARAMAKI, Rena TAKAHASHI, Junji TAGAMI. Bonding property of resin cement to Direct Crown. 2014.06.19

14. Atsuko TAGAMI, Rena TAKAHASHI, Toru NIKAIDO, Junji TAGAMI. Bonding property of resin cement to Dentin. 2014.06.19

15. Majkut Patrycja, Alireza Sadr, Yasushi Shimada, Bista Baba, Junji Tagami, Yasunori Sumi. Evaluation of remaining dentin thickness of pulp chamber roof using optical coherence tomography in comparison to micr-computed tomography. The 140st meeting of the Japanese society of concervative dentistry 2014.06.19 Shiga

16. Ritsuko Mashiko, Go Inoue, Junji Atomura Gerardo Joves, Syoji Nakashima, Toru Nikaido, Junji Tagami. The effect of FCP-Complex for bovine demineralized dentin. 140th Hozon Gakkai 2014.06.19

17. Noda Yukari, Takahashi Masahiro, Mamanee Teerapong, Nakajima Masatoshi, Ikeda Masaomi, Takagaki Tomohiro, Hosaka Keiichi, Tagami Junji. The effect of universal primer on the bond strength to three kinds of ceramics. 2014.06.19 Shiga prefecture

18. Makishi P, Thitthaweerat S, Sadr A, Shimada Y, Giannini M, Tagami J, Sumi Y.. Marginal adaptation of adhesives to class-I cavity and their bond-strength.. IADR General Session 2014.06.26 Cape Town, South Africa.

19. S.J. Khunkar, S. Utaka, A. Sadr, S. Nakashima T. Nikaido, J Tagami. Formation and Characterization of hypermineralized zone. Eurppean Organization for Caries Research, ORCA 2014.07.02 Germany Greifwald

20. M.J.R.H. Romero, S. Nakashima, A. Sadr, T. Nikaido, J Tagami. Effect of Casein as a Model Pellicle Precursor Protein on In vitro Dentin Remineralization. European Organization for Caries Research, ORCA 2014.07.02 Germany, Greifswald

21. Ogita M, Tsuchida S, Aoki A, Satoh M, Kado S, Sawabe M, Nanbara H, Kobayashi H, Takeuchi Y, Mizutani K, Sasaki Y, Nomura F, Izumi Y. Increased cell proliferation and differential protein expression induced by low-level Er:YAG laser irradiation in human gingival fibroblasts: proteomic analysis. 14th Congress of the World Federation for Laser Dentistry 2014.07.03

22. Shimada Y. Self-etch adhesivea and reliable bond. 13th International Congress of Iranian Association of Pediatric Dentistry 2014.08.07 Mashhad, Iran

23. Junji Tagami. Advanced Esthetic Dentistry with Advanced Adhesive Technology. 2014.08.08 Pontificia Universidad Catōlica de Chili / Universidad de La Frontera

24. Shimada Y. Optical coherence tomography (OCT) for diagnosis of dental caries and tooth crack. 13th International Congress of Iranian Association of Pediatric Dentistry 2014.08.08 Mashhad, Iran

25. Turkistani A, Sadr A, Shimada Y, Nakashima S, Tagami J, Sumi Y.. Evaluation of demineralization around composite restorations using Optical Coherence Tomography. . IADRSEA-ADE 2014.08.11 Kuching, Malaysia

26. Junji Tagami. Session 1: Photonic and clinical florescence「Optical Coherence Tomography: Fundamental researches and clinical application」. 2nd international conference on fluorescence-based diagnostic of oral diseases Montpellier, France 2014.09.04 Montpellier

27. MakishiP, Thitthaweerat S, Sadr A, Shimada Y, Giannini M, Tagami J, Sumi Y.. Relationship between non-destructive leakage evaluation and bond strength of adhesives.. ADM 2014 annual meeting 2014.10.08 Bologna, Italy.

28. Junji Tagami. Question and Answer session. ABD, Academy of Biomimetic Dentistry, 3rd Annual Conference 2014.10.19

29. Junji Tagami. Optical Coherence Tomography: watching in real time the effects of polymerization shrinkage stress on the hybrid layer. ABD, Academy of Biomimetic Dentistry, 3rd Annual Conference 2014.10.19 Renaissance Los Angeles Airport Hotel

30. Junji Tagami. Testing adhesive bonds at TMDU. ABD, Academy of Biomimetic Dentistry, 3rd Annual Conference 2014.10.19 Renaissance Los Angeles Airport Hotel

31. Junji Atomura, Go Inoue, Ritsuko Mashiko, Jyunichi Shinagawa, Toru Nikaido, Junji Tagami. Assesment on adhesive-artificial demineralized dentin surface after treatment with FCP-Complex . 141st Hozon Gakkai 2014.10.30

32. Chihiro Matsuura, Yasushi Shimada, Junji Tagami, Yasunori Sumi. 3D assessment of dentin caries under composite restorations using SS-OCT. The 141st meeting of the Japanese society of concervative dentistry 2014.10.31

33. Tomoko Tabata, Yasushi Shimada, Junji Tagami, Yasunori Sumi. Assessment of enamel crack occurred at adhesive cavosurface margin using SS-OCT. The 141st meeting of the Japanese society of concervative dentistry 2014.10.31 Yamagata City

34. Tabata M, Asano A, Kitasako Y, Ikeda M, Tagami J, Goda T, Matsumoto A, Miyahara Y. MIniaturized Ir/IrOx pH sensor for quantitative diagnosis of dental caries. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5) Conjunction with 6th IBB Frontier Symposium 2014.11.19 Tokyo, Japan

35. Junji Tagami. New trend of dental materials, adhesive resin and composite resin. The new international course new materials and technologies in dental medicine 2014.11.28 Masaryk University, Faculty of Medicine,oral surgery

36. Nakajima M. Reconsideration of Adhesion Technique in Resin Core Buildups (Masatoshi NAKAJIMA). Special Lecture, Masaryk University, Brno. Czech Republic 2014.12.18

[Awards & Honors]

1. The IADR Unilever Hatton Competition and Awards, 2014.06

2. Second price of the Best research for a poster presentation, World Federation for Laser Dentistry, 2014.07

[Others]

1. Evaluation of Community Dental Health Activities in Hiraizumi-cho(IWATE pref.) 1985-

2. Study on Structure of Oral-Medical-Informatics-System. 1991-

3. Study on the Arch Length Discrepancy of Children in Kanagawa 1991-

Fixed Prosthodontics

Professor
Hiroyuki MIURA

Associate Professor
Kenichi YOSHIDA

Junior Associate Professor
Daizo OKADA
Wataru KOMADA

Assistant Professor
Chiharu SHIN
Shiho OTAKE
Reiko OGURA
Satoshi OMORI
Reina NEMOTO

Attending Staff
Tasuku INAGAKI
Yoji UEDA
Rie FUJITA
Tazuko MAKIYAMA
Ayaka NODA
Hiroyuki OKAMOTO
Miho SATO
Kyoshi MATSUKAWA
Fujino OSHIMA
Yoko ISHIKAWA
Mariko KUBO
Kazuhisa FUJITA
Hideto MATSUI
Risa YAMADA
Luo Siyang
Michika MINAMIFUCHI
Ayana URABA
Izumi FUKUMOTO
Bakhit Mohammed Yassin M
Paisankobrit Vibul
Rana Asano
Saika Shirasaki
Mina Takita
Shiro Rikitoku
Kai Shibakuchi

(1) Research

1)Occlusion and Mastication.(mandibular position, mandibular movement, articulator, masticatory efficiency)

2)Influence of mechanical stress caused by occlusal contact on stomatognathic system. (Tooth displacement, distortion of alveolar bone, occlusal contact, proximal contact etc.)

3)Relationship of main occluding area and occlusal contact

4)Research on post and core(materials, stress analysis etc.)

5)Clinical application of latest technology and development of new materials (CAD/CAM, Zirconia, optical impression etc.)

6)Influence of occlusal contact for an important prosthesis on the periodontal tissues of the antagonist.

7)Application of laser welding in crown and bridge restorations.

8)Influence of dental materials for periodontal tissues and biological body.

9)Functional analysis of abnormal stomatognathic function

(2) Lectures & Courses

The major subjects of the studies are occlusion of Cr-Br prostheses (fixed restoration such as crown and fixed partial denture), analysis of mandibular movement, influence of crown and periodontal tissue and its systemic affect, accuracy of manufacturing processes of crown (i.e. casting, soldering, luting and adjustment of occlusion), functional analysis of stomatognathic system and development of apatite ceramic implant. The research themes are investigated with measurement systems of mandibular movement, measuring instruments of tooth micro-displacement, electromyography, measurement apparatus of dimensional accuracy, EPMA (electron probe microanalyzer) for analyzing very small amount of dental alloy and histopathological methods. Clinical training and general lecture on prosthodontics are prepared for the graduate students in the first year. After the second year they will have special training for their research methods and experiments will be performed according to the research plan. In the last year the students will write the paper for thesis under the direction of the professor.

(3) Clinical Services & Other Works

1) Clinic for prosthodontics (Prosthodontics practice clinic)
This clinic is organized by clinical teams, and 4 to 8 dentists compose 1 team working in cooperation between teams. Here offers a complete range of restorative, rehabilitative, and esthetic dentistry, treatment types include since simple one teeth to complete oral rehabilitation using the latest technologies.

2) Clinic for dental allergy (Dental allergy clinic)
This clinic provides allergy tests test for dental alloys and dental materials on potential patients before dental treatment, besides, patients with skin and/or oral deseases histories induced by previous dental restorations. The causal allergen/s is/are identified by patch tests or if some metal restoration is allergy set on, is analyze by Electron Probe Micro Analyzer (EPMA), removing out only restoration such content allergens.

(4) Publications

[Original Articles]

1. Rie Fujita, Wataru Komada, Kosuke Nozaki, Hiroyuki Miura. Measurement of the remaining dentin thickness using optical coherence tomography for crown preparation. Dent Mater J. 2014; 33(3); 355-362

2. Tasuku Inagaki, Wataru Komada, Reina Nemoto, Keiichi Yoshida, Hiroyuki Miura. Influence of post and core materials on distortion around 4-unit zirconia bridge margins. Dent Mater J. 2014; 33(3); 373-382

3. Yoji Ueda , Daizo Okada, Reiko Ogura, Wataru Komada, Shiho Otake, Masaomi Ikeda, and Hiroyuki Miura. Evaluation of occlusal relationship reproducibility with CAD/CAM techniques. Asian Pac J Dent. 2014; 14(2); 35-40

4. Milheiro A., Nozaki K., Klkeverlaan C. J., Muris J., Miura H., Feilzer A. J. In vitro cytoxicity of metallic ions released from dental alloys. Odontology. 2014.12;

[Conference Activities & Talks]

1. Yuka Fujita, Reiko Ogura, Daizo Okada, Miho Sato, Haruomi Abe and Hiroyuki Miura. The relationship between bite force and occlusal sensation during biting. AADR/CADR Annual Meeting & Exhibition 2014.03.19 Charlotte, N.C., USA.

Pulp Biology and Endodontics

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Associate Professor:
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Junior Associate Professor:
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Assistant Professor:
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Reiko WADACHI, Noriyuki SUZUKI, Satoshi WATANABE, Jun KAWAMURA

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Kei KOMATSU, Kana MIYARA, Mioko YAMAMOTO, Masaru ICHIKAWA,
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Graduate Student:
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Shintaro URABA, Daisuke TOKITA, Kento TAZAWA, Kanako YAO,
Nami TAKASHINO, Alamuddin BAKHIT, Kentaro HASHIMOTO,
Miki NISHIJO

Research Student:
Yuka ABE, Yasuko KAGEYAMA, Hiroyuki HARADA,
Yasumiko WAKABAYASHI, Yukari MORI

(1) Outline

Pulp biology and endodontics is a field of the clinical dentistry that makes researches about the prevention, pathology, diagnosis and treatment of periapical and dental pulp disease. In order to function well the teeth in the oral cavity, it is important to understand the complexity of the root canal and the dental pulp feature. The goal of endodontics is to save a biological function of the teeth by the prevention and treatment of periapical and dental pulp disease.

(2) Research

1) Defense systems in the dental pulp/periapical tissue
2) Regulation of periapical bone destruction in apical periodontitis
3) Dental pulp stem cells/ Differentiation of pulp cells/ Horizon of pulpal regeneration
4) Strain produced in the root canal wall dentin
5) Application of medicaments to endodontics
6) Evaluation of endodontic technique using computational fluid dynamics(CFD)

7) Application of laser to endodontics
8) Application of optical coherence tomography
9) Analysis of nickel-titanium endodontic instruments
10) Electrophysiological approach to cell-to-cell couplings between odontoblasts
11) Diffusion through enamel and dentin
12) Lymphangiogenesis in the dental pulp
13) Influence of sympathetic nervous control on dentinogenesis of odontoblasts
14) Neuro-scientific research for dental pain
15) Molecular biological approach to the alveolar bone resorption associated with pulpal diseases
16) Diagnosis using CBCT
17) Logistic regression equation to screen for vertical root fractures using cone-beam CT (3DX)

(3) Education

The aim of the course is to train and educate graduate dental students so that they can act as leading clinical scientists, researchers or practitioners of endodontics in the world. Since recent progress of pulp biology and endodontics is remarkable, the students are educated to acquire the newest knowledge on modern endodontology and its related subjects, such as pulp biology, neuroscience, bacteriology, immunology and material sciences, and are trained to master the newest technology of endodontics. All the students are asked to add new findings to the field of endodontics based on their own original research. The graduates from this course are expected to disseminate new principles and techniques on endodontics among general dental practitioners and endodontic specialists.

(4) Clinical Services & Other Works

Pulp Biology and Endodontics is in charge of the Endodontic Clinic in our Dental Hospital, and offers the global standard of endodontics to our patients. The representative treatments provided in our clinic are as follows:
· Diagnosis and treatment of pulpal and periapical diseases
· Protective procedures for the dental pulp
· Nonsurgical endodontic treatment
· Surgical endodontic treatment
· Bleaching discolored teeth
· Restoration of endodontically treated teeth

(5) Clinical Performances

The latest development of endodontics is remarkable as seen in root canal instrumentation by super-elastic NiTi rotary files, root canal length measurement with newly developed electronic apex locators, diagnosis by cone beam computed tomography, and microendodontics by using a surgical microscope. Especially, microendodontics has dramatically changed conventional "blind" endodontics into more predictable endodontics by efficient and reliable procedures under a lightened and magnified view. Also, we seek to provide evidence-based endodontic treatment based on our clinical research.

(6) Publications

[Original Articles]

1. Kana Miyara, Yoshio Yahata, Yohsuke Hayashi, Yusuke Tsutsumi, Arata Ebihara, Takao Hanawa, Hideaki Suda. The influence of heat treatment on the mechanical properties of Ni-Ti file materials. Dent Mater J. 2014; 33(1); 27-31

2. Jindan Piao, Kana Miyara, Arata Ebihara, Naoyuki Nomura, Takao Hanawa, Hideaki Suda. Correlation between cyclic fatigue and the bending properties of nickel titanium endodontic instruments. Dent Mater J. 2014; 33(4); 539-544

3. Mioko Yamamoto, Nobuyuki Kawashima, Nami Takashino, Yu Koizumi, Koyo Takimoto, Noriyuki Suzuki, Masahiro Saito, Hideaki Suda. Three-dimensional spheroid culture promotes odonto/osteoblastic differentiation of dental pulp cells. Arch. Oral Biol.. 2014.03; 59(3); 310-317

4. Jiangfeng Ding, Arata Ebihara, Satoshi Watanabe, Yoshiko Iino, Chizuko Kokuzawa, Tomoo Anjo, Hideaki Suda, Yasunori Sumi. Application of optical coherence tomography to identify pulp exposure during access cavity preparation using an Er:YAG laser. Photomed Laser Surg. 2014.06; 32(6); 356-359

5. Kazuhisa Satake, Satoshi Watanabe, Ayai Ide, Kanako Yao, Masaru Ichikawa, Tomoo Anjo, Arata Ebihara, Chihiro Kobayashi, and Hideaki Suda. Pressure Generated Outside the Apical Foramen During Er:YAG Laser-activated Irrigation J. Jpn. Soc. Laser Dent.. 2014.08; 25(2); 70-74

6. Koyo Takimoto, Nobuyuki Kawashima, Noriyuki Suzuki, Yu Koizumi, Mioko Yamamoto, Misako Nakashima, Hideaki Suda. Down-regulation of inflammatory mediator synthesis and infiltration of inflammatory cells by MMP-3 in experimentally induced rat pulpitis. J Endod. 2014.09; 40(9); 1404-1409

7. Yoshiko Iino, Arata Ebihara, Toshihiko Yoshioka, Jun Kawamura, Satoshi Watanabe, Takahiro Hanada, Kiwako Nakano, Yasunori Sumi, Hideaki Suda. Detection of a second mesiobuccal canal in maxillary molars by swept-source optical coherence tomography. J Endod. 2014.11; 40(11); 1865-1868

8. Kei Komatsu, Yuka Abe, Toshihiko Yoshioka, Hitomi Ishimura, Arata Ebihara, Hideaki Suda. Differential diagnosis of vertical root fractures using reconstructed three-dimensional models of bone defects. Dentomaxillofac Radiol. 2014.12; 43(8); 20140256

9. Sirawut Hiran-us, Jirapat Sawasdichai, Somsinee Pimkhaokham, Arata Ebihara, Hideaki Suda. Canal aberrations promoted by three Nickel-Titanium rotary instruments in simulated S-shaped canal. SWU Dent J. 2014.12; 7(Suppl); 12-16

10. Yoshio Yahata, Kaoruko Yahata, Hitoshi Sakaue, Arata Ebihara , Yoshiko Masuda, Hideaki Suda. Multidisciplinary management of a laterally luxated maxillary central incisor: An evaluation using cone beam computed tomography. Endodontic Practice Today . 2014.12; 8(4); 309-314

11. Ahmed Jamleh, Alireza Sadr, Naoyuki Nomura, Arata Ebihara, Yoshio Yahata, Takao Hanawa, Junji Tagami, Hideaki Suda. Endodontic instruments after torsional failure: nanoindentation test. Scanning. 36(4); 437-443

[Conference Activities & Talks]

1. Kawashima N. Regenerative endodontics-induction of bone and dental pulp tissue from dental pulp. International symposium of molecular mechanism in bone and tooth, its clinical implication 2014.01.20 Tokyo

2. Miyara K, Ogura S, Komabayashi T, Ebihara A, Hanawa T, Suda H. Centering ability and bending property of WaveOne™Primary reciprocating files. AADR 2014.03.19 Charlotte

3. Kawashima N, Suzuki N. Bone Tissue Regeneration Using the Spheroid Cultured Dental Pulp Stem Cells. AAE Annual Session 2014 2014.04.30 Washington DC

4. Ikeda H. Microcirculation of the Pulp. Pulp Biology Symposium, Hasselt 2014.06.20 Univ Hasselt, Belgium

5. Ikeda H, Suda H. Odontoblastic Syncytium through Electrical Coupling in the Human Dental Pulp. International Association for Dental Research 2014.06.23 Cape Town, South Africa

6. Iino Y, Yoshioka T, Hanada T, Ebihara A, Sumi Y, Suda H. Detection of the second mesiobuccal canal of maxillary molars by swept-source optical coherence tomography-Comparison between inexperienced and experienced dentists-. World Federation for Laser Dentistry 2014.07.02 Paris

7. Satake K, Ide A, Yao K, Ichikawa M, Watanabe S, Anjo T, Ebihara A, Kobayashi C, Suda H. Apical extrusion of root canal irrigants during root canal irrigation activated by diode laser. WFLD 14th 2014.07.03 Paris

8. Yao K, Ide A, Satake K, Ichikawa M, Watanabe S, Anjo T, Ebihara A, Kobayashi C, Suda H. Er:YAG laser-activated irrigation for lateral canals. WFLD 14th 2014.07.03 Paris

9. Ebihara A, Iino Y, Yoshioka T, Hanada T, Sumi Y, Suda H. Observation of resected apical surfaces of human premolars by swept-source optical coherence tomography. WFLD 2014.07.03 Paris

10. Watanabe S, Ide A, Yao K, Satake K, Ichikawa M, Anjo T, Ebihara A, Kobayashi C, Suda H. Pressure generated outside the apical foramen during root canal irrigation activated by diode laser. WFLD 14th 2014.07.04 Paris

11. Kawamura J, Kaneko T, Yamanaka Y, Ito T, Sunakawa M, Okiji T, Suda H. Local anesthetic pretreatment suppresses activation of astrocytes as antigen presenting cells in the rat thalamus following dental pulp inflammation.. 13th International Symposium on Dentritic Cells 2014.09.14 Vinvi Congress Center, Tours (Loire Valley), France

12. Tazawa K, Ikeda H, Suda H. Dynamic Change in Lymphatic Network by Inflammation of Rat Pulp. Japanese Association for Dental Research 2014.12.04 Osaka

13. Gu J, Ikeda H, Suda H. Regulation of Tertiary Dentinogenesis via Beta-2 Adrenergic Receptor in the Rat Odontoblasts. Japanese Association for Dental Research 2014.12.04 Osaka

14. Salima A, Ikeda H, Tazawa K, Gu J, Suda H. Permeability of Capsaicin through Human Enamel. Japanese Association for Dental Research 2014.12.05 Osaka

[Works]

1. Ikeda H, Endodontic Model Practice autumn, 2014, Educational Materials, 2014.09 - 2014.12

[Awards & Honors]

1. Ikeda H, Suda H. Journal of Dental Research Best Paper of the Year (IADR, Pulp Biology), International Association for Dental Researach (IADR Pulp Biology and Regeneration Group), 2014.01

2. Yao K, Ide A, Satake K, Ichikawa M, Watanabe S, Anjo T, Ebihara A, Kobayashi C, Suda H. First prize of the Best research , World Federation for Laser Dentistry, 2014.07

3. Ikeda H, Suda H. The 2014 Journal of Dental Research Cover of the Year Award, IADR/AADR Publications Committee of Journal of Dental Research, 2014.07

Removable Partial Prosthodontics

Professor WAKABAYASHI Noriyuki
Associate Professor
FUEKI Kenji
Junior Associate Professor
UENO Takeshi
Assistant Professor
INUKAI Shusuke
Assistant Professor
KOHNO Eiko
Assistant Professor
MINAMI Ichiro
Assistant Professor
MURAKAMI Natsuko
Assistant Professor
WADA Junichiro
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NAKAMURA Teruyasu
Graduate Student
AKIMOTO Teisuke
Graduate Student
ARAI Yuuki
Graduate Student
HANDA Kazuyuki
Graduate Student
HAYAMA Hironari
Graduate Student
HIRASAWA Masahiro
Graduate Student
INAGAWA Hideaki
Graduate Student
INAMOCHI Yuka
Graduate Student
ISHIYAMA Hiroyuki
Graduate Student
KAJIMA Yuka
Graduate Student
KUMAGAI Hayato
Graduate Student
NABESHIMA Gen
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NAKAMURA Kazutoshi
Graduate Student
NOGAWA Yasuha

Graduate Student
SATOKAWA Yuya
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SUZUKI Natsuki
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WATANABE Chie
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Graduate Student
YOGO Yoshiaki
Graduate Student
YOSHIHARA Chie
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TSUBOTA Yasuhiro
Dental Resident
KATSUKI Azusa
Dental Resident
SEKINISHI Takashi
Dental Resident
SHIOZAWA Maho
Dental Resident
TAKAICHI Atsushi
YATABE Masaru

(1) Outline

The Department of Removable Partial Prosthodontics specializes in removable partial denture treatment, which is one of the major disciplines of clinical dentistry. The department has taken the baton from the First Department of Prosthodontics and the Department of Masticatory Function Rehabilitation.
Our objectives are to enhance the art and science of removable prosthodontics for the management of various oral conditions associated with tooth loss, from a single missing tooth to a single remaining tooth, in the maxillary and/or mandibular arch.

(2) Research

1. Function and Physiology in Partial Denture Wearers
2. Optimization of Partial Denture Design based on Stress Analysis
3. Development and Applications of New Biomaterials to Prosthodontics
4. Biology of Oral Tissues in Denture Wearers
5. Epidemiology and Education for Removable Partial Prosthodontics

(3) Education

School of Dentistry
Year 1
Introduction to Dentistry

Year 3
Introduction to Clinical Dentistry
Tooth Carving
Observation and assistance at clinic term Ⅰ and Ⅱ

Basic Occlusal Reconstruction

Year 4
Research Project
Removable Partial Prosthodontics
Advanced knowledge and skill with occlusion

Years 5 and 6
Dental Practice and Clinical Practicum for Comprehensive Patient Care (Clinical Internship)

School of Oral Health Care Sciences, School of Oral Health Care Sciences
Year 2 Prosthodontics
Years 3 and 4 Practice for Dental Hygiene Care
School of Oral Health Care Sciences, Course for Oral Health Engineering
Year 2 Removable Prosthodontics Technology

(4) Lectures & Courses

The Department of Removable Partial Prosthodontics offers a variety of educational courses pertaining to the specialized clinical management of tooth loss, primarily for undergraduate students at the School of Dentistry. The courses include lectures, tutorials, hands-on sessions, clinical simulations, and clinical internship instructions.
The ability to perform clinical operations on patients with tooth loss, including the skills required for medical interviews, oral examinations, diagnosis, decision making, impression making, bite registration, denture design and technology, and denture delivery and maintenance, is essential for clinical dental professionals. The objectives of our courses are to provide learning and training in contemporary removable prosthodontics and enhance the knowledge and skills of students to help them develop and flourish in their future career as dental and oral health professionals.

(5) Clinical Services & Other Works

All faculty members of the Department of Removable Partial Prosthodontics are assigned to treat patients at the Prosthodontics department in the Dental Hospital of the Tokyo Medical and Dental University. While the rate of tooth retention has increased in comparison with previously reported rates, the number of patients in need of a removable partial denture has increased. Our specialists primarily work on advanced cases that are referred from other departments and outside the hospital. The departmental mission also includes the development and application of new prosthodontic materials, their clinical trial, and the spread of novel and inventive knowledge to the community.

(6) Clinical Performances

The department specializes in removable partial prosthodontics and aims to restore missing teeth and associated oral tissues; improve physiological functions such as occlusion, mastication, swallowing, and speech; maintain normal oral sensation; and restore the original appearance of individual patients.
Treatment modalities, materials, and denture design are all based on the case history and chief complaint of the patients. The ultimate goal is to improve the oral health-related quality of life of patients.

(7) Publications

[Original Articles]

1. Murakami N, Wakabayashi N.. Finite element contact analysis as a critical technique in dental biomechanics: A review. Journal of Prosthodontic Research. 2014; 58(2); 92-101

2. Sekinishi T, Inukai S, Murakami N, Wakabayashi N. Influence of denture tooth thickness on fracture mode of thin acrylic resin bases: An experimental and finite element analysis. The Journal of Prosthetic Dentistry. 2014;

3. Lauvahutanon S, Takahashi H, Shiozawa M, Iwasaki N, Asakawa Y, Oki M, Finger WJ, Arksornnukit M. Mechanical properties of composite resin blocks for CAD/CAM Dental Materials Journal. 2014; 33(5); 705-710

4. Kenji Fueki, Eleni D Roumanas, Keith E Blackwell, Earl Freymiller, Elliot Abemayor, Weng Kee Wong, Krishan K Kapur, Neal Garrett. Effect of implant support for prostheses on electromyographic activity of masseter muscle and jaw movement in patients after mandibular fibula free flap reconstruction. Int J Oral Maxillofac Implants. 2014.01; 29(1); 162-170

5. R Hayashi, T Ueno, S Migita, Y Tsutsumi, H Doi, T Ogawa, T Hanawa, N Wakabayashi. Hydrocarbon Deposition Attenuates Osteoblast Activity on Titanium. J. Dent. Res.. 2014.05; 93(7); 698-703

6. Shiozawa M, Takahashi H, Iwasaki N. Fluoride release and mechanical properties after 1-year water storage of recent restorative glass ionomer cements Clinical Oral Investigations. 2014.05; 18(4); 1053-1060

7. K Shoi, K Fueki, N Usui, M Taira, N Wakabayashi. Influence of posterior dental arch length on brain activity during chewing in patients with mandibular distal extension removable partial dentures. J Oral Rehabil. 2014.07; 41(7); 486-495

8. Junichiro Wada, Kenji Fueki, Masaru Yatabe, Hidekazu Takahashi, Noriyuki Wakabayashi. A comparison of the fitting accuracy of thermoplastic denture base resins used in non-metal clasp dentures to a conventional heat-cured acrylic resin. Acta Odontol. Scand.. 2014.10; 1-5

9. K Kainose, M Nakajima, R Foxton, N Wakabayashi, J Tagami. Stress distribution in root filled teeth restored with various post and core techniques: effect of post length and crown height. Int Endod J. 2014.10;

10. Kajima Y, Doi H, Takaichi A, Hanawa T, Wakabayashi N. Surface characteristics and castability of Zr-14Nb alloy dental castings. Dental materials journal 33. 2014.10; 33(5); 631-637

11. Shiozawa M, Takahashi H, Iwasaki N, Wada T, Uo M. Effect of immersion time of restorative glass ionomer cements and immersion duration in calcium chloride solution on surface hardness Dental Materials. 2014.12; 30(12); e377-e383

[Books etc]

1. Ichiro Minami and Alex Wirianski. Accelerometers: Principles, Structure and Applications. (ISBN : 978-1-62808-128-2)

[Misc]

1. Kenji Fueki, Chikahiro Ohkubo, Masaru Yatabe, Ichiro Arakawa, Masahiro Arita, Satoshi Ino, Toshikazu Kanamori, Yasuhiko Kawai, Misao Kawara, Osamu Komiyama, Tetsuya Suzuki, Kazuhiro Nagata, Maki Hosoki, Shin-Ichi Masumi, Mutsuo Yamauchi, Hideki Aita, Takahiro Ono, Hisatomo Kondo, Katsushi Tamaki, Yoshizo Matsuka, Hiroaki Tsukasaki, Masanori Fujisawa, Kazuyoshi Baba, Kiyoshi Koyano, Hirofumi Yatani. Clinical application of removable partial dentures using thermoplastic resin-part I: definition and indication of non-metal clasp dentures. J Prosthodont Res. 2014.01; 58(1); 3-10

2. Kenji Fueki, Chikahiro Ohkubo, Masaru Yatabe, Ichiro Arakawa, Masahiro Arita, Satoshi Ino, Toshikazu Kanamori, Yasuhiko Kawai, Misao Kawara, Osamu Komiyama, Tetsuya Suzuki, Kazuhiro Nagata, Maki Hosoki, Shin-ichi Masumi, Mutsuo Yamauchi, Hideki Aita, Takahiro Ono, Hisatomo Kondo, Katsushi Tamaki, Yoshizo Matsuka, Hiroaki Tsukasaki, Masanori Fujisawa, Kazuyoshi Baba, Kiyoshi Koyano, Hirofumi Yatani. Clinical application of removable partial dentures using thermoplastic resin. Part II: Material properties and clinical features of non-metal clasp dentures. J Prosthodont Res. 2014.04; 58(2); 71-84

[Conference Activities & Talks]

1. Matsui Fumika, matsuura Hiroshi, Wada Junichiro, Inukai Shusuke, Hideshima Masayuki.. Estimation of accent types of Japanese geminate speech uttered by foreign students using fundamental frequency and phonetic segment sequence. 2014 Spring Meeting of Acoustical Society of Japan 2014.03.11 Tokyo

2. Harakawa R, Wadachi J, Takahashi H,Wakabayashi N. Reinforcement of resin for denture bases ujsing metal fith carbon fiber. 2014.05.25

3. Hudieb M, Wakabayashi N, Kasugai S. Biomechanical effects of exposed dental implant threads: A three dimensional finite analysis. The 23rd Annual Scientific Meeting of European Association for Osseointegration 2014.09.25 Parco Della Musica, Rome, Italy

4. Noriyuki Wakabayashi. Upgraded science and art in prosthodontics. TMDU Research day for International Students 2014.10.20 Tokyo

Oral Implantology and Regenerative Dental Medicine

Professor and Chair Shohei KASUGAI
Associate Professor Makoto SHIOTA
Assistant Professor Noriko TACHIKAWA
Assistant Professor Shinji KURODA, Hidemi NAKATA

Medical Staffs:
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Graduate Research Students:
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Special Foreign Research Students:
Kuppusamy Maheswari, Kui ZHANG

Foreign Researcher:
Joshua CHOU

Registered Residents:
Kensuke FUKUTOMI, Haruka ITOH, Aoi SAKUYAMA, Kei FUCHIGAMI, Kazuhisa TSURUMI, Toshifumi KOJIMA, Takuya Kanemaru, Genki Yagi, Yoko Oba, Daiki Maeda

Clinical Professor (Faculty of Dentistry) Hideaki KATSUYAMA
Clinical Visiting Associate Professor Koji HAGINO
Clinical Visiting Assistant Professor Tsuneji OKADA

Adjunct Assistant Professor (Faculty of Dentistry):
Maho KON, Yuki DATE, Akiko FURUICHI, Takahiro NAKAMURA, Hiroshi KOBAYASHI, Daisuke SATO, Shang GAO

Adjunct Assistant Professor (Dental Hospital):
Hisatomo KONDO, Hidemichi KIHARA, Toru KANAI

(1) Research

Materials and structures of dental implant prostheses
Implant design and surface modification of dental implant
Dental implant and its surrounding tissues
Regeneration of soft tissues
Regeneration of bone
Adipose-derived stem cells for osteogenesis

(2) Lectures & Courses

Currently, oral rehabilitation with dental implant is very effective and predictable. It is absolutely important for the dental student to understand dental implant treatment compared to other modalities. Nine hours lectures for the 5th year dental students are the introduction part. Each of these students has a chance to see patient examination process and several steps of treatment planning for half a day in the dental implant clinic. Furthermore, each of the 6th year students have a chance to see surgical procedures, prosthodontic treatments and maintenance procedures. In the residential program, we accepted 9 dentists and teach them more advanced contents of dental implant treatment.
In the doctoral course of Implantology Biomaterial sciences, structural engineering, anatomical structures, diagnosis and technical innovations are overviewed. In the doctoral course of Regenerative Dental Medicine, tissue engineering concept, regeneration of soft tissue and bone and recent technological advancements in these field are overviewed.

(3) Clinical Services & Other Works

In Dental Implant Clinic in the dental hospital, we treat partially or fully edentulous patients with dental implants. If soft tissue management and/or bone augmentation procedures are required, we also do these surgeries. Number of patients in Dental Implant Clinic is increasing every year and approximately 120 patients per day are treated, which is extremely over our capacities. Approximately 2,000 implants were installed in 2012. Patients with some clinical problems, who are treated in other clinics, are increasing and this is a great concern.

(4) Publications

[Original Articles]

1. Kanako Noritake, Shinji Kuroda, Myat Nyan, Yuji Atsuzawa, Motohiro Uo, Keiichi Ohya, Shohei Kasugai. Use of a gelatin hydrogel membrane containing β-tricalcium phosphate for guided bone regeneration enhances rapid bone formation. Dent Mater J. 2014; 33(5); 674-680

2. Masamitsu Oshima, Kaoru Inoue, Kei Nakajima, Tetsuhiko Tachikawa, Hiromichi Yamazaki, Tomohide Isobe, Ayaka Sugawara, Miho Ogawa, Chie Tanaka, Masahiro Saito, Shohei Kasugai, Teruko Takano-Yamamoto, Takashi Inoue, Katsunari Tezuka, Takuo Kuboki, Akira Yamaguchi, Takashi Tsuji. Functional tooth restoration by next-generation bio-hybrid implant as a bio-hybrid artificial organ replacement therapy. Sci Rep. 2014; 4; 6044

3. Maiko Yamamoto, Hidemi Nakata, Jia Hao, Joshua Chou, Shohei Kasugai, Shinji Kuroda. Osteogenic Potential of Mouse Adipose-Derived Stem Cells Sorted for CD90 and CD105 In Vitro. Stem Cells Int. 2014; 2014; 576358

4. Masahiro Shimogishi, Yusuke Tsutsumi, Shinji Kuroda, Motohiro Munakata, Takao Hanawa, Shohei Kasugai. Effects of acidic sodium fluoride-treated, commercially pure titanium on periodontal pathogens and rat bone marrow cells. Dent Mater J. 2014; 33(1); 70-78

5. Miao Yu, Hisashi Doi, Yusuke Tsutsumi, Peng Chen, Maki Ashida, Shohei Kasugai, Takao Hanawa. Formation of white oxide layer on Zr-14Nb alloy using thermal treatment. Dent Mater J. 2014; 33(4); 490-498

6. Masahiro SHIMOGISHI, Yusuke TSUTSUMI, Shinji KURODA, Motohiro MUNAKATA, Takao HANAWA, Shohei KASUGAI. Effects of acidic sodium fluoride-treated, commercially pure titanium on periodontal pathogens and rat bone marrow cells Dental Materials Journal. 2014; 33(1); 70-78

7. Joshua Chou, Jia Hao, Shinji Kuroda, Besim Ben-Nissan, Bruce Milthopre, Makoto Otsuka. Bone regeneration of calvarial defect using marine calcareous derived beta-tricalcium phosphate macrospheres Journal of Tissue Engineering. 2014; 5;

8. Kanako NORITAKE, Shinji KURODA, Myat NYAN, Yuji ATSUZAWA, Motohiro Uo, Keiichi OHYA, Shohei KASUGAI. Use of a gelatin hydrogel membrane containing β-tricalcium phosphate for guided bone Dental Materials Journal. 2014; 33(5); 674-680

9. Maiko Yamamoto, Hidemi Nakata, Jia Hao, Joshua Chou, Shohei Kasugai, Shinji Kuroda. Osteogenic Potential of Mouse Adipose-Derived Stem Cells Sorted for CD90 and CD105 in Vitro Stem Cells International. 2014; 2014;

10. Nassar Mohannad, Hiraishi Noriko, Shimokawa Hitoyata, Tamura Yukihiko, Otsuki Masayuki, Kasugai Shohei, Ohya Keiichi, Tagami Junji. The inhibition effect of non-protein thiols on dentinal matrix metalloproteinase activity and HEMA cytotoxicity. JOURNAL OF DENTISTRY. 2014.03; 42(3); 312-318

11. Hidemi Nakata, Shinji Kuroda, Noriko Tachikawa, Tomoko Nagayama, Shohei Kasugai. Aesthetical reconstruction of an anterior tooth in an alveolar cleft site:A case report and 3-year follow-up findings. J Oral Implantol. 2014.04;

12. M Nassar, N Hiraishi, M S Islam, Y Tamura, M Otsuki, S Kasugai, K Ohya, J Tagami, F R Tay. The effect of glutathione on 2-hydroxyethylmethacrylate cytotoxicity and on resin-dentine bond strength. Int Endod J. 2014.07; 47(7); 652-658

13. J Hao, J Chou, S Kuroda, M Otsuka, S Kasugai, N P Lang. Strontium hydroxyapatite in situ gel-forming system - a new approach for minimally invasive bone augmentation. Clin Oral Implants Res. 2014.07;

14. Minoru Sanda, Makoto Shiota, Masaki Fujii, Kazuhiro Kon, Tatsuya Fujimori, Shohei Kasugai. Capability of new bone formation with a mixture of hydroxyapatite and beta-tricalcium phosphate granules. Clin Oral Implants Res. 2014.08;

15. Takeshi Watanabe, Makoto Shiota, Shang Gao, Chiharu Imakita, Noriko Tachikawa, Shohei Kasugai. Verification of posterior superior alveolar artery distribution in lateral wall of maxillary sinus by location and defect pattern. Quintessence Int. 2014.09; 45(8); 673-678

16. Joshua Chou, Maki Komuro, Jia Hao, Shinji Kuroda, Yusuke Hattori, Besim Ben-Nissan, Bruce Milthorpe, Makoto Otsuka. Bioresorbable Zinc Hydroxyapatite GBR Membrane for Bone Regeneration Clinical Oral Implants Research. 2014.11;

17. Xin Wang, Osama Zakaria, Marwa Madi, Jia Hao, Joshua Chou, Shohei Kasugai. Vertical bone augmentation induced by ultrathin hydroxyapatite sputtered coated mini titanium implants in a rabbit calvaria model. J. Biomed. Mater. Res. Part B Appl. Biomater.. 2014.12;

18. Marwa Madi, Osama Zakaria, Shohei Kasugai. Coated vs uncoated implants: bone defect configurations after progressive peri-implantitis in dogs. J Oral Implantol. 2014.12; 40(6); 661-669

19. Shinji Kuroda. Application of A One-piece Dental Implant to An Upper Second Premolar Defect Using Flapless Surgery: A Clinical Report

20. Kazuhiro Kon, Makoto Shiota, Maho Ozeki, Shohei Kasugai. The effect of graft bone particle size on bone augmentation in a rabbit cranial vertical augmentation model: a microcomputed tomography study. Int J Oral Maxillofac Implants. 29(2); 402-406

[Conference Activities & Talks]

1. Kasugai S. Oral rehabilitation with dental implants is a double-edged sword. Myanmar Dental Conference 2014.01.24 National Theater, Yangon, Myanmar

2. Wang X, Zakaria O, Madi M, Kasugai S. Induced vertical bone augmentation using novel bioactive coated mini implants.. The 29th Annual Meeting of Academy of Osseointegration 2014.03.06 Washington State Convention Center, Seattle, USA

3. 42 Kuroda S, Nakata H, Hao J, Kasugai S. Interference of PPAR γ and acceleration of Osterix for osteoblast induction in adipocyte precursor cells.. The 29th Annual Meeting of Academy of Osseointegration 2014.03.06 Washington State Convention Center, Seattle, USA

4. Nakata H, Yamamoto M, Hao J, Kim Y, Miyasaka M, Nagayama S, Kasugai S, Kuroda S. A trial of three-dimesional bone regeneration by adipose-derived spheroids in vitro. The 29th Annual Meeting of Academy of Osseointegration 2014.03.06 Washington State Convention Center, Seattle, USA

5. Maeda H, Kobayashi H, Miyahara T, Hashimoto Y, Akiyoshi K, Kasugai S.. Effects of nonogel cross-linked gel membrane on soft tissue regeneration. The 29th Annual Meeting of Academy of Osseointegration 2014.03.06 Washington State Convention Center, Seattle, USA

6. Yuri Omura, Manabu Kanazawa, Daisuke Sato, Shin Takeshita, Mariko Tanoue, Ken Oda, Anna Miyayasu, Kaidiliya Yalikun, Shohei Kasugai, Shunsuke Minakuchi. . Immediate loading of mandibular two-implant overdenture retained by magnetic attachments: a preliminary report.. The 9th Scientific Meeting of the Asian Academy of Osseointegration 2014.07.05

7. Wang X, Osama Z, Madi M. Kasugai S. Vertical bone augmentation induced by the novel bioactive coated mini-implants in a rabbit calvarial model.. The 23rd Annual Scientific Meeting of European Association for Osseointegration 2014.09.25 Parco Della Musica, Rome, Italy

8. Suzuki A, Munakata M, Tachikawa N, Miyahara T, Yukawa K, Fuchigami K, Sanda M, Htet M , Fujimori T, Kasugai S. Comparison of mechanical debridement effect for implant surface with treatment alternatives.. The 23rd Annual Scientific Meeting of European Association for Osseointegration 2014.09.25 Parco Della Musica, Rome, Italy

9. Hudieb M, Wakabayashi N, Kasugai S. Biomechanical effects of exposed dental implant threads: A three dimensional finite analysis. The 23rd Annual Scientific Meeting of European Association for Osseointegration 2014.09.25 Parco Della Musica, Rome, Italy

10. Haraguchi M, Yamashiro M, Sumita YI, Mizutani M, Michi Y, Tachikawa N, Kasugai S, Harada H, Harada K, Taniguchi H. Impact factors for chewing function in maxillectomy patients. The 38th annual conference of the European prosthodontic association and 21st scientific congress of the Turkish prosthodontic and implantology association 2014.09.26 Istanbul, Turkey

11. Kasugai S. How to improve your communication skills in English.. NobelBiocare Emerging Leader Program 2014.11.10 NobelBiocare Japan Tokyo

12. Miyahara T, fujii M, Fujimori T, Tachikawa N, Shiota M, Kasugai S. Novel material consisted of apatite fiber for ridge preservation.. The 23rd Annual Scientific Meeting of European Association for Osseointegration Parco Della Musica, Rome, Italy

Plastic and Reconstructive Surgery

Professor: Mutsumi Okazaki
Junior Associate Professor: Hiroki Mori
Assistant Professor (Hospital Staff): Noriko Uemura
Graduate Student: Kentaro Tanaka, Yuhki Wakimura, Makiko Inoue, Takuya Higashino, Katsuya Gorai, Aki Takada, Hiroki Miyashita, Yoko Maruyama

(1) Research

Basic research
1. A mechanism and prophylaxis of the post-inflammatory pigmentation
2. A scarless wound healing
3. The blood circulation study of the flap using indocyanine green
4. Donor specificity on various flaps or full thickness skin
Clinical research
1. Sensory recovery and contour prediction in the breast reconstruction
2. The algorithmic development and the evaluation of various reconstructions in the skull base reconstruction
3. The development of reconstructive method after an oral cavity / pharyngeal cancer resection - Aiming at the functional preservation
4. The classification of the symptom and static and dynamic reconstruction of the facial paralysis
5. A classification and the algorithmic development in blepharoptosis surgery
6. The objective evaluation for the ischemic limb and therapeutic strategy utilizing wound healing mechanism
7. The prospective studies about the color reproducibility of the medical tattoo in the nipple areola reconstruction

(2) Education

Plastic surgery is a specialized branch of surgery concerned with the repair of deformities and the correction of functional deficits. The specialty of plastic surgery covers a wide range of procedures, and unlike other medical specialties which concentrate on one particular area of the body, plastic surgeons are involved in the reconstruction and remolding of nearly all external body structures.

(3) Clinical Performances

We cover the whole field of plastic surgery. In particular, we deal with the following field; congenital anormaly (cleft lip and palate, microtia blepharoptosis or polydactyly etc), LASERs, cutaneous malignant tumor, skin ulcer, breast reconstruction, head and neck reconstruction, facial palsy, axillary osmidrosis.

(4) Publications

[Original Articles]

1. Yano T, Okazaki M, Yamaguchi K, Akita K. Anatomy of the middle temporal vein: implications for skull-base and craniofacial reconstruction using free flaps Plast Reconstr Surg. 2014; 134; 92e-101e
2. Mori H, Kanda E, Okazaki M. Bottle opener flap for medial canthal defect. Dermatologic Surgery. 2014; 40(12); 1413-1415
3. Tanaka K, Okazaki M, Yano T, Miyashita H, Homma T, Tomita M. Quantitative evaluation of blood perfusion to nerves included in the anterolateral thigh flap using indocyanine green fluorescence angiography: a different contrast pattern between the vastus lateralis motor nerve and femoral cutaneous nerve. J Reconstr Microsurg. 2014; Epub
4. Usami S, Kodaira S, Okazaki M.. Primary on-top plasty for treatment of short-type postaxial polydactyly of the foot. Ann Plast Surg. 2014; Epub
5. Usami S, Okazaki M, Tanaka K, Homma T, Yano T. Lengthening the pedicle of a scapular osseous free flap by angular branch reconnection within the subscapular artery system. Microsurgery. 2014; 32; 662-665

[Conference Activities & Talks]

1. Usami S, Homma T, Hamanaga M, Okazaki M. Immediate bone grafting for the treatment of short type postaxial polydactyly of the foot. The 12th Korea-Japan Congress of Plastic and Reconstructive Surgery 2014.05.08 Inchon
2. Mori H, Uemura N, Tanaka K, Usami S, Okazaki M. Breast reconstruction with deep inferior epigastric perforator flap using preoperative multi-slice CT evaluation and intraoperative fluorescent angiography. The 12th Korea-Japan Congress of Plastic and Reconstructive Surgery 2014.05.17
3. Uemura N, Okazaki M, Mori H. Cutaneous sensibility in the chest region of patients with gynecomastia. The 12th Korea-Japan Congress of Plastic and Reconstructive Surgery 2014.05.17 Inchon, Korea
4. Haraguchi M, Tanaka K, Sumita YI, Okazaki M, Taniguchi H. Acceptable Maxillary Reconstruction for Prosthetic Rehabilitation - A Clinical Report of Rehabilitation of a Partial Maxillectomy Patient with a Rectus Abdominis Flap -. The 38th Annual Meeting of Japan Society for Head and Neck Cancer 2014.06.13 Tokyo
5. Tanaka K, Okazaki M, Mori H, Homma T. Bilateral Inferior Alveolar Nerve Reconstruction With Vascularized Sural Nerve Graft Included In Free Fibular Osteocutaneous Flap After Segmental Mandibulectomy. The 2nd meeting of Asian Pacific Federation of Societies for Reconstructive Microsurgery 2014.07.05 Buyeo, Korea
6. Mori H, Kawaguchi R, Okazaki M. Modified C-V flap with or without banked costal cartilage on the dermis in nipple reconstruction. 11th International Confederation for Plastic, Reconstructive and Aesthetic Surgery – Asia Pacific Section Congress 2014 2014.08.03 Singapore
7. Mori H, Uemura N, Tanaka K, Usami S, Okazaki M. Breast reconstruction with deep inferior epigastric perforator flap using preoperative multi-slice CT evaluation and intraoperative fluorescent angiography. 11th International Confederation for Plastic, Reconstructive and Aesthetic Surgery – Asia Pacific Section Congress 2014 2014.08.03 Singapore
8. Uemura N, Okazaki M. Where is the border of the sole skin at the submalleolar and plantar area?. 2nd Congress of Asian Association of Clinical Anatomy 2014.11.08 Bunkyo-ku
9. Hamanaga M, Mori H, Okazaki M. Analyzing From and Localization of Axillary Tail Using Breast Magnetic Resonance Imaging. 2nd Congress of Asian Association of Clinical Anatomy/18th Congress of Japanese Resarch Society of Clinicl Anatomy 2014.11.08 Bunkyo-ku

Head and Neck Surgery

Junior associate professor Takuro Sumi
Project professor Seiji Kishimoto
assistant professor Yusuke Kiyokawa
Senior Resident Fuminori Nomura, Yasuhiro Inayoshi
Student Hirofumi Fukushima, Takao Tokumaru, Toru sasaki, Fuminori Nomura, Tatsuo Masubuchi

(1) Outline

Our department is responsible for clinical management, education and research in the field of head and neck surgery. Clinically, the Department of Head and Neck Surgery manages the tumor of extensive area of head and neck, except brain, eye and vertebra. Surgical and medical treatment of the head and neck tumors are mainly employed in our department.

(2) Research

· Surgical anatomy of the skull base.
· Surgical approaches to the skull base and deep area of the face.
· Clinical application of new device of endoscopic examination.
· Establishment of the standard neck dissection.
· Treatment of pediatric head and neck tumor.
· Human papilloma virus infection and head and neck cancer.

(3) Education

Education: Undergraduate Course

In the classes at the 3th grade of medical school, head and neck oncology are systematically lectured. Clinical practice is experienced at the 4th to 6th grade in the out-patient clinic, the ward, and operating theater.

Education :Graduate Course

Education and researches at the graduate school are focused on (1)surgery of the head and neck tumor, (2)clinical management of the patients with head and neck tumor, and (3)clinical anatomy of head and neck region.

(4) Publications

[Original Articles]

1. M Yamada, A Tsunoda, S Kishimoto et al. Surgery for juvenile nasopharygeal angiofibroma with lateral extension to the infratemporal fossa Auris Nasus Larynx. 2014; 41; 359-363

2. F Nomura, S Kishimoto. Synovial sarcoma of the temporomandibular joint and infratemporal fossa Auris Nasus Larynx. 2014; 41(6); 572-575

3. Seiji Kishimoto. Technique for excision of of cervical schwannom Masters Techniques in Otolaryngology – Head and Neck Surgery:Head and neck surgery Ed. E N Myers and RL Ferris. . 2014; 2; 81-91

4. M Kishikawa, A Tsunoda, Y Tanaka, S Kishimoto . Large nasopharyngeal inverted papilloma presenting with rustling tinnitus American Journal of Otolaryngolgy. 2014; 35(3); 402-404

5. A. Maruyama, A. Tsunoda , M Takahashi, S Kishimoto, M Suzuki. Nasopharyngeal pleomorphic adenoma presenting otitis media effusion: Case report and literature review American Journal of Otolalryngology Head and Neck Medicine and Surgery. 2014; 35; 73-76

6. S Yoshimoto, S Kishimoto et al. Japanese Board Certification System for head and neck surgeons Auris Nasus Larynx. 2014.01; 41; 327-330

7. T. Masubuchi,Y. Tada, S kishimoto, et al. Clinicopathological significance of androgen receptor, HER2, Ki-67 and EGFR expressions in salivary duct carcinoma International Journal of Clinical Oncology. 2014.02;

8. T Fujioka, S Kishimoto, et al. Long-term follow-up using F-18 FDG PET/CT for postoperative olfactory neuroblastoma 2014.04; 35(8); 857-863

9. A Tsunoda, K Tsunoda, T Sumi, S Kishimoto, K Kitamura. High-resolution ENT video endoscope with superior image quality equivalent to that of gastric video endoscopes. Otolaryngology. 2014.04; 4; 166

10. Fuminori Nomura, Taro Sugimoto, Keisuke Kitagaki, Takashi Ito, Hiroshi Kawachi, Yoshinobu Eishi, Ken Watanabe, Miki Igaue, Norio Shimizu, Makoto Tomita, Ken Kitamura, Seiji Kishimoto. Clinical characteristics of Japanese oropharyngeal squamous cell carcinoma positive for human papillomavirus infection. Acta Otolaryngologica. 2014.12; 134(12); 1265-1274

[Conference Activities & Talks]

1. J Tokita, W Nishijima, N Tokita, S Kishimoto, M Saikawa. Analysis of Single Ipsilateral Cervical Nodes in Advanced Cancer of the PyriformSinus. Combined Sections Meeting 2014.01.10 Miami USA

2. W Nishijima, J Tokita, N Tokita, S Kishimoto, M Saikawa. Incidence and Predictors of Contralateral Occult Lymph Node Metastasis in Advanced Medial Wall Pyriform Sinus Squamous Cell Carcinoma Presenting with a Clinically N0 Contralateral Neck. Combined Sections Meeting(Miami) 2014.01.12 Miami,USA

3. S Kishimoto. Chair：Special lecture: Hypopharyngeal cancer (partial cervical esophagectomy), focusing to function preservation surgery by Prof Min Sik Kim. 18th. WCBIP / WCBE 2014.04.16

4. A Tsunoda, T Sumi, S Kishimoto, K Tsunoda. Digital image enhancement in the endoscope: Advancement and further progress. Joint meeting of the World Association for Bronchology and Interventional Pulmonology & The International Bronchoesophagology Society 2014.04.16 Kyoto

Radiation Therapeutics and Oncology

Professor Ryoichi Yoshimura(Apr. ～)
Research Associates Keiji Hayashi, Keiko Nakagawa
Hospital Staff members Rikiya Sato,Hirohumi Kuwabara(Apr. ～)

(1) Outline

At the Department of Radiation Therapeutics and Oncology, clinical services, research, and education related to radiotherapy for all cancers are undertaken.

(2) Research

Mainly clinical research related to radiotherapy is performed.

(3) Education

Lectures are given to medical students or graduate students, and clinical clerkship is organized.
After the students enter our department, comprehensive training is provided at both our department and the Department of Diagnostic Radiology and Nuclear Medicine for 3 years, since the certified radiologist exam is common.

Our department holds a radiation oncology seminar for students and residents with the Department of Radiation Oncology of Juntendo University and Showa University.
Lectures for medical students or graduate students, and clinical clerkship are performed.

(4) Lectures & Courses

Our department teaches students and residents about cancer therapy from the radiation oncologist' s perspective.

Every student/resident of this department aims to be a certified radiation oncologist.

(5) Clinical Services & Other Works

All the staff members are engaged in performing external beam radiation therapy or high-dose-rate or low-dose-rate brachytherapy in the hospital.

A total of 710 patients, including 172 head and neck cancer patients, 125 urological cancer patients, 110 breast cancer patients, 85 lung cancer patients, and 50 esophageal cancer patients, were treated by external beam radiotherapy at our hospital in 2014. Moreover, high-dose-rate brachytherapy was performed in 44 patients with uterine cancer, and low-dose-rate brachytherapy in 34 patients with oral cancer.

(6) Clinical Performances

Our department specializes in low-dose-rate brachytherapy for oral cancer patients.

(7) Publications

[Original Articles]

1. Murakami N, Yoshimura R, et al. Vaginal tolerance of CT based image-guided high-dose rate interstitial brachytherapy for gynecological malignancies Radiation Oncology. 2014.01; (9);

[Conference Activities & Talks]

1. Kato M, Yoshimura R, et al. Evaluating radiation dose to the heart and the left anterior descending (LAD) coronary artery with left whole breast radiation therapy to Japanese women. American Society of Radiation Oncology 2014.09

Maxillofacial Anatomy

Professor	Shunichi SHIBATA
Associate Professor	Tatsuo TERASHIMA
Assistant Professor	Shun-ichi SHIKANO
Assistant Professor	Tamaki TAMAKI
Graduate Student	Tsuyoshi MORITA
Graduate Student	Kaoru FUJIKAWA
Lecturer	Rei Sato

(1) Outline

Maxillofacial anatomy section is engaged in lecture and practical course of gross anatomy and dental anatomy in undergraduate school. In graduate school, this section is engaged in morphological studies of hard tissues such as tooth, bone and cartilage.

(2) Research

Research Subjects
1) Structural features of mandibular condylar cartilage.
2) Mechanism of epithelial attachment of junctional epithelium in human gingiva.
3) Comparative histology and embryology of teeth.
4) Observation on the structural features of oral mucous
5) Anatomical names of the structures of human skeletal system.
6) Biological analysis of root formation of mouse molars by long-term organ culture method.
7) Mechanisms of enamel formation in amelogenesis imperfecta rat (ami).
8) Role of the dental sac in the formation and the development of the dental and periodontal tissues.
9) Hyaluronan synthesis in tooth germ.
10) Studies on regeneration of jaw bone.
11) Role of CXC chemokine signals in the tooth development.

(3) Education

In Undergraduate school
Lecture for 2nd degree students: Human structure I, II, Dental anatomy, Neuroanatomy,
Practical course for 2nd degree students: Gross Anatomy, Neuroanatomy, Dental Anatomy
Lecture and practical course for 5th degree students: Clinical craniofacial anatomy

In Graduate school
Lecture, seminar and practical course to understand the function of various oral organs in a morphological viewpoint, and to evaluate various vital phenomenon encountered in medical practice.

(4) Lectures & Courses

The main purpose of education in undergraduate school is to understand human structure and function from the viewpoints of gross anatomy. In line with this purpose, we execute lectures of systematic anatomy (osteology, myology, neurology, angiology, splanchnology) and topographic anatomy (craniofacial anatomy). To understand three-dimensional structures of human body, we execute practical course of human gross anatomy after completing lectures. In the practical course, we make an effort to make students understand ethics as dental students to be bright future dentist.
The main purpose of education in graduate school is to understand various vital phenomenon, which we encounter in research fields of basic and clinical sciences, from the viewpoints of morphology. In lectures, we teach various techniques to investigate structural features from the standpoints of light and electron microscopy, organ and tissue culture, and molecular biology.

(5) Publications

[Original Articles]

1. Hayashi S, Kim JH, Hwang SE ,Shibata S, Fujimiya M, Murakami G, Cho BH. Interface between intramembranous and endochondral ossification in human foetuses. Folia Morphologica. 2014.05; 73(2); 199-205

2. Shibata S, Sakamoto Y,Yokohama-Tamaki T, Murakami G, Cho BH. Distribution of matrix proteins in perichondrium and periosteum during the incorporation of Meckel' s cartilage into ossifying mandible in midterm human fetuses - An immunohistochemical study - Anatomical Record. 2014.07; 297(7); 1208-1217

3. Ikeda Y, Yonemitsu I, Takei M, Shibata S, Ono T. Mechanical loading leads to osteoarthritis-like changes in the hypofunctional temporomandibular joint in growing rats Archives of Oral Biology. 2014.12; 59(12); 1368-1376

[Conference Activities & Talks]

1. Hayashi K, Takahashi T, Tanabe M, Horie M, Enomoto M, Kato T, Shibata S, Yagishita K. Effect of membrane bone wound healing by hyperbaric oxygen treatment . 2014 International Association for Dental Research / Pan European Regional Congress 2014.09.10 Dubrovnik, Croatia.

2. Ikeda Y, Yonemitsu Y, Takei M, Shibata S, Ono T. Nonphysiological loading leads to osteoarthritis-like changes in the hypofunctional temporomandibular joint in growing rats. The 73rd Annual Meeting of the Japanese Orthodontic Society 2014.09.25

3. Fujikawa K, Yokohama-Tamaki T, Morita T, Shibata S. Expression of perlecan, DMP-1 and MEPE in the developing condylar cartilage of the fetal mouse mandible. The 56th Annual Meeting of Japanese Association for Oral Biology 2014.09.27 Fukuoka

4. Morita T, Yokohama-Tamaki T, Fujikawa K, Shibata S. Expression of hyaluronan synthase during tooth development in mice molar. The 56th Annual Meeting of Japanese Association for Oral Biology 2014.09.27 Fukuoka

5. Shibata S, Sato R. Tenascin-C immunostaining in rat molar periodontal ligament . 62th Annual Meeting of Japanese association for Dental Research 2014.12.04 Osaka

Cognitive Neurobiology

Professor Masato Taira
Adjunct Professor Kumiko Sugimoto
Junior Associate Professor Hisayuki Ojima
Assistant Professor Narumi Katsuyama
Research Associate Nobuo Usui
Part-time Instructor Mari Kumashiro
Post-doctoral fellow Juri Fujiwara
Graduate Student Eriko Tachi
Yuko Imai
Kono Youko
Saneyuki Mizutani

(1) Outline

Higher brain functions have been studied in this laboratory. To explore the individual functions listed below, functional MRI, psychological or psychophysical approach, and traditional electrophysiological recordings are applied to animal models such as non-human primates and rodents as well as to human. Our goal is to clarify how perception mechanisms are described by the neuronal activity pattern and how cortical wide network is interacted while brain is judging, decision making, extracting biological meanings of sounds including languages.

(2) Research

1. Neural Mechanisms of control of motor behavior.
Research is aimed at understanding the brain mechanisms of execution and control of the motion and behavior of animals and human.
2. Neuronal mechanisms for perception and cognition.
Research is aimed at understanding the brain mechanisms of perception and cognition of objects through vision and tactile senses of animals and human.
3. Processing of natural sounds in auditory cortex
Research is aimed at understanding the brain mechanisms of hearing and vocalization of animals.

(3) Education

1. Lectures of unit "Functions of Nervous Systems I (Introduction to Neurophysiology, Motor Functions)"
Basic knowledge of neurophysiology will be lectured as an introduction together with the motor functions.
2. Lectures of unit "Functions of Nervous Systems II (Perception, Emotion, Instinct, Sleep, Higher functions)" .
A series of lectures will be taught on functions of the sensation, perception, and motion as well as the neural mechanisms of higher brain functions.
3. Lectures of unit "Homeostatic Functions for Life Support".
Lectures will be taught on the structure of the autonomic nervous system and its regulatory mechanisms in the circulation, respiration, digestion/absorption, humor/body temperature, metabolism, excretion, and internal secretion/reproduction.
4. Lectures of unit "Oral Physiology"

Lectures will be taught on the structure and function of various somatosensory organs in the oral cavity. Neural regulations of mastication and deglutition as well as the secretion mechanism of saliva will also be learned.
5. Unit of "Practice in Physiological Functions"
The purpose of the practice is to learn about the physiological mechanisms underlying the normal functions of human body through experiments. The goal is to master the basic experimental procedures, and to experience how to capture and analyze the data in order to draw conclusions.

(4) Lectures & Courses

Students are expected to be voluntarily involved in research activities. Brain is an extremely complicated organ in terms of its morphology and functions. Learning of textbook knowledge is followed by capturing up-to-date scientific information through reading published articles. Once the overview of the field in which graduates/undergraduate students are interested in is completed, they will be trained in the practice of on-going research topics under the tutelage of laboratory staff. Through this process, students are encouraged to associate their own research interests with the on-going research topics and will learn practically how data can be captured, rearranged and analyzed through real experiments.

(5) Publications

[Original Articles]

1. Kawakubo N, Miyamoto JJ, Katsuyama N, Ono T, Honda E, Kurabayashi T, Taira M, Moroyama K.. Effects of cortical activations on enhancement of handgrip force during teeth clenching: An fMRI study. Neurosci Res.. 2014; 79; 67-75

2. Usui, N., Yoshino, D., Kamada, A.. The mere exposure effect in choosing merchandise (3) : A reexamination of the influence of response inhibition. Bulletin of Human Science. 2014.03; 35; 149-154

3. K Shoi, K Fueki, N Usui, M Taira, N Wakabayashi. Influence of posterior dental arch length on brain activity during chewing in patients with mandibular distal extension removable partial dentures. J Oral Rehabil. 2014.07; 41(7); 486-495

[Conference Activities & Talks]

1. Ojima H, Tachi E, Horikawa J, Taira M . Spectral and Temporal Cues for Recognition of Non-harmonic Natural Sounds by Guinea Pigs . Association of Research in Otoralygology, 37th annual midwinter meeting 2014.02.24 San Diego, CA, USA

2. Ojima H. Cortical Representation of a Non-Harmonic Natural Sounds in Naive and Conditioned Brains: Differential Activation by Time-Reversed Sounds Revealed by Voltage-Sensitive Dye Imaging. 2014.02.27 Coleman Memorial Laboratory, UCSF, CA, USA

3. Katsuyama N, Tachi E, Haji T, Usui N, Yoshizawa H, Saito A, Taira M.. Modulation of solidness perception by active touch induced by visual information. Future of Shitsukan Research 2014.07.16 Tokyo

4. Mizutani S, Katsuyama N, Usui N, Mizusawa H, Taira M. Depth perception from moving cast shadow in macaque monkey. The 37th Annual Meeting of the Japan Neuroscience Society 2014.09.11 Yokohama

5. Ojima H, Ishida T, Taira M, and Horikawa J . Contrast between Activations Evoked by Forward and Backward Reproduction of a Natural Sound in the Auditory Cortex Increases after Classical Conditioning . The 37th Annual Meeting of the Japan Neuroscience Society 2014.09.13 Yokohama

6. Katsuyama N, Tachi E, Haji T, Usui N, Yoshizawa H, Saito A, Taira M.. Effect of visual information on solidness perception by active touch. Vision, Memory, Thought: how cognition emerges from neural network 2014.12.06 Tokyo

7. Mizutani, S., Katsuyama, N., Usui, N., Taira, M.. Can macaque monkey perceive motion in depth by cast shadow?. Vision, Memory, Thought: How Cognition Emerges from Neural Network 2014.12.06 Tokyo

Molecular Craniofacial Embryology

Staffs and Students
Professor Sachiko Iseki
Associate Professor Masa-Aki Ikeda
Tenure Track Assistant Professer Masaki Tkechi
Part-time lecturers Hirofumi Doi, Shumpei Yamada,
Shigeru Okuhara
Visiting Researcher Yoichiro Ninomiya

Graduate Students Prasitsak Thanit, Endrawan Pratama,
Zhang Kui
(Oral Implantology
and Regenerative Dental Medicine),
Toshiko Furutera, Mya Nandar
Charoenlarp Ponkawee,
Norisuke Yokoyama(from April)

Secretary Kaori Morinaka

(1) Research

1) Molecular mechanisms of mammalian craniofacial development
2) Application of developmental mechanisms to regenerative medicine
3) Identification of tissue stem cells in craniofacial region and molecular mechanism of their stemness
4) Regulation of gene expression in cell growth and stress response
5) Nuclear architecture and function in regulating gene expression

(2) Publications

[Original Articles]

1. Yuniardini S Wimardhani, Dewi F Suniarti, Hans J Freisleben, Septelia I Wanandi, Nurjati C Siregar, Ikeda M. Chitosan exerts anticancer activity through induction of apoptosis and cell cycle arrest in oral cancer cells. J Oral Sci. 2014; 56(2); 119-126

2. Machida A, Okuhara S, Harada K, Iseki S.. Difference in apical and basal growth of the frontal bone primordium in Foxc1ch/ch mice. Congenit Anom. . 2014; 54(3); 172-177

3. Nagashima Hiroshi, Sugahara Fumiaki, Takechi Masaki, Sato Noboru, Kuratani Shigeru. On the homology of the shoulder girdle in turtles. J Exp Zool B Mol Dev Evol. 2014.07;

4. Said Salah A M, Nijhuis Rogier L G, Akker Jeroen W Op den, Takechi Masaki, Slart Riemer H J A, Bos Johannes S, Hoorntje Caspar R, Houwelingen K Gert van, Bakker-de Boo Mirjam, Braam Richard L, Vet Thijs M W J. Unilateral and multilateral congenital coronary-pulmonary fistulas in adults: clinical presentation, diagnostic modalities, and management with a brief review of the literature. Clin Cardiol. 2014.09; 37(9); 536-545

5. Solachuddin J A Ichwan, Imad M Al-Ani, Hakim G Bilal, Wastuti H Suriyah, Muhammad Taher, Masa-Aki Ikeda. Apoptotic Activities of Thymoquinone, an Active Ingredient of Black Seed (Nigella sativa), in Cervical Cancer Cell Lines. Chin J Physiol. 2014.10; 57(5); 249-255

[Conference Activities & Talks]

1. Pratama E, Iseki S, Ikeda MA. Critical roles for ARID3B in Expression of Proapoptotic p53-Target Genes and Cell Death Following DNA Damage. The56th Annual Meeting of Japanese Association for Oral Biology 2014.09.13

2. Ikeda, MA. Mesenchymal Stem Cells and Bone Tissue Engineering - Overview and Our Approach –. Regional Oral Biology Scientific Meeting 2014 2014.10.30

3. Ikeda Y, Ikeda MA. Immunohistochemical detection of cyclin E in non-proliferating neurons of the mouse adult hippocampal dentate gyrus. Society for Neuroscience 2014 Annual Meeting 2014.11.17

4. Pratama E, Iseki S, Ikeda MA. Critical roles for ARID3B in Expression of Proapoptotic p53-Target Genes and Cell Death Following DNA Damage. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.26

5. Zhang K, Kasugai S, Ikeda MA. Maintenance of Stemness in Mesenchymal Stem Cells during Long-Term Culture. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.12.06

Cellular Physiological Chemistry

Professor Ikuo Morita
Associate Professor Ken-ichi Nakahama
Junior Associate Professor Hiroshi Fujita, Mayumi Abe, Chieko Yokoyama

Graduate Student Mami Ikeda
Research Student Izumi Honda, Chikako Morioka, Keiko Akazawa,
Masayuki Toi, Mizuki Nagata, Asuka Okito,
Tsuyoshi Matsuura, Syun Nishihara

(1) Outline

In our Lab, we study cell-communication, inflammation, and regeneration using various techniques, for example, cell culture, molecular biology and mutant mice.

(2) Research

Research Subjects
1, Regulatory mechanism of angiogenesis and application to regenerative medicine
2, Bone remodeling and cell communication
3, Inflammation under hypoxic conditions (epigenetic control of gene expression)
4, Role of gap junction in cellular homeostasis

(3) Education

For undergraduate students. We have some class in biological chemistry for the second grader.
For graduate students. These students can choose the one of themes in our lab. They have to attend meetings and seminars in our Lab.

(4) Lectures & Courses

Undergraduate students should understand basic biochemistry and physiology under healthy/diseased conditions.
Graduate students are expected to solve the problems by themselves. However, appropriate suggestions will be given by at least three supervisors whenever you want.

(5) Publications

[Original Articles]

1. Norifumi Tateishi, Saki Kakutani, Hiroshi Kawashima, Hiroshi Shibata, Ikuo Morita. Dietary supplementation of arachidonic acid increases arachidonic acid and lipoxin A_4 contents in colon, but does not affect

severity or prostaglandin E_2 content in murine colitis model. Lipids Health Dis. 2014; 13; 30

2. Olga S Safronova, Ken-Ichi Nakahama, Ikuo Morita. Acute hypoxia affects P-TEFb through HDAC3 and HEXIM1-dependent mechanism to promote gene-specific transcriptional repression. Nucleic Acids Res.. 2014; 42(14); 8954-8969

3. Yasuyuki Kimura, Motohiro Komaki, Kengo Iwasaki, Masataka Sata, Yuichi Izumi, Ikuo Morita. Recruitment of bone marrow-derived cells to periodontal tissue defects. Front Cell Dev Biol. 2014; 2; 19

4. Yasuyuki Kimura, Motohiro Komaki, Kengo Iwasaki, Masataka Sata, Yuichi Izumi, Ikuo Morita. Recruitment of bone marrow-derived cells to periodontal tissue defects. Front Cell Dev Biol. 2014; 2; 19

5. Kengo Iwasaki, Motohiro Komaki, Naoki Yokoyama, Yuichi Tanaka, Atsuko Taki, Izumi Honda, Yasuyuki Kimura, Masaki Takeda, Keiko Akazawa, Shigeru Oda, Yuichi Izumi, Ikuo Morita. Periodontal regeneration using periodontal ligament stem cell-transferred amnion. Tissue Eng Part A. 2014.02; 20(3-4); 693-704

6. Yu Hatano, Ken-ichi Nakahama, Mitsuaki Isobe, Ikuo Morita. Tumor associated osteoclast-like giant cells promote tumor growth and lymphangiogenesis by secreting vascular endothelial growth factor-C. Biochem. Biophys. Res. Commun.. 2014.03; 446(1); 149-154

7. Yukihiko Hashida, Ken-ichi Nakahama, Kaori Shimizu, Masako Akiyama, Kiyoshi Harada, Ikuo Morita. Communication-dependent mineralization of osteoblasts via gap junctions. Bone. 2014.04; 61; 19-26

[Conference Activities & Talks]

1. Yu Hatano, Ken-ichi Nakahama, Mitsuaki Isobe, Ikuo Morita. Vascular endothelial growth factor-C secreted by tumor associated osteoclast-like giant cells promotes tumor growth via lymphagiogenesis and macrophage infiltration.. The 18th International Vascular Biology Meeting (IVBM 2014) 2014.04.14

2. Izumi Honda, Chikako Morioka, Atsuko Taki, Noriko Oshima-Sudo, Motohiro Komaki, Toshiro Kubota, Ikuo Morita. Asessment of placental and neonatal complication in rat intra-uterine inflammation model. Poster Presentation.. The 18th International Vascular Biology Meeting (IVBM 2014) 2014.04.14

Metals

Takao HANAWA Prof
Yusuke TSUTSUMI Senior Assoc Prof
Maki ASHIDA Assist Prof
Peng CHEN Assist Prof
Hisashi DOI Assist Prof
Toshie NAKANISHI Secretary
Tomoko SETOGUCHI Secretary

(1) Outline

1. Bio-functionilization of metals with surface modification
Bio-functionalization of metals is investigated with surface treatment techniques, such as molecule immobilization and anodic oxidation. These surface treatments make it possible to inhibit protein adsorption, platelet adhesion, and biofilm formation, and to enhance wear resistance and hard-tissue compatibility.
2. Development of novel alloys and porous composites for biomedical applications
Novel alloy systems for biomedical applications are designed from the viewpoints of mechanical properties and biocompatibility. Co-Cr-Mo alloys having high strength and ductility for dental applications are developed. The porous alloys having low Young' s modulus are obtained with selective laser melting technique.
3. Development of Zr-based alloys for minimizing MRI artifacts
Zr-based alloys with low magnetic susceptibility, high strength and corrosion resistance are investigated for minimizing MRI artifact by controlling their microstructure and constituent phase for aneurysm clips, artificial joints, and dental implants, etc.
4. Effort to minimalize metal allergy
Countermeasure techniques for metal ion release from metallic biomaterials which causes metal allergy are investigated. Novel reagents of patch testing for the detection of sensitization to metal ions are developed.

(2) Education

Metallic biomaterials play an important role as medical devices. Our laboratory mainly deals with effects of crystal structure, process, and thermal treatment on mechanical properties (e.g. strength or toughness). We also focus on structure and property of nanometer-scaled surface phenomena: Formation of living tissue on metals, especially, reactions between biomolecules or cells and metals, changes in surface oxide layers in living tissues, and electrochemical property of metallic biomaterials. The aim of the education is perfect understanding of metallic biomaterials, enabling students to select a proper material for medical treatments or researches.

(3) Publications

[Original Articles]

1. Hayashi R, Ueno T, Migita S, Tsutsumi Y, Doi H, Ogawa T, Hanawa T, Wakabayashi N. Hydrocarbon deposition attenuates osteoblast activity on titanium J. Dent. Res.. 2014; 93; 698-703

2. Hieda J, Niinomi M, Nakai M, Cho K, Mohri T, Hanawa T. Adhesive strength of medical polymer on anodic oxide nanostructures fabricated on biomedical β-type titanium alloy Mater. Sci. Eng. C. 2014; C36; 244- 251

3. Park JW, Kim JM, Lee HI, Jeong SH, Suh JY, Hanawa T. Bone healing with oxytocin-loaded microporous alpha-TCP bone substitute in ectopic bone formation model and crirical-sized osseous defect of rat J. Clin. Periodontol. 2014; 41; 181-190

4. Shimogishi M, Tsutsumi Y, Kuroda S, Munakata M, Hanawa T, Kasugai S. Effects of acidic sodium fluoride-treated, commercially pure titanium on periodontal pathogens and rat bone marrow cells Dent. Mater. J.. 2014; 33; 70-78

5. Miyara K, Yahata Y, Hayashi Y, Tsutsumi Y, Ebihara A, Hanawa T, Suda H. The influence of heat treatment on the mechanical properties of Ni-Ti file materials Dent. Mater. J.. 2014; 33; 27-31

6. Shinonaga T, Tsukamoto M, Nagai A, Yamashiata K, Hanawa T, Matsushita N, Xie G, Abe N. Cell apreading on titanium dioxide film formed and modified with aerosol beam and femtosecond laser Appl. Surf. Sci.. 2014; 288; 649-653

7. Hastuty S, Tada E, Nishikata A, Tsutsumi Y, Hanawa T. Improvement of pitting corrosion resistance of Type 430 stainless steel by electrochemical treatments in a concentrated nitric acid ISIJ Int.. 2014; 54; 199-205

8. Piao J, Miyara K, Ebihara A, Nomura N, Hanawa T. Correlation between cyclic fatigue and the bending properties of nickel titanium endodontic instruments Dent. Mater. J.. 2014; 33; 539-544

9. Yu M, Chen P, Tsutsumi Y, Doi H, Ashida M, Kasugai S, Hanawa T. Formation of white oxide layer on Zr-14Nb alloy using thermal treatment Dent. Mater. J.. 2014; 33; 490-498

10. Kawabe A, Nakagawa I, Kanno Z, Tsutsumi Y, Hanawa T, Ono T. Evaluation of biofilm formation in the presence of saliva on poly(ethylene glycol)-deposited titanium Dent. Mater. J.. 2014; 33; 638-647

11. Nagai A, Suzuki Y, Tsutsumi Y, Nozaki K, Wada N, Katayama K, Hanawa T, Yamashita K. Anodic oxidation of a Co-Ni-Cr-Mo alloy and its inhibitory effect on platelet activation J Biomed. Mater. Res. B . 2014; 102B; 659-666

12. Edalati K, Ashida M, Horita Z, Matsui T, Kato H. Wear resistance and tribological features of pure aluminum and Al-Al_2O_3 composites consolidated by high-pressure torsion Wear. 2014.02; 310; 83-89

13. Tsutsumi Y. Corrosion resistance of Zr as metallic biomaterials Corros Eng. 2014.06; 63(6); 281-286

14. Tsutsumi Y. Buofunctionalization using inorganic-metallic composite surface -Formation of porous oxide layer on metal surface by micro-arc oxidation treatment- Journal of Japanese Society for Biomaterials. 2014.07; 32(3); 188-195

15. Kajima Y, Doi H, Takaichi A, Hanawa T, Wakabayashi N. Surface characteristics and castability of Zr-14Nb alloy dental castings Dent. Mater. J.. 2014.10; 33(5); 631-637

16. Ahmed Jamleh, Alireza Sadr, Naoyuki Nomura, Arata Ebihara, Yoshio Yahata, Takao Hanawa, Junji Tagami, Hideaki Suda. Endodontic instruments after torsional failure: nanoindentation test. Scanning. 36(4); 437-443

[Misc]

1. Niinomi M, Nakai M, Hieda J, Cho K, Goto T, Hanawa T. Biofunctional surface layer and its bonding strength in low modulus β-type titanium alloy for biomedical applications Mater Sci Forum. 2014; 783-786; 78-84

2. Niinomi M, Nakai M, Hieda J, Cho K, Kasuga T, Hattori T, Goto T, Hanawa T. A review of surface modification of a novel low modulus β-type titanium alloy for biomedical applications Int. J. Surf. Sci. Eng.. 2014; 8; 138-151

[Conference Activities & Talks]

1. Hanawa T. Biofunctionalization of artificial metallic materials. The 5th International Symposium for Interface Oral Health Science "Innovative Research for Biosis-Abiosis Intelligent Interface Symposium" 2014.01.20
2. Hanawa T. The TMDU and research on biomaterials at TMDU. 2014.03.10
3. Hanawa T. Research and development of metallic biomaterials meeting clinical demands. 2014.03.11
4. Hanawa T. Metallic biomaterials-current status and future. 2014.03.12
5. Hanawa T. Biofunctionalizxation of metallic materials and comparison with zirconia -Trap into ready-made results and bottleneck for utilization. The 9th Scientific Meeting of Asian Academy of Osseointegration (AAO2014) 2014.07.04
6. Hanawa T. Creation on biosis-abiosis intelligent interface. 9th International Workshop on Biomaterials in Interface Science 2014.08.26 Hong Kong, China
7. Hanawa T, Fukushima O, Tsutsumi Y, Doi H, Ashida M. Mechanism of electrodeposition of poly(ethylene glycol) to titanium surface. 26th Annual Conference of the European Society for Biomaterials (ESB 2014) 2014.08.31 Liverpool, UK
8. Tsutsumi Y, Niizeki N, Chen P, Ashida M, Doi H, Noda K, Hanawa T. Electrochemical surface treatment for making antibacterial porous oxide layer on Ti. 26th Annual Conference of the European Society for Biomaterials (ESB 2014) 2014.08.31 Liverpool, UK
9. Ashida M, Chen P, Doi H, Tsutsumi Y, Hanawa T, Horita Z. Microstructures and mechanical properties of Ti-6Al-7Nb processed by high-pressure torsion. 11th International Conference on Technology of Plasticity, ICTP 2014 2014.10.23 Nagoya, Japan
10. Fukuhara Y, Inoue Y, Tsutsumi Y, Chen P, Ishihara K, Hanawa T. Electrodeposition of phospholipid polymer to titanium to improve the platelet adhesion. The 7th International Symposium on Surface Science(ISSS) 2014.11.03 Shimane, Japan
11. Chen P, Ashida M, Tsutsumi Y, Doi H, Hanawa T. In vitro differentiation and calcification of osteoblast -like cell cultured on metals. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5) 2014.11.19 Tokyo, Japan
12. Niizeki N, Tsutsumi Y, Chen P, Ashida M, Doi H, Noda K, Hanawa T. Development of antibacterial titanium surface by simple electrochemical treatment. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5) 2014.11.19 Tokyo, Japan
13. Tanaka Y, Tsutsumi Y, Chen P, Ashida M, Doi H, Shimojo M, Hanawa T. Real-time analysis of protein adsorption behavior on metals by electrochemical impedance spectroscopy. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5) 2014.11.19 Tokyo, Japan
14. Tsutsumi Y, Ashida M, Chen P, Doi H, Hanawa T. Enhancement of bioactivity of zirconium by combination of simple electrochemical treatments. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5) 2014.11.19 Tokyo
15. Chen P, Tsutsumi Y, Ashida M, Doi H, Hanawa T. Cellular and gene expression responses in osteoblast-like cells to metals. Society for Biomaterials 2015 Annual Meeing and Exposition (SFB2015) Charlotte, NC, USA

[Patents]

1. Co-Cr-Mo alloy for a living body, Announcement Number：CN 201280051075

Biodesign

Professor Kazuo TAKAKUDA
Specially Appointed Professor
Yoshihiro TAKEMOTO
Visiting Professor Kazuko IRIMURA
Assistant Professor Shigeru ITO
Hisashi DOI
Wei WANG
Mari YUASA
Research Assistants Shukan OKANO
Hiroyuki MASUNO
Noriko NAKAISHI
Graduate Students (Doctoral coarse)
Tetsuro WATANABE, Kimihiro OKANO,
Ryoichi SUZUKI, Katsunari MURAKAMI,
Hiroki IKEDA, Hiroyuki KUSABA,
Hisaya NOMATA, Eiko MARUKAWA

(1) Outline

Biodesign division started in 1951 at establishment of the dental materials research institute as one of the constituting department. Since then, the division changed its name from the department of machinery, the department of precision machinery, the division of mechanics, and the division of biodesign as the institute continued reorganization till the present form of the Institute of Biomaterials and Bioengineering. Although our research work was originally concentrated to cutting tool for dentistry, we are now investigating mechanics of living tissues and biomaterials, biomechanical compatibility of tissues and artificial materials, and the development of artificial organs bearing the mechanical functions in living bodies.

(2) Education

Basic-Clinical Borderless Education

(3) Publications

[Original Articles]

1. Nagaoka Y, Yamada H, Kimura T, Kishida A, Fujisato T, Takakuda K. Reconstruction of small diameter arteries using decellularized vascular scaffolds. J Med Dent Sci. 2014.03; 61(1); 33-40

2. Mita A, Yagihara A, Wang W, Takakuda K. Development of oral and extra-oral endosseous craniofacial implants by using a mesh structure for connective tissue attachment. J Med Dent Sci. 2014.03; 61(1); 23-31

3. Yutaka Fukuda, Wei Wang, Shizuko Ichinose, Hiroshi Katakura, Tomokazu Mukai, Kazuo Takakuda. Laser perforated accordion nerve conduit of poly(lactide-co-glycolide-co-ε-caprolactone). J. Biomed. Mater. Res. Part B Appl. Biomater.. 2014.05; 102(4); 674-680

4. Kosuke Nozaki, Wei Wang, Naohiro Horiuchi, Miho Nakamura, Kazuo Takakuda, Kimihiro Yamashita, Akiko Nagai. Enhanced osteoconductivity of titanium implant by polarization-induced surface charges. J Biomed Mater Res A. 2014.09; 102(9); 3077-3086

Maxillofacial Surgery

Professor: Kiyoshi HARADA

Junior Associate Professor: Masashi YAMASHIRO, Satoshi YAMAGUCHI, Narikazu UZAWA

Assistant Professor: Yutaka SATO, Hiroyuki YOSHITAKE, Yasuyuki MICHI, Kazuto KUROHARA
Kouichi NAKAKUKI, Yoshio OHYAMA

Hospital Staff: Itaru SONODA, Kunihiro MYO, Nobuyoshi TOMOMATSU, Chieko MICHIKAWA
Yoshinori INABA, Chika MIURA
(from January to April) Miho SUZUKI(MIZUTANI), Hiroyuki NAKACHI, Jun SUMINO, Erika OUE
(from April to September) Ken-Ichiro TAKAHASHI
(from April) Keiko MAEDA, Yasuhiro KURASAWA, Hironori ENDO, Yumi SANO

Graduate Student: Chisato YAMADA, Li KEI, Eri TSUCHIDA, Ryosuke NAKAMURA, Takayuki YAMADA
Takuma MORITA, Hirokazu KACHI, Kouhei OKUYAMA, Chihiro YOSHIDA, Takeshi OKAMURA, Sou WAKE
Yuuta KONDOU, Masahiko TERAUCHI, Uyannga ENKHBOLD, Reiko HOSHI, Sakie KATSUMURA
Tomoki KANEMARU
(from April) Syun NISHIHARA, Erina TONOUCHI, Takasuke INADA

Student: (from April) Yamato TOYOTA, Akiyo NORIME, Ami TSUYUZAKI, Mari SHIBATA, Narumi OSHIBE

Emeritus Professor: Teruo AMAGASA
Clinical professor: Masashi YAMASHIRO
Part-time Lecturer: Kazuki HASEGAWA, Hitoshi MIYAOKA, Hiroyuki WAKE, Takahumi YAMADA, Fumiaki SATO
Junichi ISHII, Eizi FUZII,Junzi KOBAYASHI, Akiko KOBAYASHI, Yasushi NIINAKA, Takao WATANABE
Testuo SUZUKI, Masayuki YAMANE, Takashi MISHIMAGI, Narihiro ABE
(from January to April) Hiroshi IWAKI, (from April) Erika OUE

(1) Research

Research Subjects
1) Head and Neck Surgery: Innovation of management patients with benign and malignant tumors and cysts in oral and facial region.
2) Reconstructive Surgery: Developing method of correcting jaw, facical bone and facial soft tissue trouble left as the result of removal of disease or previous trauma.
3) Correction of Birth Defects: Improving surgically correction of birth defects of the face and skull, including cleft lip and palate.
4) Dentofacial Deformities and Orthognathic Surgery: Development of new surgical techniques to improving reconstruct and realign the upper and lower jaws.
5) Temporomandibular Joint Disorders: Renewing skills in the diagnosis and treatment due to temporomandibular joint problem.
6) Oral Mucosa Disease: Creation new method with light and color for diagnosis of oral mucosa disease, including leukoplakia and cancer.

(2) Lectures & Courses

Oral and maxillofacial surgery is a surgical specialty involving the diagnosis, surgical treatment and management of defects and injures related to the function and aesthetics of the face and jaws. In order to practice the full scope of the specialty, oral and maxillofacial surgeons are required education in dentistry, medicine and surgery for regional requirement.

(3) Clinical Services & Other Works

Total number of new patients was 6480 for 2014. Number of In-patients was 719 and 489 operations were performed

(4) Clinical Performances

Clinical Services
1) Diagnosis, removing and reconstruction of jaw, oral or facial tumor or cyst.
2) Diagnosis and treatment of cleft lip and palate.
3) Treatment of jaw aligned with orthognathic surgery.
4) Therapy of temporomandibular disorder with or without temporomandibular joint surgery.
5) Diagnosis and treatment of oral mucosa disease.
6) Treatment of inflammation in the region jaw and facial trauma.
7) Extraction tooth including wisdom tooth.

(5) Publications

[Original Articles]

1. Tomomatsu N, Uzawa N, Aragaki T, Harada K. Aperture width of the osteomeatal complex as a predictor of successful treatment of odontogenic maxillary sinusitis Int J Oral Maxillofac Surg. 2014; 43(11); 1386-1390

2. Sato Y, Mishimagi T, Katsuki Y, Harada K. Maxillary distraction osteogenesis for treatment of cleft lip and palate inapatient with X-linked agammaglobulinemia J Oral Maxillofac Surg. 2014; 72(7); 1396. e1-e-7

3. Harazono Y, Yamashiro M, Yoshitake Y, Kayamori K, Izumo T, Harada K. A case of highly suspected small cell osteosarcoma in the mandible J of Oral and Maxillofacial Surgery, Medicine and Pathology. 2014; 27(1); 38-40

4. Harazono Y, Nakajima K, Raz A. Why anti-Bcl-2 clinical trials fail: a solution Cancer Metastasis Rev. 2014; 33(1); 285-294

5. Harazono Y, Kho DH, Balan V, Nakajima K, Zhang T, Hogan V, Raz A. Galectin-3 leads to attenuation of apoptosis through Bax heterodimerizationin human thyroid carcinoma cells Oncotarget. 2014; 5(20); 9992-10001

6. Nakajima K, Kho DH, Yanagawa T, Harazono Y, Gao X, Hogan V, Raz A. Galectin-3 inhibits osteoblast differentiation through notch signaling Neoplasia. 2014; 16(11); 939-949

7. Hayashi Y, Takeno H, Chinen T, Muguruma K, Okuyama K, Taguchi A, Takayama K,Yakushiji F, Miura M, Usui T, Hayashi Y. Development of a newbenzophenone-diketopiperazine-type potent antimicrotubule agent possessing a2-pyridine structure ACS Med Chem Lett . 2014; 5(10); 1094-1098

8. Yanamoto S, Yamada S, Takahashi H, Naruse T, Matsushita Y, Ikeda H, Shiraishi T, Seki S, Fujita S, Ikeda T, Asahina I, Umeda M. Expression of the cancer stem cell markers CD44v6 and ABCG2 in tongue cancer: Effect of neoadjuvant chemotherapy on local recurrence International Journal of Oncology. 2014; 44(4); 1153-1162

9. Aragaki T, Michi Y, Nakamura S, Toriihara A, Kayamori K, Harada K, Kurabayashi T. A case of Squamous Cell Carcinoma with Scattered Metastases Open Journal of Radiology. 2014; 4(3); 270-274

10. Kokai S, Fukuyama E, Sato Y, Hsu J-C, Takahashi Y, Harada K, Ono T. Comprehensive treatment approach for bilateral cleft lip and palate on an adult with premaxillary osteotomy,tooth autotransplantation,and 2-jaw surgery American J of Orthodontics and Dentofacial Orthopedics. 2014; 147(1); 114-126

11. Yamada T, Yamashiro M, Kawamata A, Katsuki Y, Uezono-Honda A, Kayamori K, Harada K. Transparotid excision of rhabdomyosarcoma in masseter muscle: A case report J of Oral and Maxillofacial Surgery, Medicine and Pathology. 2014; 27(1); 45-48

[Conference Activities & Talks]

1. Hiroyuki Yoshitake. Development of the new type mouth opening exercise device. Annual meeting of American Society of Temporomandibular joint Surgeons 2014.04.29

2. Yoshio Ohyama, Narikazu Uzawa, Yasuyuki Michi, Miho Suzuki, Masashi Yamashiro, Tomoyuki Yano, Kazuki Hasegawa, Kiyoshi Harada. Vascularized composite free flaps for mandibular defects. 64th Congress of the German Association of Oral and Maxillofacial Surgeons 2014.06

3. Hiroyuki Wake. Psychosomatic approach for the patient with TMDs & Psychological problems. 2014 Korean Incorporated Association for TemporomandibulaJoint Spring conference & conference celebrating 2014.06.22

4. Yoshimasu H, Sato Y, Matsuda Y, Ohsato A, MishimagI T, Katsuki Y, Harada K. Comprehensive treatment and oral health care for patients with cleft lip and palate. ICPF Workshop Cleft 2014 2014.09

5. Okuyama K, Michi Y, Yamashiro M, Harada K. Clinical study on mandibular bone fracture after marginal resection of the mandible. American Association of Oral and Maxillofacial Surgeons. 96th Annual Meeting, Scientific Sessions and Exhibition in Conjunction with the Japanese Society and Korean Association of Oral and Maxillofacial Surgeons 2014.09

6. Yoshio Ohyama. Vascularized composite free flap for mandibular defect. The 59th Congress of the Japanese Society of Oral & Maxillofacial Surgeons 2014.10

Maxillofacial Orthognathics

Professor	Keiji MORIYAMA
Associate Professor	Shoichi SUZUKI, Yoshiyuki SASAKI
Junior Associate Professor	Tatsuo KAWAMOTO,TakuyaOGAWA
Assistant Professor	MichikoTSUJI,NorihisaHIGASHIHORI, Jun MIYAMOTO, Yukiho KOBAYASHI , Naoko HARADA
Hard Tissue Genome Research Center, Research Assistant Professor	Junpei MORITA , Masayosi UEZONO
Graduate Student	Takayuki UMEZAWA, Kenji OGURA, Keiko MURAMOTO, Naomi YAMAMOTO, Thunyaporn SURAPORNSAWASD, Seiei RYU, Kouhei YAHIRO,Maki Morishita, Naoki Kouda, Akitsu Ikeda, Tsasan Tumurkhuu , Ayumi SHOJI , Taizo HIRATSUKA , Entei RIN , Miyu ARAKI , Entei RIN , Miyu ARAKI , Takeshi OGASAWARA , Kazuya SHIHO , Kousuke TSUJI , Yoshihiro YAMAGATA
Graduate International Research Student	Michiyo IKEDA , Ryo MARUOKA , Masako Yoshizaki , Chiemi SATO , Hiromi SAWADA , Minami KATAYANAGI , Yuki TAKAHASHI , Shizuka MATSUMOTO , Sakiko AKIYAMA , Takuya ASAMI , Sahori MATSUNO , Rie KINOSHITA , Ruriko NAKAMURA , Misato HANDA , Aung Bhone Myat , Kitano Flores Victor Jose , Kazuhiro KANAYA , Yuki NAKAZAWA , Naomi KAWAKUBO

(1) Research

1) Basic and clinical studies of cleft lip and/or palate and other congenital craniofacial conditions
2) Morphological and physiological studies of facial deformity
3) Physiological study about control mechanism of stomatognathic function
4) Functional MRI study in the craniofacial region
5) Clarify the factors of malocclusion with epidemiological technique

(2) Education

The goal of the program of Maxillofacial Orthognathics is to provide information related to craniofacial growth and development, and stomatognathic function in order to develop basic knowledge and skills for the treatment

of the patients with a wide variety of malocclusion. It also provides valuable information of diagnosis and treatment planning for orthodontic and orthognathic therapies of the patients with jaw deformities and congenital craniofacial anomalies.
Comprehensive care by a team of specialists including maxillofacial surgeons, orthodontists, speech therapists etc. is needed for the treatment of the patients with cleft lip and palate and other craniofacial anomalies. The Graduate Program provides the clinical education of orthodontics as a part of the multi-disciplinary approach for such patients.

(3) Clinical Performances

In the Clinic, we treat a large number of patients presenting a variety of malocclusions to be assigned to group practice in order to gain valuable experience in diagnosis, treatment planning, orthodontic therapy, and patient management. Especially for patients born with cleft lip and/or palate and who need craniofacial and orthognathic surgery, we have clinical meetings and conferences for the comprehensive care through a team approach with maxillofacial surgeons, maxillofacial prosthodontists and speech therapists. We also provide supportive counseling to families who have members with congenital anomalies before the treatment.

(4) Publications

[Original Articles]

1. Kawakubo N, Miyamoto JJ, Katsuyama N, Ono T, Honda E, Kurabayashi T, Taira M, Moriyama K. Effects of cortical activations on enhancement of handgrip force during teeth clenching: An fMRI study. Neurosci Res.. 2014; 79; 67-75

2. Yokota M, Kobayashi Y, Morita J, Suzuki H, Hashimoto Y, Sasaki Y, Akiyoshi K, Moriyama K. Therapeutic effect of nanogel-based delivery of soluble FGFR2 with S252W mutation on craniosynostosis. PLoS ONE. 2014; 9(7); e101693

3. Duarte C, Kobayashi Y, Kawamoto T, Moriyama K. RELAXIN enhances differentiation and matrix mineralization through Relaxin/insulin-like family peptide receptor 2 (Rxfp2) in MC3T3-E1 cells in vitro. Bone. 2014; 65; 92-101

4. Duarte C, Kobayashi Y, Kawamoto T, Moriyama K. Relaxin receptors 1 and 2 and nuclear receptor subfamily 3, group C, member 1 (glucocorticoid receptor) mRNAs are expressed in oral components of developing mice. Arch Oral Biol.. 2014; 59; 111-118

5. Ito Y, Kawamoto T, Moriyama K. The orthopaedic effects of bone-anchored maxillary protraction in a beagle model. Eur J Orthodont.. 2014; 36; 632-640

6. Watanabe C, Morita M, Hayata T, Nakamoto T, Kikuguchi C, Xue Li, Kobayashi Y, Takahashi N, Notomi T, Moriyama K, Yamamoto T, Ezura Y, Noda M. Stability of mRNA influences osteoporotic bone mass via CNOT3. Proc. Natl. Acad. Sci. U.S.A.. 2014.02; 111(7); 2692-2697

7. de Araujo RM, Oba Y, Kuroda S, Tanaka E, Moriyama K. RhoE regulates actin cytoskeleton organization in human periodontal ligament cells under mechanical stress. Arch. Oral Biol. 2014.02; 59(2); 187-192

8. Hama Y, Kanazawa M, Minakuchi S, Uchida T, Sasaki Y. Reliability and validity of a quantitative color scale to evaluate masticatory performance using color-changeable chewing gum. Journal of Medical and Dental Sciences. 2014.03; 61(1); 1-6

9. Ahiko N, Baba Y, Tsuji M, Suzuki S, Kaneko T, Kindaichi J, Moriyama K. Investigation of Maxillofacial Morphology and Dental Development in Hemifacial Microsomia. Cleft Palate Craniofac. J.. 2014.03;

10. Miyamoto JJ, Yabunaka T, Moriyama K. Cervical characteristics of Noonan syndrome. Eur J Orthod. 2014.04; 36(2); 226-232

11. Hama Y, Kanazawa M, Minakuchi S, Uchida T, Sasaki Y. Properties of a novel color-changeable chewing gum used to evaluate masticatory performance. Journal of Prosthodontic Research. 2014.04; 58(2); 102-106

12. Morita J, Nakamura M, Kobayashi Y, Deng C, Funato N, Moriyama K. Soluble form of FGFR2 with S252W partially prevents craniosynostosis of the apert mouse model. Dev. Dyn.. 2014.04; 243(4); 560-567

13. Hikita R, Kobayashi Y, Tsuji M, Kawamoto T, Moriyama K. Long-term orthodontic and surgical treatment and stability of a patient with Beckwith-Wiedemann syndrome. Am J Orthod Dentofac Orthop.. 2014.05; 145(5); 672-684

14. Nakane A, Sasaki Y, Miwa Z, Kitasako Y, Tagami J. Prevalence of dental erosion and related factors in the deciduous dentition of Japanese children. Pediatric Dental Journal. 2014.06; 24; 97-105

15. Surapornsawasd T, Ogawa T, Tsuji M, Moriyama K. Oculofaciocardiodental syndrome: novel BCOR mutations and expression in dental cells. J. Hum. Genet.. 2014.06; 59(6); 314-320

16. Takada J, Miyamoto JJ, Yokota T, Ono T, Moriyama K. Comparison of the mandibular hinge axis in adult patients with facial asymmetry with and without posterior unilateral crossbite. Eur J Orthod. 2014.08;

17. Okamine E, Saito T, Ejima K, Sasaki Y, Suzuki I, Tagai H, Tamagawa H, Tomiyama M, Hitaka M, Morimoto N, Ji S, Endo A. The Present Conditions and Measures of "an Unregistered Disease Name on Japanese Standard Disease Code for Dentistry". Japan Journal of Medical Informatics. 2014.10; 34(4); 159-172

18. Morita T, Yamazaki Y, Fujiharu C, Ishii T, Seto M, Nishinoue N, Sasaki Y, Kawato T, Motohashi M, Maeno M. Serum γ -glutamyltransferase level is associated with periodontal disease independent of drinking habits in Japanese adults. Med Sci Monit. 2014.10; 20; 2106-2119

19. Ogita M, Tsuchida S, Aoki A, Satoh M, Kado S, Sawabe M, Nanbara H, Kobayashi H, Takeuchi Y, Mizutani K, Sasaki Y, Nomura F, Izumi Y. Increased cell proliferation and differential protein expression induced by low-level Er:YAG laser irradiation in human gingival fibroblasts: proteomic analysis Lasers in Medical Science. 2014.11;

20. Maruoka R, Takenouchi T, Torii C, Shimizu A, Misu K, Higasa K, Matsuda F, Ota A, Tanito K, Kuramochi A, Arima Y, Otsuka F, Yoshida Y, Moriyama K, Niimura M, Saya H, Kosaki K. The use of next-generation sequencing in molecular diagnosis of neurofibromatosis type 1: a validation study. Genet Test Mol Biomarkers. 2014.11; 18(11); 722-735

21. Komazaki Y, Fujiwara T, Ogawa T, Sato M, Suzuki K, Yamagata Z, Moriyama K. Association between malocclusion and headache among 12- to 15-year-old adolescents: a population- based study. Community Dent Oral Epidemiol. 2014.12; 42(6); 572-580

[Misc]

1. Tamagawa H, Saito T, Ejima K, Sasaki Y, Suzuki I, Tagai H, Tomiyama M, Hitaka M, Morimoto N, Ji S, Okamine E, Endo A. Standardization in Dentistry in Japan - Situation of overseas and consideration of Japanese standard masters form the position of international trends. Japan Journal of Medical Informatics. 2014.10; 34(4); 183-195

2. Saito T, Ejima K, Sasaki Y, Suzuki I, Tagai H, Tamagawa H, Tomiyama M, Hitaka M, Morimoto N, Ji S, Okamine E, Endo A. Standard Dental Disease Code Master. Japan Journal of Medical Informatics. 2014.10; 34(4); 173-182

[Conference Activities & Talks]

1. Duarte C, Kobayashi Y, Kawamoto T, Moriyama K.. Receptors of the insulin-like hormone, relaxin, are expressed on orofacial tissues during development and can affect osteoblast differentiation in vitro. . 18th UAE International Dental Conference & Arab Dental Exhibition (AEEDC) 2014.02

2. Keiji Moriyama. Evaluation of the Volume of the Tongue and of the Oral Cavity Using Cone Beam Computed Tomography. Angle East 2014.04.11 Paris

3. Takahashi H, Harada N. How could we contribute to the development of dental devices? -What the industry-academia collaboration should be?-. The 123rd Annual Meeting 2014.05.25
4. Hikita R, Kobayashi Y, Tsuji M, Kawamoto T and Moriyama K. Long-term orthodontic and surgical treatment and stability of a patient with Beckwith Wiedemann syndrome.. 90th Congress of the European Orthodontic Society. 2014.06.18 Warsaw
5. Ikeda M, Takada J, Miyamoto JJ, Moriyama K. Association between three-dimensional mandibular mor- phology and condylar movement in facial asymmetry subjects. 90th Congress of the European Orthodontic Society 2014.06.18 Warsaw
6. Ito Y, Kawamoto T, Moriyama K.. The cephalometric and histological analysis of orthopedic effects in a beagle model of bone-anchored maxillary protraction. 90th Congress of the European Orthodontic Society. 2014.06.18 Warsaw
7. Takahashi Y, Higashihori N, Komazaki Y, Takada J, Moriyama K. Examination of craniofacial morphology in tooth agenesis patients. 90th Congress of the European Orthodontic Society. 2014.06.18 Warsaw
8. Ueno T, Kataoka K, Issareeya E, Baba Y, Moriyama K. Maxillofacial and intraoral characteristics of Noonan syndrome. 90th Congress of the European Orthodontic Society 2014.06.18 Warsaw
9. Yabunaka T, Miyamoto JJ, Sato M, Baba Y, Moriyama K. Head and neck characteristics of Noonan syndrome. 90th Congress of the European Orthodontic Society 2014.06.18 Warsaw
10. Ogita M, Tsuchida S, Aoki A, Satoh M, Kado S, Sawabe M, Nanbara H, Kobayashi H, Takeuchi Y, Mizutani K, Sasaki Y, Nomura F, Izumi Y. Increased cell proliferation and differential protein expression induced by low-level Er:YAG laser irradiation in human gingival fibroblasts: proteomic analysis. 14th Congress of the World Federation for Laser Dentistry 2014.07.03
11. Suzuki H, Tsuji M, Moriyama K. Examination about the abnormality of the number and the eruption of the teeth in 16 cases of cleidocranial dysplasia.. 9th APOC and 20th MAOISCTE. 2014.10.17 Sarawak
12. Keiji Moriyama. Considerations on craniofacial anomalies from orthodontic and orthognathic viewpoints. 9th APOC and 20th MAOISCTE. 2014.10.17
13. Higashihori N, Katayanagi M, Takada J, Moriyama K. Variation in tooth number and size in NTA patients.. International Orthodontic Forum. 2014.11.21 Taiwan
14. Surapornsawasd T, Ogawa T, Moriyama K. Identification of the classical nuclear localization signals of BCOR gene. 62th Annual Meeting of Japanese Association for Dental Research 2014.12.04 大阪

[Awards & Honors]

1. Second price of the Best research for a poster presentation, World Federation for Laser Dentistry, 2014.07

[Others]

1. Evaluation of Community Dental Health Activities in Hiraizumi-cho(IWATE pref.) 1985-
2. Study on Structure of Oral-Medical-Informatics-System. 1991-
3. Study on the Arch Length Discrepancy of Children in Kanagawa 1991-

Maxillofacial Prosthetics

2014 April

Professor
Hisashi Taniguchi

Junior Associate Professor
Yuka Sumita

Assistant Professor
Mariko Hattori
Takafumi Otomaru

Clinical Staff
Mihoko Haraguchi
Mai Murase
Moe Kosaka

Graduate Student
Yiliyaer Aimaijiang
Shigen Yoshi
Ayako Kanazaki
Elbashti Mahmoud Ellarousi
Ayaka Yanagi

Part-time Special Student
Mao Watanabe

Speech-Language-Hearing Therapist
Michiko Mibu

(1) Outline

Department of Maxillofacial Prosthetic is the special unit of the prosthodontic and/or prosthetic treatment for patients with defects in oral and/or maxillofacial regions. The main objective of this course is to provide students with opportunity to gain sound understanding of the restoration of functional and esthetic disorders of oral and/or maxillofacial areas that are caused by congenital developmental or acquired diseases by means of the high-advanced dental and medical cares.

(2) Research

Our department is the special unit for the prosthodontic treatment for patients with congenital or acquired defects in head and neck regions. The main goal of the research is to establish a novel theory and feedback it to the clinic to improve the quality of life of each patient. In this respect, we are focusing on several projects.

Diagnosis of functional impairment in patients with a maxillofacial defect
Treatments for functional rehabilitation of patients with a maxillofacial defect
Masticatory evaluation in patients with a maxillofacial defect
Speech evaluation in patients with a maxillofacial defect
Development of new materials for facial prosthesis

(3) Publications

[Original Articles]

1. Hattori M, Sumita YI, Taniguchi H. Measurement of voice onset time in maxillectomy patients. ScientificWorldJournal. 2014; 2014; 925707

2. Hattori M, Sumita YI, Muthiah L, Iwasaki N, Takahashi H, Aimaijiang Y, Yoshi S, Taniguchi H. Effect of fabrication process on the bond strength between silicone elastomer and acrylic resin for maxillofacial prosthesis. Dent Mater J. 2014; 33(1); 16-20

3. Shichita T, Sato Y, Kitagawa N, Sekiya M, Ohkubo C, Yamamori T, Ueda T, Otomaru T, Kimoto K, Suese K. The Relationship between Treatment Time and Degree of Difficulty in Complete Denture Construction Ann Jpn Prosthodont Soc. 2014; 6(4); 405-413

4. Hattori M, Sumita YI, Taniguchi H. Psychoacoustic evaluation of the human voice: gender and age differences in the production of 14 consonants International Journal of Oral Research. 2014; 2014(5); e2

5. Murase M. Rehabilitation using a dento-maxillary prosthesis for a patient with osteomyelitis of the mandible and maxilla associated with osteopetrosis 2014; 6(1); 55-58

6. Kosaka M, Sumita YI, Otomaru T, Taniguchi H. Differences of salivary cortisol levels between long-term and short-term wearers of dento-maxillary prosthesis due to head and neck cancer resection. J Prosthodont Res. 2014.01; 58(1); 41-47

7. Hattori M, Sumita YI, Taniguchi H. Influence of changes in the oral cavity on the performance of recorder players: a pilot study. J Prosthet Dent. 2014.05; 111(5); 425-429

8. Oki M, Takahashi H, Sumita YI, Hattori M, Iwasaki N, Taniguchi H. Viscoelastic properties of experimental facial prosthetic silicone materials Maxillofacial Prosthetics. 2014.06; 37(1); 9-14

[Misc]

1. Taniguchi H, Sumita YI. Maxillofacial prosthodontics and speech evaluation Ann Jpn Prosthodont Soc. 2014.10; 6(4); 333-342

[Conference Activities & Talks]

1. Yoshi S, Sumita YI, Hattori M, Taniguchi H. A Difference of Denture Space between the patients with tongue defect and without tongue defect. . The 123rd Annual Meeting of the Japan Prosthodontic Society 2014.05.24 Miyagi

2. Kanazaki A, Otomaru T, Sumita YI, Kosaka M, Haraguchi M, Hattori M,Murase M, Taniguchi H. A report of longevity of definitive prostheses in cleft lip and palate patients. The 38th Annual Meeting of Japanese Cleft Palate Association 2014.05.29 Hokkaido

3. Haraguchi M, Tanaka K, Sumita YI, Okazaki M, Taniguchi H. Acceptable Maxillary Reconstruction for Prosthetic Rehabilitation - A Clinical Report of Rehabilitation of a Partial Maxillectomy Patient with a Rectus Abdominis Flap -. The 38th Annual Meeting of Japan Society for Head and Neck Cancer 2014.06.13 Tokyo

4. Murase M. Case presentation. The 31st Annual Meeting of Japanese Academy of Maxillofacial Prosthetics 2014.06.21 Miyagi

5. Haraguchi M, Tachikawa N, Mukohyama H, Sumita YI, Taniguchi H. Surgical reconstructions and prosthetic rehabilitations for a patient repeating recurrences and complications. The 31st Annual Meeting of Japanese Academy of Maxillofacial Prosthetics 2014.06.22 Miyagi

6. Hattori M, Sumita Y, Taniguchi H. Clinical application of a new silicone material KRS-C2 for facial prostheses. The 31st Annual Meeting of Japanese Academy of Maxillofacial Prosthetics 2014.06.22 Miyagi

7. Sumita Y, Oki M, Hattori M, Yoshi S, Elbashti ME, Iwasaki N, Takahashi H, Taniguchi H. Viscoelastic properties of experimental facial prosthetic silicone materials 2nd report. The 31st Annual Meeting of Japanese Academy of Maxillofacial Prosthetics 2014.06.22 Miyagi

8. Elbashti ME, Hattori M, Sumita YI, Taniguchi H. Acoustic characteristics of vowels in trismus simulated condition. The Xi'an Conference of International Society for Maxillofacial Rehabilitation 2014.09.15 Xi'an, China.

9. Yoshi S, Sumita YI, Hattori M, Taniguchi H. The characteristics of denture-space of the patients with tongue defects. The 38th annual conference of the European prosthodontic association and 21st scientific congress of the Turkish prosthodontic and implantology association 2014.09.25 Istanbul, Turkey

10. Elbashti ME, Hattori M, Sumita YI, Yoshi S, Taniguchi H. Creating Digitized Database of Maxillofacial Prostheses (Obturators). The 38th annual conference of the European prosthodontic association and 21st scientific congress of the Turkish prosthodontic and implantology association 2014.09.25 Istanbul, Turkey

11. Otomaru T, Aimaijian Y, Kanazaki A, Watanabe M, Yoshi S, Taniguchi H. Prosthodontic Treatment of a Patient with Gnathodiaphyseal Dysplasia. The 38th annual conference of the European prosthodontic association and 21st scientific congress of the Turkish prosthodontic and implantology association. 2014.09.25 Istanbul, Turkey

12. Haraguchi M, Yamashiro M, Sumita YI, Mizutani M, Michi Y, Tachikawa N, Kasugai S, Harada H, Harada K, Taniguchi H. Impact factors for chewing function in maxillectomy patients. The 38th annual conference of the European prosthodontic association and 21st scientific congress of the Turkish prosthodontic and implantology association 2014.09.26 Istanbul, Turkey

13. Sumita YI, Taniguchi H, Hattori M, Elbasthti ME, Yoshi S, Minamisawa N, Otomaru T, Kanazaki A, Yanagi A, Moustafa M, Haraguchi M, Kosaka M. The facial prosthetic treatment at Tokyo Medical and Dental University. The 38th annual conference of the European prosthodontic association and 21st scientific congress of the Turkish prosthodontic and implantology association 2014.09.26 Istanbul, Turkey

14. Sumita YI, Hattori M, Taniguchi H. One-Piece Prosthesis Using an Acrylic Base Plate for Rehabilitation of Extensive Midfacial Defect (A Case Report). Indonesian prosthodontic society and Japan prosthodontic society Joint meetng 2014.10 Bali, Indonesia

15. Haraguchi M, Sumita YI, Hattori M, Taniguchi H. The relationship between chewing function and QOL in postoperative oral tumor patients. Indonesian prosthodontic society and Japan prosthodontic society Joint meetng 2014.10.30 Bali, Indonesia

16. Elbashti ME, Hattori M, Sumita YI, Haraguchi M, Taniguchi H. Prosthetic rehabilitation in children with maxillectomy: A clinical case report. The 61st annual meeting of the American Academy of Maxillofacial Prosthetics (AAMP) 2014.11.01 New Orleans, USA

17. Kosaka M, Sumita YI, Otomaru T, Hattori M, Murase M, Haraguchi M, Yoshi S, Taniguchi H. Chronological Changes of salivary cortisol levels in wearers of dento-maxillary prosthesis . The 18th Scientific Meeting of Japan Prosthodontic Society Tokyo Chapter 2014.11.09 Tokyo

[Awards & Honors]

1. Third winner of Research Presentation Award (Haraguchi M), Indonesian Prosthodontic Society and Japan Prosthodontic Society Joint Meeting, 2014.11

2. First winner of Case Report Presentation Award (Sumita YI), Indonesian and Japan Prosthodontic Society Joint Meeting, 2014.11

Cell Biology

Professor	Takao Nakata
Associate Professor	Akihiro Inoue
Assistant Professor	Tomohiro Ishii
Assistant Professor	Toshiyuki Kakumoto
Technical Staff	Satoko Nakamura

(1) Outline

We started a new laboratory from April 2009. We are interested in the cellular responses to spatio-temporal activation of signaling molecules. For this purpose, we took synthetic approaches combined with optogenetics. We introduce the photo switches into cells, and analyze signaling systems quantitatively. Research will be conducted by using molecular biology, molecular genetics, cell biology, theoretical biology, and live-imaging techniques.

(2) Research

We are studying cell signaling using optogenetics. We made photo-switch of various signaling proteins and introduced them into cells. Parts of the cells were stimulated by blue lasers. The photo-switches were activated locally with in the cells and we observe the cell phenotypes by time-laps microscope using these techniques we can understand molecular mechanisms of cell signaling in spatio temporal fashion and also can manipulate cellular conditions using these switches.

(3) Education

We teach histology and cell biology to 2nd year medical students. The courses are composed of sets of lecture and laboratory study of tissues and organs. Our goal in undergraduate course is to provide students with fundamental knowledge and skill to analyze microscopic samples of normal human body.
In new curriculum in lecture provide students information on fine structure and hints or laboratory work this helps the students to sketch the tissue in their laboratory work. we aimed our lecture provide fundamental knowledge of human tissues and organ to learn clinical lectures. In laboratory work we adopt classical sketch of tissues because we believe it shows ability of students to search the place representive of area and extract essential structure. Evaluation depends on paper test, sketch and laboratory test.
In cell biology course we start a little bit advanced lectures such as cell death, cell cycle because we avoid to teach the same contents they have learned in past year biology course. We also provide more stimulative lectures in later half of the course such as autophagy zebrafish genetics and mathematical model.

(4) Publications

[Original Articles]

1. Leinders-Zufall T*, Ishii T*, Chamero P, Hendrix P, Oboti L, Schmid A, Kircher S, Pyrski M, Akiyoshi S, Khan M, Vaes E, Zufall F, Mombaerts P. A family of nonclassical class I MHC genes contributes to

ultrasensitive chemodetection by mouse vomeronasal sensory neurons. Journal of Neuroscience. 2014.04; 34(15); 5121-5133

[Conference Activities & Talks]

1. Tomohiro Ishii, Trese Leinders-Zufall, Frank Zufall, Peter Mombaerts. Function of nonclassical class I MHC genes in the mouse vomeronasal organ (Tomohiro Ishii). The 37th Annual Meeting of the Japan Neuroscience Society 2014.09.11 Yokohama

2. Tomohiro Ishii, Trese Leinders-Zufall, Frank Zufall, Peter Mombaerts. A Chemosensory Transduction Role For a Family of Nonclassical Class I MHC Molecules in Mouse Vomeronasal Neurons (Tomohiro Ishii). The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25 Yokohama

Medical Biochemistry

Professor Yutaka Hata

Junior Associate Professor Kentaro Nakagawa(Until December, 2014)

Assistant Professor Hiroaki Iwasa

Assistant Professor Junichi Maruyama

Other two staffs

(1) Research

1) The biological and chemical approach to study the Hippo pathway that controls cell proliferation, cell differentiation, and cell death.
2) Versatile roles of the tumor suppressive RASSF proteins
3) Discovery and development of chemical compounds that suppress cancer stemness and metastasis
4) Discovery and development of chemical compounds that facilitate myogenesis and prevent muscle atrophy

(2) Education

１：Undergraduate course
We organaized the course of Biochemmistry for the undergraduate students.
２：Master course
We organized the course of Biochemmistry for the master students.
３：Others
We gave a lecture about metabolism of cancer cells.
We gave a lecture entitled "How is the life of human maintained?" for the students of Tokyo University of Foreign Studies.

(3) Lectures & Courses

1) Undergraduate
We organize the course, “Medical Biochemistry”. The students are requested through these courses to obtain a comprehensive integrated knowledge of human biochemistry, which is important to understand how health is maintained and which molecular and biochemical events cause human diseases and underlie the rational treatments.
2) Graduate and others
We are studying the signaling pathway that regulates cell proliferation, cell differentiation, cell polarity, and cell death. This pathway is well conserved from fly to human. The mutations of the components lead to oncogenesis and organ malformation. Several recent studies suggest that this pathway is implicated in inflammation and cell differentiation such as adipogenesis, osteogenesis, and keratinocyte differentiation. The pathway plays an important role in various human diseases and could be a new therapeutic target. We give lectures about

our current studies to graduate students and others, and provide graduate students with the opportunity to participate in them.

(4) Publications

[Original Articles]

1. Asuki Fukatsu, Futoshi Ishiguro, Ichidai Tanaka, Takumi Kudo, Kentaro Nakagawa, Keiko Shinjo, Yutaka Kondo, Makiko Fujii, Yoshinori Hasegawa, Kenji Tomizawa, Tetsuya Mitsudomi, Hirotaka Osada, Yutaka Hata, Yoshitaka Sekido. RASSF3 downregulation increases malignant phenotypes of non-small cell lung cancer. Lung Cancer. 2014.01; 83(1); 23-29

2. Zeyu Yang, Kentaro Nakagawa, Aradhan Sarkar, Junichi Maruyama, Hiroaki Iwasa, Yijun Bao, Mari Ishigami-Yuasa, Shigeru Ito, Hiroyuki Kagechika, Shoji Hata, Hiroshi Nishina, Shinya Abe, Masanobu Kitagawa, Yutaka Hata. Screening with a novel cell-based assay for TAZ activators identifies a compound that enhances myogenesis in C2C12 cells and facilitates muscle repair in a muscle injury model. Mol. Cell. Biol.. 2014.05; 34(9); 1607-1621

[Misc]

1. Kodaka M, Hata Y.. The mammalian Hippo pathway: regulation and function of YAP1 and TAZ. Cellular and molecular life sciences.

Joint Surgery and Sports Medicine

Takeshi Muneta
Tetsuya Jinno
Hideyuki Koga

Department of Joint Reconstruction

Tomoyuki Mochizuki

Department of Cartilage Regeneration

Kunikazu Tsuji
Toshifumi Watanabe

Yusuke Nakagawa, Yu Matsukura, Kahaer Abula, Shinpei Kondo, Mio Udo, Ryusuke Saito, Katsuaki Yanagisawa, Makiko Inoue, Etsuko Matsumura, Yoshie Seki, Eniti Nakatsuru, Akimasa Kimura, Shinji Hagio, Takashi Kondo Toshiyuki Ohara, Mikio Shioda, Kaori Nakamura, Kanehiro Hiyama, Mindae Kim, Mari Uomizu, Takashi Hoshino, Mai Katakura, Miyoko Ojima, Ai Yamada, Risa Tada

(1) Research

1. Development and establishment of isolation and expansion of mesenchymal stem cells.
2. Research of biological characteristics of mesenchymal stem cells.
3. Development and improvement of treatment method of articular cartilage defect with mesenchymal stem cells.
4. Development of treatment strategy to joint structure injuries with mesenchymal stem cells.
5. Development of artificial cartilage and bone.
6. Development of novel agents related to bone and cartilage metabolism.
7. Genetical approach to bone and cartilage metabolism.
8. Clarifying mechanism and control of post-injury and postoperative inflammation with tissue fibrosis.
9. Clarifying mechanism of joint pain with novel treatment strategy.
10. Novel treatment strategy for cuff tear.

(2) Lectures & Courses

We are working with the section of Orthopedic and Neurosurgery as a department of Orthopaedic Surgery of University Hospital. The doctors start to have education of orthopedic surgery as a member of the department from the staffs of the department of Orthopaedic Surgery according to the orthopaedic education and training program after completing the two-year fundamental education and training program as a junior resident. They experience a lot of traumatic patients and deepen their basic orthopaedic skills for two-year junior orthopaedic training in one of the branch hospitals every year. They expand their skills and obtain orthopaedic specialty educations in the advanced two-year education and training program. After completing a six-year educational program of the orthopaedic surgery, they are recommended to apply to the orthopedic specialist form the Japanese Orthopaedic Association. They usually apply to enter the graduate school program after 4 or 5 years of clinical experience.
We encourage not only orthopedic doctors but doctors of other specialty, veterinarian doctors and physical therapists, etc to work with us.

(3) Clinical Services & Other Works

1. Treatment for sports injuries.

2. Prevention, conservative treatment and rehabilitation for sports injuries.
3. Anatomic double-bundle anterior cruciate ligament (ACL) reconstruction for ACL injuries.
4. Surgical treatment for knee multiple ligament injuries.
5. Surgical treatment for meniscal injuries to restore meniscal function.
6. Regenerative medicine for unrepairable meniscus and cartilage injuries.
7. Treatment for osteoarthritis (OA)
8. Conservative approaches to early OA.
9. Joint-sparing surgeries such as osteotomies for moderate OA Total arthroplasties for severe OA
10. Clinical researches and clinical results for above-mentioned approaches have been presented at both domestic and international congresses, as well as reported in Japanese and English articles.

(4) Clinical Performances

Sports injuries
We have been performing double-bundle ACL reconstruction since 1994 as a pioneer, and reported good clinical outcomes regarding knee stability, ratio of return to sports and patients' satisfaction. As for meniscal surgeries, we have been trying to repair as much as possible to restore meniscal function. In addition, we have developed a novel surgical procedure to restore meniscal function for patients with post-meniscectomy and discoid meniscus. We have also analyzed mechanisms and preventive methods for ACL injuries, and first in the world clarified a detailed ACL injury mechanism. Based on the findings, various approaches to ACL injury prevention and rehabilitation after ACL reconstruction is being conducted.

Arthroplasties
We have developed a new total knee system called Actiyas, named after the combination of active and healed ("iyas" in Japanese), which is specifically designed for Japanese. In order to develop this, we analyzed Japanese bone morphology, and this system is designed for more functional and "active" motion without knee pain, and eventually patients to be "healed". Ceramic is used for the femoral implant, by which we can expect lesser implant wear, resulting in better long-term results. We perform simultaneous bilateral arthroplasties for Bilateral OA patients, helping them earlier return to daily life.

Regenerative medicine for cartilage and meniscus injuries using synovial stem cells
Based on numerous basic researches performed in our laboratory, we started stem cell therapy for cartilage injuries using synovial stem cells since April 2008. In this therapy, we take synovium from patients at day surgery, culture synovial stem cells at the cell processing center in our university, and transplant them arthroscopically. The safety and effectiveness had been already confirmed. In addition, we also started a clinical trial of synovial stem cell transplantation for unrepairable meniscal tear since August 2014.

(5) Publications

[Original Articles]

1. Yamada Jun, Tsuji Kunikazu, Miyatake Kazumasa, Matsukura Yu, Abula Kahaer, Inoue Makiko, Sekiya Ichiro, Muneta Takeshi. Follistatin alleviates synovitis and articular cartilage degeneration induced by carrageenan. Int J Inflam. 2014; 2014; 959271

2. Tomoyuki Mochizuki, Hitomi Fujishiro, Akimoto Nimura, Pasuk Mahakkanukrauh, Kazunori Yasuda, Takeshi Muneta, Keiichi Akita. Anatomic and histologic analysis of the mid-substance and fan-like extension fibres of the anterior cruciate ligament during knee motion, with special reference to the femoral attachment Knee Surg Sports Traumatol Arthrosc. 2014.02; 22(2); 336-344

3. Tetsuya Jinno, Kazuyoshi Yagishita. What's New in Orthopedics: Asian Perspective - Hip Austin MS, Klein GR, eds. Recent Advances in Orthopedics. 2014.03; 202-214

4. Kazuyoshi Yagishita, Tetsuya Jinno. What's New in Orthopedics: Asian Perspective - Knee Austin MS, Klein GR, eds. Recent Advances in Orthopedics. 2014.03; 215-220

5. Matsukura Yu, Muneta Takeshi, Tsuji Kunikazu, Koga Hideyuki, Sekiya Ichiro. Mesenchymal stem cells in synovial fluid increase after meniscus injury. Clin Orthop Relat Res. 2014.05; 472(5); 1357-1364

6. Koga Hideyuki, Muneta Takeshi, Yagishita Kazuyoshi, Watanabe Toshifumi, Mochizuki Tomoyuki, Horie Masafumi, Nakamura Tomomasa, Sekiya Ichiro. Effect of Notchplasty in Anatomic Double-Bundle Anterior Cruciate Ligament Reconstruction. Am J Sports Med. 2014.06; 42(8); 1813-1821

7. Nobuharu Suzuki, Chihiro Mizuniwa, Kana Ishii, Yusuke Nakagawa, Kunikazu Tsuji, Takeshi Muneta, Ichiro Sekiya, Chihiro Akazawa. Teneurin-4, a transmembrane protein, is a novel regulator that suppresses chondrogenic differentiation. J. Orthop. Res.. 2014.07; 32(7); 915-922

8. Kumai Tsukasa, Muneta Takeshi, Tsuchiya Akihiro, Shiraishi Masaharu, Ishizaki Yoshitaka, Sugimoto Kazuya, Samoto Norihiro, Isomoto Shinji, Tanaka Yasuhito, Takakura Yoshinori. The short-term effect after a single injection of high-molecular-weight hyaluronic acid in patients with enthesopathies (lateral epicondylitis, patellar tendinopathy, insertional Achilles tendinopathy, and plantar fasciitis): a preliminary study. J Orthop Sci. 2014.07; 19(4); 603-611

9. Hatsushika D, Muneta T, Nakamura T, Horie M, Koga H, Nakagawa Y, Tsuji K, Hishikawa S, Kobayashi E, Sekiya I. Repetitive allogeneic intraarticular injections of synovial mesenchymal stem cells promote meniscus regeneration in a porcine massive meniscus defect model. Osteoarthritis Cartilage. 2014.07; 22(7); 941-950

10. Okuno Makiko, Muneta Takeshi, Koga Hideyuki, Ozeki Nobutake, Nakagawa Yusuke, Tsuji Kunikazu, Yoshiya Shinichi, Sekiya Ichiro. Meniscus regeneration by syngeneic, minor mismatched, and major mismatched transplantation of synovial mesenchymal stem cells in a rat model. J Orthop Res. 2014.07; 32(7); 928-936

11. Muneta Takeshi, Koga Hideyuki, Nakamura Tomomasa, Horie Masafumi, Watanabe Toshifumi, Yagishita Kazuyoshi, Sekiya Ichiro. A new behind-remnant approach for remnant-preserving double-bundle anterior cruciate ligament reconstruction compared with a standard approach. Knee Surg Sports Traumatol Arthrosc. 2014.09;

12. Koga Hideyuki, Muneta Takeshi, Yagishita Kazuyoshi, Watanabe Toshifumi, Mochizuki Tomoyuki, Horie Masafumi, Nakamura Tomomasa, Sekiya Ichiro. Effect of femoral tunnel position on graft tension curves and knee stability in anatomic double-bundle anterior cruciate ligament reconstruction. Knee Surg Sports Traumatol Arthrosc. 2014.11; 22(11); 2811-2820

[Misc]

1. Jinnno T, Morita S, Aizawa J, Masuda T. Problems and a new definition of the angle of shoulder axial rotation The Japanese Journal of Rehabilitation Medicine. 2014.08; 51(8/9); 574-581

[Conference Activities & Talks]

1. Gaku Koyano, Tetsuya Jinno, Daisuke Koga, Chisato Hoshino, Takeshi Muneta, Atsushi Okawa. Is closed suction drainage effective in recovery of hip joint function after total hip arthroplasty?. American Academy of Orthopaedic Surgeons 2014.03.12

2. Takeshi Muneta. A backside approach for a remnant preserving double-bundle ACL reconstruction by three different techniques. . 1st Congress of APKASS in Nara 2014.04.15 Nara Prefectural New Public Hall

3. Takeshi Muneta. A History and Outcome of our Double-bundle ACL Reconstruction -20- year experience-.. 2014 Annual Spring Congress of the Korean Orthopaedic Association 2014.04.17 Jeju Island

4. Takeshi Muneta. An Arthroscopic Less-invasive Transplantation of Synovial Stem Cells for Patients with Articular Cartilage Injuries.. 2014 Annual Spring Congress of the Korean Orthopaedic Association 2014.04.17 Jeju Island

5. Akinobu Hyodo, Tetsuya Jinno, Daisuke Koga, Takeshi Muneta, Atsushi Okawa. A case of pseudotumor after metal-on-highly cross-linked polyethylene bearing total hip arthroplasty. 15th EFORT 2014.06.04

6. Ryohei Takada, Tetsuya Jinno, Daisuke Koga, Masanobu Hirao, Chisato Hoshino, Yoshinori Asou, Sadao Morita, Takeshi Muneta, Atsushi Okawa. Risk factors related to dislocation after primary total hip arthroplasty. 15th EFORT 2014.06.04

7. Daisuke Koga, Tetsuya Jinno, Shigenori Kawabata, Takeshi Muneta, Atsushi Okawa. Utility of muscle evoked potential monitoring in total hip arthroplasty.. ICJR Pan Pacific Orthopaedic Congress 2014.07.16

8. Takeshi Muneta. Isolated Superficial Medial Collateral Ligament Tears - Anatomic Treatment/Outcomes. Vail International Complex Knee Symposium (VICKS) 2014.07.17

9. Takeshi Muneta. Diagnostic Workup of Recurrent Lateral Patellar Instability. Vail International Complex Knee Symposium (VICKS) 2014.07.18
10. Takeshi Muneta. Return-to-sports and performance recovery after anterior cruciate ligament reconstruction.. JOSSM/ KOSSM combined symposium 2014.09.12

Biostructural Science

Professor: Yoshiro TAKANO
Associate Professor: Makoto TABATA
Technician: Makoto SUGIURA
Secretary: Haruno KURODA

(1) Research

The mechanisms of dental and periodontal tissue formation and their regeneration is the central focus of our research. Followings are rough description of current research subjects in our laboratory.

1) Biological mineralization.
2) Induction and/or regeneration of dental and periodontal tissues.
3) Reaction-diffusion phenomenon in biological systems
4) Origin and evolution of tooth
5) Molecular mechanisms of tooth development
6) Role of dentin matrix proteins in the development of root and periodontal tissues
7) Sensory apparatus in masticatory systems.

(2) Lectures & Courses

[Undergraduate Education]
Provide dental students with the essential knowledge and methods of studies necessary to understand fundamentals of structure and function of the human body, based primarily on macroscopic- and microscopic anatomy (Histology), including dissection lab works which lasts nearly 3 months. Emphasis is placed on the structure and function of oral and maxillofacial regions including teeth, periodontal tissues, salivary glands and temporomandibular joints, as well as muscles and nerves related to these structures. These comprise major part of the largest teaching module of the 3rd-year dental education curriculum and are expected to build solid basis for future studies of advanced dental science and clinical medicine.
In addition to the current curriculum, a novel curriculum also started from April 1, 2012 in which most of the subjects listed above had been transferred to the 2nd-year program where dental students and medical students are supposed to study together.

[Graduate School]
Provide graduate students with updated information of mechanisms of biological mineralization, structural features, as well as ontogenic and evolutional aspects of the development of biological hard tissues, and give a lab course of essential methods for structural analyses of hard tissues, particularly of teeth and periodontal tissues.

(3) Publications

[Original Articles]

1. Chunlin Chen, Zhongchang Wang, Mitsuhiro Saito, Tetsuya Tohei, Yoshiro Takano, Yuichi Ikuhara. Fluorine in shark teeth: its direct atomic-resolution imaging and strengthening function. Angew. Chem. Int. Ed. Engl.. 2014.02; 53(6); 1543-1547

2. Helle H Damkier, Kaj Josephsen, Yoshiro Takano, Dirk Zahn, Ole Fejerskov, Sebastian Frische. Fluctuations in surface pH of maturing rat incisor enamel are a result of cycles of H(+)-secretion by ameloblasts

and variations in enamel buffer characteristics. Bone. 2014.03; 60; 227-234

3. Dawud Abduweli, Otto Baba, Makoto J Tabata, Kazunori Higuchi, Hiroshi Mitani, Yoshiro Takano. Tooth replacement and putative odontogenic stem cell niches in pharyngeal dentition of medaka (Oryzias latipes). Microscopy (Oxf). 2014.04; 63(2); 141-153

4. Kazuhiro Takeyama, Masahiro Chatani, Yoshiro Takano, Akira Kudo. In-vivo imaging of the fracture healing in medaka revealed two types of osteoclasts before and after the callus formation by osteoblasts. Dev. Biol.. 2014.10; 394(2); 292-304

5. J Guo, D M Lyaruu, Y Takano, C W Gibson, P K DenBesten, A L J J Bronckers. Amelogenins as Potential Buffers during Secretory-stage Amelogenesis. J. Dent. Res.. 2014.12;

[Conference Activities & Talks]

1. Sebastian Frische, Helle Damkier, Kaj Josephsen, Yoshiro Takano, Dirk Zahn, Ole Fejerskov. Fluctuations in Surface pH of Maturing Rat Incisor Enamel Are a Result of Cycles of H+-secretion by Ameloblasts and Variations in Enamel Buffer Characteristics.. EB2014 2014.04 San Diego

2. C.K. Jayawardena, V. Walpola, T. Nandasena, D. Nanayakakara, and Y. Takano. Involvement of organic anion transporters in non-endocytotic uptake of amelogenins during human tooth development. Peradeniya University International Research Session 2014.07 Peradeniya University

3. Masahiro Chatani, Akiko Mantoku, Kazuhiro Takeyama, Kazuhiro Aoki, Yasutaka Sugamori, Keiichi Ohya, Satoko Uchida, Hiromi Suzuki, Toru Sakimura, Yasushi Kono, Fumiaki Tanigaki, Masaki Shirakawa, Keiji Inohaya, Dawud Abduweri, Yoshiro Takano, Akira Kudo. Rearing Medaka Fish in International Space Station (ISS) for Bone Metabolism Study. ASBMR 2014.09

4. Masahiro Chatani, Yoshiro Takano, Takeshi Todo, Akira Kudo. Imbalance of RANKL/OPG reveals the new bone resorption system with the whole-body analysis in medaka. ASBMR 2014.09

5. Microscopic strategies aiming at resolution of structure, function, composition, and state of biological hard tissues. 2014.12.20

Pharmacology

Staffs and Students(April, 2014)

Associate Professor Kazuhiro AOKI
Assistant Professor Yukihiko TAMURA
Technologist Mariko TAKAHASHI

Researchers
Nobuyoshi TOMOMATSU (Maxillofacial Surgery)
Kengo FUJIKI (Removable Prosthodontics)
Yasuhiro SHIMIZU (Orthodontic Science)
Atsushi KIMURA (Oral and Maxillofacial Surgery)

Graduate Students
Toshimi SATO
Genki KATO
Yasutaka SUGAMORI
Natsuki SUZUKI (Removable Prosthodontics)
Tomoki UEHARA (Pediatric Dentistry)
Yuki ARAI (Removable Prosthodontics)
Md. Haque Bhuyan ZAHIRUL

Lecturers
Keiichi OHYA
Akira NIFUJI
Etsuko TAKAHASHI
Nozomi HASEGAWA
Eiichi KUBOMURA
Hiroaki SAITO
Yoshihiro WAKI
Kennichi NAGANO
Kiichi NONAKA

(1) Research

Research Subjects
1) Drug effects on the formation mechanism of teeth and bone
2) Interdisciplinary research on the peptide delivery system toward bone augmentation at maxillofacial region
3) Identification of new drug targets for therapies in bone and cartilage-related diseases

(2) Lectures & Courses

Purpose of Education
Pharmacology is situated between the basic and clinical sciences and is important for dental students. There is a growing demand on the dental clinicians to know huge knowledge of drugs and how to use them for patients. For these purpose, the first lecture is aimed to teach the scientific aspects of pharmacology and how drugs act on the various organ system. The second lecture deals with drugs of medical and dental fields and the last with drugs of special importance of dentistry. Dental students learn the principle of pharmacology through laboratory practice. Following these learning, they must acquire an adequate background for drug use in general practice.

(3) Publications

[Original Articles]

1. Nassar Mohannad, Hiraishi Noriko, Shimokawa Hitoyata, Tamura Yukihiko, Otsuki Masayuki, Kasugai Shohei, Ohya Keiichi, Tagami Junji. The inhibition effect of non-protein thiols on dentinal matrix metalloproteinase activity and HEMA cytotoxicity. JOURNAL OF DENTISTRY. 2014.03; 42(3); 312-318

2. Kaori Shoi, Kazuhiro Aoki, Keiichi Ohya, Yuzo Takagi, Hitoyata Shimokawa. Characterization of pulp and follicle stem cells from impacted supernumerary maxillary incisors. Pediatr Dent. 2014.05; 36(3); 79-84

3. Negishi N. Suzuki D. Ito R. Irie N. Matsuo K. Yahata T. Nagano K. Aoki K. Ohya K. Hozumi K. Ando K. Tamaoki N. Ito M. Habu S. Effective expansion of engrafted human hematopoietic stem cells in bone marrow of mice expressing human Jagged1. Exp. Hematol. 2014.06; 42(6); 487-94.e1

4. M Nassar, N Hiraishi, M S Islam, Y Tamura, M Otsuki, S Kasugai, K Ohya, J Tagami, F R Tay. The effect of glutathione on 2-hydroxyethylmethacrylate cytotoxicity and on resin-dentine bond strength. Int Endod J. 2014.07; 47(7); 652-658

5. Hirata-Tsuchiya S. Fukushima H. Katagiri T. Ohte S. Shin M. Nagano K. Aoki K. Morotomi T. Sugiyama G. Nakatomi C. Kokabu S. Doi T. Takeuchi H. Ohya K. Terashita M. Hirata M. Kitamura C. Jimi E. Inhibition of BMP2-induced bone formation by the p65 subunit of NF-κ B via an interaction with Smad4. Mol. Endocrinol. 2014.09; 28(9); 1460-1470

6. Aoki K. Maeda M. Nakae T. Okada Y. Ohya K. Chiba K. A disulfide bond replacement strategy enables the efficient design of artificial therapeutic peptides. Tetrahedron. 2014.10; 70; 7774-7779

7. Tada Y. Kokabu S. Sugiyama G. Nakatomi C. Aoki K. Fukushima H. Osawa K. Sugamori Y. Ohya K. Okamoto M. Fujikawa T. Itai A. Matsuo K. Watanabe S. Jimi E. The novel I κ B kinase β inhibitor IMD-0560 prevents bone invasion by oral squamous cell carcinoma. Oncotarget. 2014.10;

8. Kimura A. Kabasawa Y. Tabata Y. Aoki K. Ohya K. Omura K. Gelatin hydrogel as a carrier of recombinant human fibroblast growth factor-2 during rat mandibular distraction. J. Oral Maxillofac. Surg. 2014.10; 72(10); 2015-2031

9. Mise-Omata S. Alles N. Fukazawa T. Aoki K. Ohya K. Jimi E. Obata Y. Doi T. NF-κ B RELA-deficient bone marrow macrophages fail to support bone formation and to maintain the hematopoietic niche after lethal irradiation and stem cell transplantation. Int. Immunol. 2014.11; 26(11); 607-618

[Conference Activities & Talks]

1. Kimura A, Kabasawa Y, Sato M, Takahara N, Matsumoto K, Higuchi Y, Tabata Y, Aoki K, Ohya K, Omura K. The feasibility of gelatin hydrogel as a carrier of basic fibroblast growth factor for bone formation in rat mandibular distraction. The 13th Congress of the Japanese Society for Regenerative Medicine 2014.03.04 Kyoto

2. Kato Genki, Shimizu Yasuhiro, Sugamori Yasutaka, Takahashi Mariko, Tamura Yukihiko, Ono Takashi, Ohya Keiichi, Aoki Kazuhiro. The effects of the RANK-like peptide on murine rheumatoid arthritis model. The 87th Annual Meeting of the Japanese Pharmacological Society 2014.03.19 Sendai

3. Takashi Nagano, Yohei Mukai, Yasutaka Sugamori, Genki Kato, Keiichi Ohya, Kazuhiro Aoki, Kazuma Higashisaka, Yasuo Yoshioka, Kazuya Nagano, Haruhiko Kamada, Shin-ichi Tsunoda, Yasuo Tsutsumi. Basic analysis for screening a novel bone-regenerating peptide from the phage peptide library. The 134th Annual Meeting of the Pharmaceutical Society of Japan 2014.03.27 Kumamoto

4. Nagano T, Mukai Y, Sugamori Y, Kato G, Ohya K, Aoki K, Higashisaka K, Yoshioka Y, Nagano K, Kamada H, Tsunoda S, Tsutsumi Y.. Basic analysis for screening a novel bone-regenerating peptide from the phage peptide library. CRS2014 2014.07.12 Chicago, USA

5. Sugamori Y, Honma M, Kato G, Tamura Y, Furuya Y, Yasuda H, Tabata Y, Udagawa N, Ohya K, Suzuki H, Aoki K. RANKL-binding peptides increased bone formation in a murine calvarial defect model. ASBMR2014 2014.09.12 Houston, Texas, USA

6. Chatani M, Mantoku A, Takeyama K, Aoki K, Sugamori Y, Ohya K, Uchida S, Suzuki H, Sakimura T, Kono Y,Tanigaki F, Shirakawa M, Inohaya K, Abduweri D, Takano Y, Kudo A. Rearing Medaka Fish in International Space Station (ISS) for Bone Metabolism Study. ASBMR2014 2014.09.12 Houston, Texas, USA

Connective Tissue Regeneration

Associate Professor Tamayuki SHINOMURA

(1) Outline

Our group is interested in the restoration of damaged connective tissue. In general, connective tissue is characterized by the presence of abundant extracellular matrix, and its function is highly dependent on the properties of extracellular matrix. Therefore, to restore connective tissue normal, it is essential for us to understand the behavior of extracellular matrix molecules. So, we pursue research on the molecular mechanisms underlying the formation and maintenance of extracellular matrix in connective tissues.

(2) Research

Currently, we are engaged in the following research subject.
1. Study on transcription factors necessary for the maintenance of chondrogenic phenotype.
2. Study on the molecular dynamics of extracellular matrix in connective tissues.

(3) Education

We give a lecture on molecular biology in general and laboratory exercise for undergraduate students. Also, in our graduate course, we offer lectures on the synthesis and formation of extracellular matrix focusing on cartilage tissue.

(4) Lectures & Courses

We provide education based on the belief that an integrated and organized connection of various knowledge is important to understand life phenomena.

(5) Publications

[Original Articles]

1. S Takahashi, M Fukuda, A Mitani, T Fujimura, Y Iwamura, S Sato, T Kubo, Y Sugita, H Maeda, T Shinomura, T Noguchi. Follicular dendritic cell-secreted protein is decreased in experimental periodontitis concurrently with the increase of interleukin-17 expression and the Rankl/Opg mRNA ratio. J. Periodont. Res.. 2014.06; 49(3); 390-397

2. Yuichi Ikeda, Kazuo Ito, Yuichi Izumi, Tamayuki Shinomura. A candidate enhancer element responsible for high-level expression of the aggrecan gene in chondrocytes. J. Biochem.. 2014.07; 156(1); 21-28

[Conference Activities & Talks]

1. Kazuo Ito, Tamayuki Shinomura. Establishment of a new promoter assay system, and analysis of the regulatory mechanism for the high-level expression of type II collagen and aggrecan genes. The 27th Annual Meeting of the Japanease Society of Cartilage Metabolism 2014.03.01 Kyoto, Japan

Biochemistry

Associate Professor Miki Yokoyama
Junior Associate Professor Yasuhiro Kumei
Assistant Professor Katarzyna Anna Podyma-Inoue
Technical staff Kazue Terasawa
Part-time Lecturer Zeredo, Jorge Luis Lopes, Akira Asari
Graduate student Hiroko Yamanokuchi
Rajapakshe Mudiyanselage Anupama Rasadari Rajapakshe

(1) Outline

(1) Structural and functional mapping of lysosomal membranes
Lysosomes are ubiquitous organelles rich in hydrolytic enzymes, responsible for the degradation of macromolecules derived from the extracellular space through endocytosis or phagocytosis, and from the cytoplasm through autophagy. These processes are vital to acquire energy source and essential materials, to defend against pathogen, and to clear unnecessary or potentially harmful intracellular obstacles. Clinically, impairment of lysosome function gives rise to progressive and ultimately serious damages in widespread tissue and organ, particularly in brain, bones and connective tissues.
Although the hydrolytic enzymes within lysosomes are mainly involved in the degradation processes, versatility of lysosomes depends on architecture of lysosomal membranes. Lysosomal membrane proteins act at several crucial steps of the lysosome life cycle, including lumen acidification, metabolite export, molecular motors recruitment, fusion with other organelles, and regulation of lysosomal biogenesis and autophagy by sensing energy metabolism. However, the mechanism coordinating the interaction of the lysosomal membrane proteins has not been sufficiently elucidated. Accordingly, we aim to uncover the structural and functional characteristics of assembly of membrane proteins on lysosomal membranes.

(2) Heparan sulfate proteoglycan-dependent cellular logistics
Heparan sulfate proteoglycans (HSPGs) are one of the basic constituents of plasma membranes where it interacts with a number of extracellular ligands. However, in addition to the extracellular function, HSPGs have been also suggested to mediate the trafficking of a variety of macromolecules from the cell surface. Growth factors, cytokines, lipoproteins, cell penetrating peptides, polycation-nucleic acid complexes, exosomes, and pathogens enter cells through HSPG-dependent endocytosis stressing the importance of the identification of HSPG species that participate in a formation of various endocytotic complexes.
The other subject, which is necessary to understand the biological significance of the HSPG-dependent transport pathway, is the role of HSPGs in the intracellular transport to cell surface. Elucidation of the molecular basis of the HSPG-mediated vesicles formation and its trafficking will be a breakthrough in the matrix biology.

(3) 3D microfocus X-ray movie system
We have developed a 3D microfocus X-ray movie system for the first time. By using this cineradiographic system, the respiratory function in a murine model mimicking the initial stages of Parkinson's Disease (PD) can be examined in details besides the primary symptoms (resting tremor, muscle rigidity, slowness of movements). Respiratory function (diaphragm displacement and ribcage volume) showed mild alterations in the PD group. The jaw-opening reflex was observed during gravity deceleration, and we found that the magnitude of jaw-postural responses was associated positively with the gravity deceleration rate, "Jerk" rather than gravity. These results will contribute to understanding the PD symptoms in-depth.

(2) Research

(1) Lysosome-associated membrane proteins (LAMPs) regulate intracellular positioning of mitochondria in MC3T3-E1 cells
Lysosome associated membrane proteins-1 and -2 (LAMPs) are major protein components of the lysosomal membrane. They are type I transmembrane proteins composed of a large, heavily glycosylated luminal domain, a transmembrane domain and a short C-terminal cytoplasmic tail. LAMPs were initially considered to act as a barrier to protect the structural integrity of lysosomal membranes from the lytic luminal environment, by forming a glycocalyx. However, the deficiency of LAMPs does not affect the integrity of lysosomes. The deficiency of LAMPs in mouse embryonic fibroblasts affects the intracellular positioning of both phagosomes and lysosomes, by reducing their transport along microtubules towards the microtubule-organizing center. Since two organelles should approach each other before fusion, it is conceivable that the LAMPs-mediated regulation of the intracellular positioning of lysosomes and phagosomes is the role fulfilled by LAMPs in phagocytosis.
Accumulating evidence suggests that lysosomes are important in the bone-forming activity of osteoblasts. However, the roles of LAMPs in osteoblasts have not been elucidated. We investigated the role of LAMPs in the pre-osteoblastic cell line MC3T3-E1 and the osteocytic cell line MLO-Y4. We demonstrated that the downregulation of LAMPs promotes the perinuclear localization of mitochondria in MC3T3-E1 cells. Our findings are the first evidence suggesting the involvement of LAMPs in regulating the cellular positioning of mitochondria. Considering the facts that calcium phosphate deposits reside as granules in mitochondria, the LAMPs-mitochondria axis may be involved in the regulation of the mineralization process (reported in the “Experimental Cell Research”).

(2) Heparan sulfate proteoglycan and its putative role in trafficking of transglutaminase 2
Transglutaminase 2 (TG2) is a calcium-dependent enzyme that catalyzes a formation of covalent bonds between certain proteins, resulting in formation of aggregates. Activity of TG2 has been correlated with various physiological and pathological states. Although TG2 does not possess the secretory signal, it is also found on the cell surface where it cross-links ECM proteins and modulates the interactions of cells with the ECM. The details regarding the TG2 trafficking to the cell surface are still unclear, but the roles of both phospholipids and HSPGs have been suggested.
We have studied the putative role of HSPGs in trafficking of TG2 to and from the cells surface in mouse C6 glioma cell line model. At first we have characterized HSPGs expressed by glial cell lines. Staining with 10E4 antibodies showed high expression of HSPGs on cell surface. Immunobloting using the antibodies recognizing HS-derived epitope revealed several bands suggesting the presence of multiple types of transmembrane-type proteoglycans, various syndecan and glypican species are the putative candidates for interaction with TG2. Subcellular fractionation and immunocytochemical analyses showed that TG2-specific compartments were also specific for HSPGs suggesting possible interactions between those molecules (presented at The 87th Annual Meeting of Japanese Biochemical Society).

(3) 3D microfocus X-ray movie system
We have developed a 3D microfocus X-ray movie system for the first time. By using this cineradiographic system, the respiratory function in a murine model mimicking the initial stages of Parkinson’s Disease (PD) was analyzed. As a result, parameters of respiratory function (diaphragm displacement and ribcage volume) showed mild alterations in the PD group. The results suggest that respiratory alterations in PD may emerge simultaneously to other motor symptoms, and not as a consequence of the latter. The initial phase of gravity deceleration produced coordinated and generalized extension of the head, spine, and hindlimbs. The jaw-opening reflex was observed during gravity deceleration, and the magnitude of jaw-postural responses was associated positively with the gravity deceleration rate, “Jerk”. The cineradiographic system contributes to the study of jaw-opening reflex in dentistry as well.

(3) Education

For the second-year undergraduate students, we are in charge of the unit, “Molecular aspect of cell biology” and “Laboratory course” under the module of “Molecular basis of biology”. The contents of “Molecular aspect of cell biology (lecture)” includes, topics related to the structure and function of membranes, transport across membranes, organization and function of intracellular organelles, intracellular trafficking, cytoskeleton, extracellular matrix, signal transduction, cell cycle and cell death. During the laboratory course, the purification and characterization of an enzyme (pH-dependency, effects of inhibitors, comparison of isozymes, kinetic analysis) were done.

For the graduate students, in order to demonstrate various research examples, we lectured on the following subjects; (1) cell-surface assembly of proteins (CD38 as an example), (2) membrane domains (lipid rafts) and sphingosine-1-phosphate signaling, (3) structure and function of proteoglycans, (4) structure and role of extracellular matrix (5) analysis of the response to the gravity change at a cellular and individual levels and its clinical application. All the lectures were done in English. We also hold the special lectures "Biochemistry of pain-transmission" (June 6, 2014) and "Structural analysis of small molecular weight GTP-binding proteins and its activator DOCK family" (October 8, 2014). Our graduate student investigated the role of lysosome-associated proteins in osteoblastic cells.

(4) Lectures & Courses

For the undergraduate students, our aim is to provide the students with the basic knowledge in biochemistry to help them to understand cellular function based on the structure and function of biomolecules. For the graduate students, we encourage them to acquire an ability and research skill to study the cellular responses at molecular levels.

(5) Publications

[Original Articles]

1. Jorge L Zeredo, Kazuo Toda, Yasuhiro Kumei. Neuronal activity in the subthalamic cerebrovasodilator area under partial-gravity conditions in rats LIfe. 2014.03; 4; 107-116

2. Katsuya Hasegawa, Priscila S. de Campos, Jorge L. Zeredo, Yasuhiro Kumei . Cineradiographic analysis of mouse postural response to alteration of gravity and jerk (gravity deceleration rate) LIfe. 2014.04; 4; 174-188

3. Watari Ippei, Jutiporn Privatananupunt, Hsu Jui-Chin, Katarzyna Anna Podyma-Inoue, Emina Aoyama and Takashi Ono. The influence of gestational diabetes in craniofacial growth of newborn Journal of Society for Women's Health Science Research . 2014.05; 3(1); 57-62

4. Jutiporn Privatananupunt, Ippei Watari, Katarzyna Anna Podyma-Inoue, Mariko Kubono, Takashi Ono. Expression of glucose-dependent insulinotropic polypeptide and its receptor in the rat major salivary glands. Acta Histochem.. 2014.05; 116(4); 545-550

5. Emina Aoyama, Ippei Watari, Katarzyna Anna Podyma-Inoue, Masaki Yanagishita, Takashi Ono. Expression of glucagon-like peptide-1 receptor and glucose-dependent insulinotropic polypeptide receptor is regulated by the glucose concentration in mouse osteoblastic MC3T3-E1 cells. Int. J. Mol. Med.. 2014.08; 34(2); 475-482

[Conference Activities & Talks]

1. Katarzyna A. Podyma-Inoue. Role of heparan sulfate proteoglycan in etiology of neurodegenerative disease. The 21st Proteoglycan Forum 2014.01 Tokyo, Japan

2. Y. Kumei, K. Hasegawa, J.L. Zeredo. X-ray movie analysis on gravity jerk regulation of mouse behavioral response to low gravities . 28th annual meeting of Japan Society for Biological Sciences in Space 2014.09.22

3. Ippei Watari, Emina Aoyama-Wakasugi, Katarzyna Anna Podyma Inoue, Masaki Yanagishita and Takashi Ono. Changes in the expression of incretin receptors in mouse osteoblastic cell line in response to various glucose concentration. The 17th International Symposium on Molecular Medicine 2014.10 Athens, Greece

4. Ippei Watari, Jutiporn Privatananupunt, Hsu Jui-Chin, Katarzyna A. Inoue and Takashi Ono. The influence of gestational diabetes in craniofacial growth of newborn. The73rd Annual Meeting of the Japanese Orthodontic Society 2014.10 Makuhari, Japan

5. Emina Wakasugi, Ippei Watari, Katarzyna A. Podyma-Inoue, Masaki Yanagishita and Takashi Ono. Expression of incretin receptor is regulated by the glucose concentration in mouse osteoblastic MC3T3-E1 cells. The 73rd Annual Meetoing of Japanese Orthodontic Society 2014.10 Makuhari, Japan

6. Miki Hara-Yokoyama, Shizuko Ichinose, Kumiko Ishii, Hidetake Kurihara, Shozo Ichinose, Keiko Tadano-Aritomi, Norihiro Tada, Kazue Terasawaa, Katarzyna A. Podyma-Inoue, Toshihide Kobayashi, Koichi Furukawa, Masaki Yanagishita, and Kazuhisa Iwabuchi. Very-long chain polyenoic glycosphingolipids are required for remodeling of blood testis barrier . The 87th annual meeting of Japanese Biochemistry Society 2014.10.17 Kyoto

7. Keiko Tadano-Aritomi, Harumi Hisaki, Mamoru Kyogashima, Miki Yokoyama, Tomoki Okazaki . Analyses of phospholipids and proteins in the testis of CGT-deficient mice which lack seminolipid. The 87th annual meeting of Japanese Biochemistry Society 2014.10.17 Kyoto

8. Katarzyna A. Podyma-Inoue, Miki Yokoyama and Masaki Yanagishita. Heparan sulfate proteoglycan and its putative role in trafficking of transglutaminase 2. The 87th annual meeting of Japanese Biochemistry Society 2014.10.18 Kyoto

9. J.L. Zeredo, P.S. de Campos, K. Hasegawa, Y. Kumei. Cineradiographic Analysis of Jaw-Postures in Relation to Gravitational Manipulations, Including Gravity-Jerk. ASGSR 2014 2014.10.23 Pasadena, CA, USA

10. Katsuya Hasegawa, Jorge L. Zeredo, Yoriko Atomi, Yasuhiro Kumei. Jerk generator, a new compact experimental system for ground-based gravitational sciences. ASGSR 2014 2014.10.23

11. Y.Kumei, K.Hasegawa, J.L.Zeredo. Jerk (gravity deceleration rate) regulate mouse postural response to low gravities. ASGSR 2014 2014.10.24 Pasadena, CA, USA

12. Ippei Watari, Emina Wakasugi, Jutiporn Privatananupunt, Hsu Jui-Chin, Katarzyna A. Inoue and Takashi Ono. Gestational diabetes affects craniofacial morphogenesis in the newborn rat. The30th Annual Meeting of the Japanese Society of Diabetes and Pregnancy 2014.11 Nagasaki, Japan

13. P.S.de Campos, K.Hasegawa, Y.Kumei, J.L.Zeredo. Cineradiographic Analysis of respiratory function in a murine model mimicking the initial stages of Parkinson's desease. Neuroscience 2014 2014.11.15 Washington, DC

Cell Signaling

Associate Professor(Principal Investigator)Tomoki NAKASHIMA
Assistant Professor Mikihito HAYASHI

(1) Research

Research Subjects
1)Regulation of bone remodeling by bone cells
2)Identification of bone-derived systemic regulatory factors (osteokines)
3)Mechanism of sensing and adapting to mechanical stress
4)Functional analysis of genes by gene manipulations and gene-disrupted mice
5)Development of clinical application by experimental animal disease models

(2) Education

Purpose of Education
Organized signal networks in the body are crucial for the higher physiological functions and the tissue organization. To understand the regulation of signal events, we take on cell signaling course including the molecular mechanism of both the "intra" cellular and the "inter" cellular signal transduction. Especially, the course will be focused on the molecular networks of signal transduction in osteoclasts, osteoblasts and osteocytes which is a new integrated field of osteonetwork (systemic network between bone and other systems). Besides, to promote the practical and clinical understanding, the course will deal with the molecular mechanism of osteoporosis and inflammatory bone destructed diseases, such as periodontal disease and rheumatoid arthritis, in parallel with the basic molecular biology.

(3) Publications

[Original Articles]

1. Hideaki Okura, Shintaro Sato, Sari Kishikawa, Satoshi Kaneto, Tomoki Nakashima, Nobuaki Yoshida, Hiroshi Takayanagi, Hiroshi Kiyono. Runx2-I isoform contributes to fetal bone formation even in the absence of specific N-terminal amino acids. PLoS ONE. 2014; 9(9); e108294

2. Noriko Komatsu, Kazuo Okamoto, Shinichiro Sawa, Tomoki Nakashima, Masatsugu Oh-hora, Tatsuhiko Kodama, Sakae Tanaka, Jeffrey A Bluestone, Hiroshi Takayanagi. Pathogenic conversion of Foxp3+ T cells into TH17 cells in autoimmune arthritis. Nat. Med.. 2014.01; 20(1); 62-68

3. Haruhiko Nakamura, Tomoki Nakashima, Mikihito Hayashi, Naohiro Izawa, Tetsuro Yasui, Hiroyuki Aburatani, Sakae Tanaka, Hiroshi Takayanagi. Global epigenomic analysis indicates protocadherin-7 activates osteoclastogenesis by promoting cell-cell fusion. Biochem. Biophys. Res. Commun.. 2014.12; 455(3-4); 305-311

[Misc]

1. Mikihito Hayashi, Tomoki Nakashima. Bone and Stem Cells. Molecular mechanisms of the differentiation and activation of osteoclasts derived from hematopoietic cells 2014.04; 24(4); 487-500
2. Tomoki Nakashima. Coupling and communication between bone cells 2014.06; 24(6); 853-861
3. Tomoki Nakashima. [Bone metastasis and RANKL 2014.08; 24(8); 1201-1208

[Conference Activities & Talks]

1. M. Hayashi, T. Nakashima, and H. Takayanagi. Regulation of bone metabolism by Semaphorin 3A derived from osteoblastlineage cells.. ASBMR 2014 Annual Meeting 2014.09.13

Inorganic Materials

Professor Kimihiro Yamashita
Associate Prof. Miho Nakamura
Assistant Prof. Naohiro Horiuchi
Assistant Prof. Noriko Ebe
Research Associate Naoko Hori

(1) Outline

(1) Development of Electrovector ceramics
Some ceramics, such as a hydroxyapatite, are able to be ionically polarized by thermoelectrical treatments.Consequently, the polarized ceramics have large and time-durable induced electrostatic charges on their surfaces. The effects of the induced charges profoundly dominate the proximate few millimeter regions. We named the effects "Electrovector effects" and develop "Electrovector ceramics" defined as ceramics emiting the Electrovector Effects.

(2) Control of electrical space on Electrovector ceramic
To translate the Electrovector ceramics into practical applications for medical devises, electrical space on Electrovector ceramics should be suitably controlled under the poling process. We are evaluating the poling mechanisms of some bioceramics, based on the various disciplines. In particular, we are putting emphasis on the relationship between the origin of electrical space and the crystal structure on the surface of the polarized bio-ceramics. The crystal defect, crystal distortion and fine change of ion composition of Electrovector ceramics polarized under various conditions are systematically investigated.

(3)Manipulation of biological responses by Electrovector ceramics
The electrostatic energies of the Electrovector effects aforementioned dominate the limited proximate areas and can control reactions locally. Therefore, the Electrovector ceramics can manipulate biological responses in a target space by both of the surface character and the electrostatic energies of the Electrovector ceramics at ion and tissue levels. We have demonstrated that the Electrovector ceramics enhanced protein adsorption, proliferation, adhesion, and differentiation of cultured cells on the ceramics as well as osteoconductivities in vivo by molecular biological and immunological detections.

(4) Development of applicatable devices by ceramic technologies
We apply the Electrovector ceramics aforementioned to implant systems, such as artificial bones, bone joints, tooth roots, and are developing implantable devices with autograft-like osteoconductivities. We are undergoing improvements of sol-gel method for hydroxyapatite thin film coating and materials for vascular regeneration. We are extending our researches based on ceramic technologies farther, such as a control of oral environment, an improvement of oral esthetics, more effective and precise diagnosis systems for clinical laboratory medicine.

(2) Publications

[Original Articles]

1. T. Shinonaga, M. Tsukamoto, A. Nagai, K. Yamashita, T. Hanawa, N. Matsushita, G. Xie, N. Abe. Cell Spreading on Titanium Dioxide Film Formed and Modified with Aerosol Beam and Femtosecond Laser. Appl. Surf. Sci.. 2014.01; 288(1); 649-653

2. M. Nakamura, A. Kobayashi, K. Nozaki, N. Horiuchi, A. Nagai, K. Yamashita. Improvement of Osteoblast Adhesion through Polarization of Plasma-Sprayed Hydroxyapatite Coatings on Metal. J. Med. Biol. Eng.. 2014.02; 34(1); 44-48

3. A. Nagai, T. Hattori, M. Hirose, A. Ogura, K. Nozaki, M. Aizawa, K. Yamashita. Mouse Embryonic Cells Cultured under Serum- and Feeder-Free Conditions Maintain their Self-Renewal Capacity on Hydroxyapatite. Mater. Sci. Eng. C. 2014.03; 34(1); 218-220

4. R. Hiratai, M. Nakamura, K. Yamashita. Role of Collagen and Mineral Components in Electrical Polarization of Bone. J. Vet. Med. Sci.. 2014.03; 76(2); 205-210

5. A. Nagai, Y. Suzuki, Y. Tsutsumi, K. Nozaki, N. Wada, K. Katayama, T. Hanawa, K. Yamashita. Anodic Oxidation of a Co-Ni-Cr-Mo Alloy and Its Inhibitory Effect on Platelet Activation. J. Biomed. Mater. Res. B. 2014.04; 102(4); 659-666

6. N. Horiuchi, Y. Tsuchiya, K. Nozaki, M. Nakamura, A. Nagai, K. Hashimoto, K. Yamashita. Thermally Stimulated Depolarization Current Measurements in Cubic and Tetragonal Yttria-Stabilized Zirconia Solid State Ionics. 2014.05; 262; 500-503

7. T. Okura, K. Kawada, N. Yoshida, H. Monma, K. Yamashita. Synthesis and Na+ conduction Properties of Nasicon-type Glass–Ceramics in the System Na2O–Y2O3–R2O3–P2O5–SiO2 (R = rare earth) and Effect of Y Substitution Solid state Ionics. 2014.05; 262; 604-608

8. N. Wada, N. Horiuchi, M. Nakamura, K. Nozaki, T. Hiyama, A. Nagai, K. Yamashita. Cooperative Effects of Polarization and Polyaspartic Acid on Formation of Calcium Carbonate Films with a Multiple Phase Structure on Oriented Calcite Substrates J. Cryst. Growth. 2014.06; 402; 179-186

9. N. Horiuchi, S. Nakaguki, N. Wada, K. Nozaki, M. Nakamura, A. Nagai, K. Katayama, K. Yamashita. Polarization Induced Surface Charge in Hydroxyapatite Ceramics , J. Appl. Phys.. 2014.07; 116; 014902

10. K. Nozaki, W. Wang, N. Horiuchi, M. Nakamura, K. Takakuda, K. Yamashita, A. Nagai. Enhanced Osteoconductivity of Titanium Implants by Polarization-Induced Surface Charges J. Biomed. Mater. Res. A. 2014.08; 102(9); 3077-3086

11. Kosuke Nozaki, Wei Wang, Naohiro Horiuchi, Miho Nakamura, Kazuo Takakuda, Kimihiro Yamashita and Akiko Nagai. Enhanced osteoconductivity of titanium implant by polarization-induced surface charges. Journal of Biomedical Materials Research Part A. 2014.09; 102(9); 3077-3086

12. M. Tanaka, S. Itoh, T. Yoshioka, K. Yamashita. The Therapeutic Effectiveness of the Co-administration of Weekly Risedronate and Proton Pump Inhibitor in Osteoporosis Treatment J. Osteoporosis. 2014.11; 2014(11); 607145

[Misc]

1. M. Nakamura, K. Yamashita. Polarization-Mediated Modification of Hydroxyapatite to Improve Biological Responses Mineral Scales in Biological and Industrial Systems . 2014.01;

[Conference Activities & Talks]

1. D. Shen, N. Horiuchi, Y. Ono, K. Yamashita, A. Nagai. Synthesize octacalcium phosphate carnobate and it enhances osteoblast prolification compared with octacalcium phosphate and hydroxyapatite. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5) 2014.11.19 Tokyo, Japan

2. N. Horiuchi, N. Ebe, K. Nozaki, M. Makamura, A. Nagai, K. Yamashita. Evaluation of surface charge on polarized hydroxyapatite using Kelvin probe method. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5) 2014.11.19 Tokyo, Japan

3. T. Masutani, N. Horiuchi, K. Nozaki, M. Makamura, K. Yamashita, A. Nagai.. Investigation of cell dynamics on polarized HAp discs. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5) 2014.11.19 Tokyo, Japan

[Patents]

1. METHOD FOR CONTROLLING ORGANISMS AND MATERIAL THEREFORE, METHOD FOR SELECTIVE ADSORPTION OF PROTEINS AND MATERIAL THEREFORE, CEMENT MATERIAL AND BIOMATERIAL, Patent Number : US6777214B1

2. Material for controlling organisms and for selective adsorption of protein, cement and biomaterial, Patent Number : EU 00104225.8-2107

Periodontology

Professor Yuichi IZUMI
Associate Professor Hisashi WATANABE
Lecturer Satsuki HAGIWARA, Akira AOKI
Research Associate
Hiroaki KOBAYASHI(～ August), Yasuo TAKEUCHI,
Tatsuya AKIZUKI(～ March), Koji MIZUTANI, Hiromi NANBARA(April～)
Tomonari SUDA, Sayaka KATAGIRI(Oct. ～), Norio AOYAMA(July ～)
JSPS Researcher Yuka TSUMANUMA(～ March)
Graduate Students
Takahiko SHIBA,
Kuniha KONUMA, Shogo MAEKAWA,
Takanori MATSUURA, Shu HOSHI,
Keiko AKAZAWA, Masayuki TOI,
Masahiro NODA, Takahiro IKAWA,
Ayano UEKUBO, Satoru ONIZUKA,
Makoto KANEKO, Misa GOKYU,
Yuka SHIHEIDO, Taichen Lin,
Wataru ONO, Hiroki SATO,
Takeaki SUDO, Mizuki NAGATA,
Kiichi MARUYAMA, Kosei YANO,
Chantida Pawauputanon Na Mahasarakham
Ammar Shujaa Addin(April ～),Tooru TAKAGI(April ～),
Anri OTSU(April ～), Eri TAZAKI(April ～),
Sayuri UDAGAWA(April ～), Risako MIKAMI(April ～),
Rina KOMAZAKI(April ～), Daisuke KIDO(April ～),
Takasi OIDE(April ～), Masaki TSUBOKAWA(April ～), Sophannary Kong（April ～)、
Thatawee Khemwong（Oct. ～)

Hospital Staff: 7, Research Student: 16, Registered dentist: 53

(1) Outline

Periodontology is a branch of dental sciences which deals with the research, prevention and treatment of periodontal diseases. Periodontal disease is a general disease name which occurred in the periodontal tissue: gingiva, periodontium, cementum and alveolar bone. At present, it is indicated mainly an acute or chronic inflammatory diseases. The mission of our department was to educate etiology of periodontal diseases, host response, oral bacteria, periodontal medicine, regenerative therapy and so on profoundly, and to find a solution through discussion research outcomes as to periodontal destructive process and to develop a novel periodontal treatment modalities.

(2) Research

1) Periodontopathic bacteria and their pathogenicity
2) Inflammatory and immunological factors in periodontal diseases
3) Analyses of growth factors and bio materials in periodontal regeneration
4) Clinical applications of laser in periodontics
5) Influence of periodontal disease on general health

(3) Lectures & Courses

Periodontology is a branch of dental science which deals with supporting structures of teeth, diseases and conditions affect them. Main objectives of periodontology in the graduate course is to provide students basic knowledge of etiology of periodontal diseases, its treatment modality and prognosis, and also to study advanced regenerative therapy.

(4) Clinical Performances

Periodontal clinic provides diagnosis, treatment and prevention of periodontal disease. Periodontal surgery and regenerative therapy are also performed in the clinic.

(5) Publications

[Original Articles]

1. Taniguchi Y, Aoki A, Sakai K, Mizutani K, Izumi Y. Er:YAG laser-assisted periodontal regenerative therapy: case series. The Quintessence. 2014; 33(1); 213-221

2. Suzuki J, Aoyama N, Aoki M, Tada Y, Wakayama K, Akazawa H, Shigematsu K, Hoshina K, Izumi Y, Komuro I, Miyata T, Hirata Y, Isobe M. High incidence of periodontitis in Japanese patients with abdominal aortic aneurysm. Int Heart J. 2014; 55(3); 268-270

3. Suzuki J, Imai Y, Aoki M, Fujita D, Aoyama N, Tada Y, Wakayama K, Akazawa H, Izumi Y, Isobe M, Komuro I, Nagai R, Hirata Y. Periodontitis in cardiovascular disease patients with or without Marfan syndrome–a possible role of Prevotella intermedia. PLoS ONE. 2014; 9(4); e95521

4. SUGISAWA Mitsuru, ARAKAWA Shinichi, HAYAKUMO Sae, NOZAKI Kousuke. The removal effect of ozone nano-bubble water(NBW3)on organic compounds remaining on a recrystallized HA coated implant surface Japanese Journal of Advanced Implant Medicine. 2014; 5(1); 5-9

5. Belal MH, Watanabe H. Comparative study on morphologic changes and cell attachment of periodontitis-affected root surfaces following conditioning with CO2 and Er:YAG laser irradiations. Photomed Laser Surg. 2014; 32(10); 553-560

6. Thanakun S, Watanabe H, Thaweboon S, Izumi Y. Association of untreated metabolic syndrome with moderate to severe periodontitis in Thai. J Periodontol. 2014; 85; 1502-1514

7. Thanakun S, Watanabe H, Thaweboon S, Izumi Y. Comparison of salivary and plasma adiponectin in patients with metabolic syndrome. Diabetes Metab Syndr. 2014; 6; 19-29

8. Watanabe H, Ishihara A, Izumi Y. Abrasive Effect of Mastic-essential-oil Compound Dentifrice on Dental Enamel Surface The Japanese Journal of Conservative Dentistry. 2014; 57(5); 391-397

9. Watanabe H. Long prognosis and treatment outcome at each life stage of aggressive periodontitis patient appeared after orthodontic treatment Journal of The Japanese Society of Periodontology. 2014; 56(2); 199-202

10. Ogita M, Tsuchida S, Aoki A, Satoh M, Kado S, Sawabe M, Nanbara H, Kobayashi H, Takeuchi Y, Mizutani K, Sasaki Y, Nomura F, Izumi Y. Increased cell proliferation and differential protein expression induced by low-level Er:YAG laser irradiation in human gingival fibroblasts: proteomic analysis. Lasers Med Sci. 2014; Nov28 (e-pub)

11. Ohashi H, Takamori K, Aoki A, Kato J, Nagai S, Yoshida I, Oura K, Waga M, Ogushi K, Tsukui A, Amagai T, Tagami J, Shinoki T. Questionnaire study on the first educational seminar for safety education and training in clinical laser dentistry. J Jpn Soc Laser Dent. 2014; 25(1); 14-25

12. Ejiri K, Aoki A, Yamaguchi Y, Ohshima M, Izumi Y. High-frequency low-level diode laser irradiation promotes proliferation and migration of primary cultured human gingival epithelial cells. Lasers Med Sci. 2014; 29(4); 1339-1347

13. Tsuchida S, Satoh M, Sogawa K, Ishige T, Segawa S, Kado S, Rahmutulla B, Ogita M, Sawai S, Beppu M, Nishimura M, Aoki A, Kodera Y, Matsushita K, Izumi Y, Nomura F. Application of proteomic technologies to discover and identify biomarkers for periodontal diseases: moesin is a potential mediator and biomarker for periodontal disease. Journal of Proteomics & Bioinformmatics. 2014; 7(12); 379-384

14. Okamoto T, Ishikawa I, Kumasaka A, Morita S, Katagiri S, Okano T, Ando T. Blue-violet light-emitting diode irradiation in combination with hemostatic gelatin sponge (Spongel) application ameliorates immediate socket bleeding in patients taking warfarin. Oral Surg Oral Med Oral Pathol Oral Radiol. 2014.02; 117(2); 170-177

15. K Mizutani, K Park, A Mima, S Katagiri, G L King. Obesity-associated Gingival Vascular Inflammation and Insulin Resistance. J. Dent. Res.. 2014.04; 93(6); 596-601

16. Suzuki J, Aoyama N, Aoki M, Tada Y, Wakayama K, Akazawa H, Shigematsu K, Hoshina K, Izumi Y, Komuro I, Miyata T, Hirata Y, Isobe M. Incidence of periodontitis in Japanese patients with cardiovascular diseases: a comparison between abdominal aortic aneurysm and arrhythmia. Heart Vessels. 2014.04;

17. Kobayashi N, Suzuki J, Ogawa M, Aoyama N, Komuro I, Izumi Y, Isobe M. Porphyromonas gingivalis promotes neointimal formation after arterial injury through toll-like receptor 2 signaling. Heart Vessels. 2014.07; 29(4); 542-549

18. Ikeda Y, Ito K, Izumi Y, Shinomura T. A candidate enhancer element responsible for high-level expression of the aggrecan gene in chondrocytes. Journal of Biochemistry. 2014.07; 156(1); 21-28

19. Hayakumo S, Arakawa S, Takahashi M, Kondo K, Mano Y, Izumi Y. Effects of ozone nano-bubble water on periodontopathic bacteria and oral cells - in vitro studies Science and Technology of Advanced Materials. 2014.09; 15(5); 1-7

20. Maruyama N, Maruyama F, Takeuchi Y, Aikawa C, Izumi Y, Nakagawa I. Intraindividual variation in core microbiota in peri-implantitis and periodontitis. Scientific reports. 2014.10; 4; 6602

21. Gokyu M, Kobayashi H, Nanbara H, Sudo T, Ikeda Y, Suda T, Izumi Y.. Thrombospondin-1 Production Is Enhanced by Porphyromonas gingivalis Lipopolysaccharide in THP-1 Cells. PLoS One. 2014.12; 12(9); e115107

22. Ichinose-Tsuno A, Aoki A, Takeuchi Y, Kirikae T, Shimbo T, Lee MC, Yoshino F, Maruoka Y, Itoh T, Ishikawa I, Izumi Y. Antimicrobial photodynamic therapy suppresses dental plaque formation in healthy adults: a randomized controlled clinical trial. BMC Oral Health. 2014.12; 14; 152

23. Asahi K, Imazeki N, Takahashi T, Takeuchi M, Kimura N, Sasaki E, Uchino H, Murasugi K, Hayakawa A, Katagiri S, Ishizuka N, Suzuki Y, Sekiya K, Takahashi M, Sato E, Kawakubo K, Uehara Y, Ikemoto S, Inoue S. High prevalence of general and abdominal obesity and relationship of obesity with diabetes mellitus in patients with psychiatric disorders Journal of Diabetes and Obesity. 2014.12; 1(2); 1-6

24. Yuko Sogo, Yasuo Takeuchi, Sayaka Katagiri, Ayaka Kimura, Yoshiko Nanba, Shigeru Oda, Toshiko Adachi, Yuichi Izumi. Improvement of periodontitis with pemphigus vulgaris using nonsurgical periodontal therapy:A case report. Journal of the Japanese Society of Periodontology. 2014.12; 56(4); 451-456

25. Matsuura T, Akizuki T, Hoshi S, Ikawa T, Kinoshita A, Sunaga M, Oda S, Kuboki Y, Izumi Y. Effect of a tunnel-structured β-tricalcium phosphate graft material on periodontal regeneration: a pilot study in a canine one-wall intrabony defect model. Journal of Periodontal Research. 2014 Jul.5(e-pub).

[Books etc]

1. Watanabe H. Who's Who in the World 2014, 31st edition. Marquis Who's Who LLC, USA, 2014.01
2. B. Stadlinger, H. Terheyden, D. Bosshardt, D. Cochran, Y. Izumi, S. Jepsen, A. Sculean. CELL-TO-CELL COMMUNICATION PERIODONTAL REGENERATION. QUINTESSENCE PUBLISHING, 2014.02 (ISBN : 978-1-85097-280-8)
3. Aoki A, Mizutani K, Izumi Y. Laser, Izumi Y, Numabe Y, Yamamoto M, Kinoshita A (eds), The Periodontology. Nagasue,Tokyo, 2014.03
4. Aoki A (contributor). Chapter 65.Recent advances in surgical therapy: lasers in periodontal therapy. Newman MG, Takei HH, Klokkevold PR, Carranza FA (eds). Carranza's Clinical Periodontology, 12th Edition. Elsevier, 2014.07 (ISBN : 978-0-323-22799-5)

[Misc]

1. Izumi Y, Aoki A. Periodontal therapy in 21st century - Establishment of periodontal Phototherapy. The Nipponn Dental Review. 2014; 74(5); 9-11
2. Yasuo Takeuchi. Microbiota around tooth and implant Dental Outlook. 2014.03; 123(3); 481-486

[Conference Activities & Talks]

1. Watanabe H. Essence of periodontal disease and its treatment. GC Dental College 2014.01.28 Tokyo
2. Suda T. GTR in the treatment of furcation involvement. The 3th 9 Dental schools in Kanto region and JACP joint workshop 2014.03.09 Tokyo
3. Shiba T, Maruyama F, Takeuchi Y, Watanabe T, Koyanagi T, Izumi Y, Nakagawa I. Selection causal microbial species and functional gene in periimplantitis and periodontitis. The 87th Annual Meeting of Japanese Society for Bacteriology 2014.03.28 Tokyo
4. Sae Hayakumo, Shinichi Arakawa, Keiichi Hiramatsu,Yoshihiro Mano, Yuichi Izumi. The antibacterial activity of ozone nano bubble water against drug-resistant bacteria. The 15th Annual Meeting of the Japanese Society for Oral Functional Water 2014.03.30 The Nippon Dental University, Tokyo
5. Shinichi Arakawa, Sae Hayakumo, Yuichi Izumi, Toshiko Ozawa. The bactericidal effect of the slightly acid electrolysis water on bacteria existing in the dental unit water lines. The 15th Annual Meeting of the Japanese Society for Oral Functional Water 2014.03.30 The Nippon Dental University, Tokyo
6. Mitsuru Sugisawa, Shinichi Arakawa, Sae Hayakumo, Kousuke Nozaki. The evaluation of bacterial elimination of NBW3 on hydroxyapatite-coated implants. The 15th Annual Meeting of the Japanese Society for Oral Functional Water 2014.03.30 The Nippon Dental University, Tokyo
7. Kaneko M, Suzuki J, Aoyama N, Kobayashi N, Yoshida A, Ashigaki N, Shiheido Y, Sato H, Isobe M, Izumi Y. A Critical Role of Toll-like Receptors in Periodontal Pathogen-Induced Pressure Overload Myocardial Hypertrophy in Mice. The 57th spring meeting of the Japanese society of periodontology 2014.05.23 Gifu, Japan
8. Takahiro Ikawa, Tatsuya Akizuki, Takanori Matsuura, Shu Hoshi, Wataru Ono, Kiichi Maruyama, Shogo Takeuchi, Atsuhiro Kinoshita, Shigeru Oda, Yuichi Izumi. Ridge preservation with the use of tunnel structured beta-tricalcium phosphate block: A 6 months study in beagle dogs. The 57th spring meeting of the Japanese society of periodontology 2014.05.23 Gifu city, Japan
9. Aoki A. Basic studies on the application of lasers/LEDs in periodontal and peri-implant tissues. The 57th spring meeting of the Japanese Society of Periodontology, 2014.05.23 Gifu city
10. Koji Mizutani, Yuichi Izumi. Microsurgical regenerative treatment with minimally invasive surgical technique using an enamel matrix derivative. 2014.05.24
11. Khamaisi M, Wu I, Katagiri S, Hastings S, H.A.Keenan, D.P. Orgill, G.L.King. Persistent Activation of PKC d and Inhibition of Insulin Actions in Fibroblasts from Type 1 Diabetes with CVD Impaired Wound Healing. 74th Scientific Sessions, American Diabetes Association 2014.06 San Francisco, USA

12. Katagiri S, Maeda Y, Park K, Li Q, Khamaisi M, Lancerotto L, D.P.Orgill, G.L. King. Demonstration of insulin' s critical role in angioblasts formation and re-vascularization in wound healing with and without diabetes. 74th Scientific Sessions, American Diabetes Association 2014.06 San Francisco, USA

13. Misa Gokyu, Ye Changchang, Sayaka Katagiri, Hiroaki Kobayashi, Yasuo Takeuchi, Hiromi Nanbara, Tomonari Suda, Yuichi Ikeda, Takeaki Sudo, Toshiyuki Nagasawa, Yuichi Izumi. The role of periopathogenic bacteria and anti-periopathogenic immunoglobulin in threatened preterm labor and preterm low birth weight cases. the 140th Meeting of the Japanese Society of Conservative Dentistry 2014.06.19 Shiga, Japan

14. Takahiro Ikawa, Tatsuya Akizuki, Takanori Matsuura, Shu Hoshi, Wataru Ono, Kiichi Maruyama, Atsuhiro Kinoshita, Shigeru Oda, Yuichi Izumi. Ridge preservation with the use of tunnel structured beta-tricalcium phosphate block: A 8 and 24 weeks study in beagle dogs. The 140th Meeting of the Japanese Society of Conservative Dentistry 2014.06.19 Shiga, Japan

15. Onizuka S, Iwata T, Yamada A, Yamato M, Okano T, Izumi Y. Functional analysis of ZBTB16 during the osteoblastic differentiation of hPDL-MSCs. IADR General Session & Exhibition 2014.06.25 Cape Town, South Africa

16. Takahiro Ikawa, Tatsuya Akizuki, Takanori Matsuura, Shu Hoshi, Wataru Ono, Kiichi Maruyama, Atsuhiro Kinoshita, Shigeru Oda, Yuichi Izumi. Ridge augmentation using random tunnel beta-tricalcium phosphate block: comparative study with different type of materials in beagle dogs. The 35th Annual Meeting of the Japanese Society of Inflammation and Regeneration 2014.07.01 Okinawa, Japan

17. Ogita M, Tsuchida S, Aoki A, Sato M, Kato S, Sawabe M, Nanbara H, Kobayashi H, Takeuchi Y, Mizutani K, Sasaki Y, Nomura F, Izumi Y.. Increased cell proliferation and differential protein expression induced by low-level Er:YAG laser irradiation in human gingival fibroblast: proteomic analysis.. 14^{th} congress of World Federation for Laser Dentistry 2014.07.02 Paris, France

18. Uekubo A, Hiratsuka K, Aoki A, Takeuchi Y, Abiko Y, Izumi Y. The influence of oxygen in blue LED irradiation with rose bengal on the growth of *Porphyromonas gingivalis*.. 14th congress of World Federation for Laser Dentistry 2014.07.02 Paris, France

19. Misa Gokyu, Hiroaki Kobayashi, Hiromi Nanbara, Takeaki Sudo, Yuichi Izumi. *Porphyromonas gingivalis* LPS induces Thrombospondin 1via TLR2. The 35th Annual Meeting of the Japanese Society of Inflammation and Regeneration 2014.07.02 Okinawa, Japan

20. Aoki A. Er:YAG Laser in Periodontics and Implant Therapy - From Basic Studies to Clinical Applications. 14th Congress of the World Federation for Laser Dentistry, 2014.07.02 France

21. Pavlic V, Aoki A, Gojkov vukelic M. Use of lasers in treatment of lichen planus. 14th Congress of the World Federation for Laser Dentistry, 2014.07.02 France

22. Lin T, Kawamura R, Aoki A, Ichinose S, Mizutani K, Taniguchi Y, Eguro T, Saito N, Izumi Y. Changes in energy output and surface morphology of quartz tips following Er:YAG laser contact irradiation. 14th Congress of the World Federation for Laser Dentistry 2014.07.02 Paris, France

23. Sudo T, Kobayashi H, Nabara H, Gokyu M, Izumi Y. Role of IL-17A and IL-17F in aggressive periodontitis. The 35th Annual Meeting of the Japanese Society of Inflammation and Regeneration 2014.07.02 Okinawa

24. Watanabe H. Laser application: Soft tissue. FDI 2014 2014.07.21 New Delhi, India

25. Watanabe H. WFLD and Asian Pacific Division: History and Development. FDI 2014 2014.07.21 New Delhi, India

26. Watanabe H. How to use of diode laser. FDI 2014 2014.07.21 New Delhi, India

27. Hojo S, Kodama T, Akizuki T, Minabe M, Sato J, Ueno D, Ikawa T, Izumi Y. Evaluation of morphological change using three dimensions subtraction in extraction socket using an analytical software for computed tomography. The 44th Annual Meeting of the Japanese Society of Oral Implantology 2014.09.12 Tokyo, Japan

28. Ueno D, Kodama T, Katsuki M, Sato J, Izumi Y. evaluation of morphologicaol change in extraction socket using an optical three-dimensional scanner.. The 44th Annual Meeting of Japanese Society of Oral Implantology 2014.09.12 Tokyo

29. Iwata T, Washio K, Tsumanuma Y, Yamada A, Onizuka S, Izumi Y, Ando T, Yamato M, Okano T, Ishikawa I. Periodontal regeneration with autologous periodontal ligament-derived cell sheets in humans.. 100th American Academy of Periodontology Annual Meeting 2014.09.19 San Francisco, USA

30. Kaneko M, Suzuki J, Aoyama N, Kobayashi N, Yoshida A, Shiheido Y, Sato H, Isobe M, Izumi Y. A critical role of toll-like receptor-2 in periodontal pathogen-induced pressure overload myocardial hypertrophy in mice. The American Academy of Periodontology, 100th anniversary annual meeting 2014.09.20 San Francisco, California, USA

31. Yuichi Izumi. Bacteriology in peri-implantitis. The 7th World Dental Meetion in Japan 2014 2014.10.10 Yokohama

32. Hiroki Sato, Jun-ichi Suzuki, Norio Aoyama, Mitsuaki Isobe, Yuichi Izumi. Porphyromonas gingivalis Deteriorates the Isoproterenol-induced Cardiomyocyte Hypertrophy. The 141st Meeting of the Japanese Society of Conservative Dentistry 2014.10.13 Yamagata

33. Takeuchi Y, Takeuchi M, Nagasawa T, Izumi Y. Treatment of periodontitis associated with systemic disease; a case report of 21-year follow-up. 57th Annual autum meeting of Japanese Society of Periodontology 2014.10.19 Kobe

34. Takeuchi Y. Bacterial test for periodontal treatment; point of use. 57th Annual autum meeting of Japanese Society of Periodontology 2014.10.19 Kobe

35. Suda T, Izumi Y. The decontamination effect of diluted sodium hypochlorite in dental unit water system. The 57th Autumun Meeting of the Japanese Society of Periodontology 2014.10.19 Kobe

36. Koji Mizutani, Yoichi Taniguchi, Yuichi Izumi. Successful periodontal treatment with regenerative therapy and tooth transplantation. 2014.10.19

37. Hasegawa M, Mziutani K, Nanbara H, Kobayashi H, Izumi Y. The impact of high glucose on wound healing of gingival epithelial cells. 2014.10.19

38. Aoki A, Mizutani K, Taniguchi Y, Komaki M, Oda S, Wataneba H, Yuichi I.. A novel non-surgical periodontal therapy using an Er:YAG laser. The 57th autumn meeting of Japanese Society of Periodontology 2014.10.19 Kobe, Japan

39. Satsuki Hagiwara. A case report of comprehensive periodontal therapy for generalized aggressive periodontitis with maloposed anterior teeth. 2014.10.19

40. Uekubo A, Hiratsuka K,Akira Aoki A, Takeuchi Y, Okawara N, Abiko Y, Izumi Y. The antimicrobial effect on P. gingivalis using BL with RB is enhanced in the presence of oxygen. 57th Annual autum meeting of Japanese Society of Periodontology 2014.10.19 Kobe

41. Sekiuti T, Suda T, Izumi Y. The decontamination effect of sodium hypochlorite dilution water against bacterium and viruses. The 141st Meeting of the Japanese Society of Conservative Dentistry 2014.10.30 Yamagata

42. Katayama Saori, Ikawa Takahiro, Ono Wataru, Maruyama Kiichi, Houjo Sawako, Suda Tomonari, Akizuki Tatsuya, Ueno Daisuke, Sato Junichi, Minabe Masato, Kodama Toshiro, Izumi Yuichi. The evaluation of dimensional alveolar ridge alternation following tooth extraction with dental CT. The 141th Meeting of the Japanese Society of Conservative Dentistry 2014.10.30 Yamagata, Japan

43. Watanabe H. Soft tissue surgery by Er: YAG laser. WFLD-APD Laser Certification Workshop 2014.11.08 Singapore

44. Watanabe H. Laser use in periodontal therapy. Symposium for Laser Dentistry in National Singapore University 2014.11.09 Singapore

45. Shiheido Y, Maejima Y, Suzuki J, Aoyama N, Kobayashi N, Kaneko M, Izumi Y, Isobe M. Porphyromonas gingivalis, a Potent Periodontal Pathogen, Induces Cardiac Rupture after Myocardial Infarction in Mice. American Heart Association Scientific Sessions 2014 2014.11.16 Chicago, USA

46. Izumi Y. Periodontitis and cardiovascular diseases: The link and relevant mechanisms. The 4th Japan-Thai Buerger Disease Forum 2014.11.18 Chiang Mai

47. Aoki A. Laser Applications in Implant Dentistry. 28th German Association of Oral Implantology (DGI) Annual Conference 2014.11.27 Dusseldorf, Germany

48. Aoki A. Er:YAG Laser in Periodontics and Implant Therapy - From Basic Studies to Clinical Applications. 2014.12.02 Bern University, Bern, Switzerland

49. Aoki A, Tsukui A. Er:YAG laser hands on seminar. 2014.12.02 Bern, Switzerland

50. Gokyu M, Ikeda Y, Kobayashi H, Izumi Y. Quantitative evaluation for counting bacterial cells using synthesis gene. The 62nd Annual Meeting of Japanese Association for Dental Research 2014.12.05 大阪

51. Suda T, Mizutani K, Aoyama N, Hayakumo S, Izumi Y. Survey on patients first-visited the periodontology clinic in TMDU dental hospital. The Stomatological Society 2014.12.06 Tokyo

52. Iwane F, Nakane A, Tsukui A,Watanabe H. Root debridement of Er:YAG laser with the dental endoscope. 26th Japanese Society of Laser Dentistry 2014.12.06

53. Aoki A. Er:YAG Laser-assisted Periodontal Therapy. Symposium"Basic studies and clinical applications of Lasers in Dentistry". The 26th annual meeting of Japanese Society for Laser Dentistry. 2014.12.06 Tokyo

54. Masaki Tsubokawa, Akira Aoki, Lin Tai-Chen, Sho Kakizaki, Koji Mizutani, Yoichi Taniguchi, Kenichiro Ejiri, Shigeru Oda, Yasunori Sumi, Yuichi Izumi. Real-time evaluation of remaining calculus and cementum during debridement of root surface in vitro using Optical Coherence Tomography (OCT). The 26th Annual Meeting of Academy of Laser Dentistry 2014.12.07 Tokyo

55. Izumi Y. Periodontal parhogens and cardiovascular diseases. Post Graduate Course at Mahidol University 2014.12.07 Bangkok

56. Watanabe H, Ishihara A, Izumi Y. Abrasive effect of dentifrice with mastic essential oil on dental surface. 57th Annual autum meeting of Japanese Society of Periodontology in 2014 Kobe

57. Watanabe H. Non-surgical and surgical periodontal therapy using laser and its basis and clinical outcome. 14th congress of World Federation for Laser Dentistry 2014. 7.3 Paris, France

[Awards & Honors]

1. Second prize of best research. Ogita M, Tsuchida S, Aoki A, Satoh M, Kado S, Sawabe M, Nanbara H, HKobayashi H, Takeuchi Y, Mizutani K, Sasaki Y, Nomura F, Izumi Y., 14th Congress of World Federation for Laser Dentistry, 2014.07

2. Tatsuro Koyanagi Dentsply award, 44th Japanese society of Oral Implantology, 2014.09

Health Promotion

Professor Takehito Takano
Lecturer Masashi Kizuki
Assistant Professor Ayako Morita
Graduate Student Aya Anzai, Yoshiko Shimozawa, Mari Uchimura (till March)

(1) Outline

In the field of Health Promotion and International Health Development, various researches are being conducted to identify the effects of different environmental factors that may have influence on the human health. The research community has taken a comprehensive approach to ensure the society benefits from our research findings and accomplishments.
Expectations for the medical community to act upon protecting and promoting the health of all citizens are increasing from society. Nonetheless, public health in itself is a highly challenging and complicated field, confronted as it is by an array of risks to human health. The Health Promotion Department accepts and educates young generations of advanced students from numerous fields, and is committed to addressing the many health challenges facing the modern society.

(2) Research

Several places worldwide are increasing their movement on urbanization, which has caused the issue on public health to multiply and become increasingly complex. The health of every individual is significantly influenced by local living conditions and personal lifestyles. Physical, socio-economical, and cultural factors intricately come into play as we determine the health roots of a human being. It is crucial to acknowledge the relationship between health determinants and health statuses of an individual to better understand the diversity of human health within a large population. In the long run, this will significantly help during the task of formulating policies that prioritize in creating good health.
The Graduate Program has now accumulated several researches about the effects on various environmental factors that may have influence on the human health, and more are still being studied. These research findings are completed thoroughly, with comprehensive organization, and with a great amount of effort put into it in order to ensure that the society benefits from them.
< Principal Research Themes>
- Urban environments, lifestyles, and health
- Urbanization and its impact on health in developing countries
- Socioeconomic conditions, social inequalities, and health
- Standards and determinants of health
- Monitoring and evaluation of healthy cities development
- Information technology applications in Public Health
- The utilization of geographic information systems for Public Healthy policies
- The measurement of disease infection risks in urban societies
- The lifestyles and growth of children in urban areas
- Globalization of health care service and migration of medical professionals
- End of Life in the community healthcare system
- Working conditions of medical doctors
- Reconstruction support of disaster-affected areas

(3) Education

The objective of postgraduate education in the field of public health is to pursue professional qualifications of high caliber who exhibit leadership in the advancement of public health and promotion of health on an international scale. The department helps students attain knowledge, skills, attitude, and experiences that are necessary to become a competent public health specialist. With the expansion of the new graduate programs in the university, greater attention is now given to making commitments and contributions in the international arena. Presently, the phrase "think globally and act locally" has become a global movement. The advancement of public health demands an increase in professionals who possess a global perspective yet appreciate the importance of local activities.
The Graduate School of Medicine aims to prepare its medical students for future careers as physicians who will recognize the societal importance of their medical services and have the ability to fulfill both the scientific and social roles of their possessions.

(4) Lectures & Courses

Master Programs: Masters degree students receive a systematic intensive training that leads to the acquisitions of broad expertise in the fields of public health, immunology, and medicine of health promotion. This program now consists of students with backgrounds in various majors.
Doctoral Programs: Our doctoral program provides a flexible curriculum that allows students to customize their research goals, methods, and activities based upon their own interests and preferences. A rich variety of educational activities are arranged in the course of the program. These include, among others, individual discussion sessions with professors and other faculty members, field investigations, seminars on various topics such as community health care, community medicine, public health policy, biostatistics, academic presentation, development of foreign language skills, and communication skills. Students work closely with faculty members on an individual basis in setting the right direction for research and confirmation on each of their progress.
Public Health Leaders (PHL) Program: Students in the PHL program achieve in attaining the skills required for public health professionals with an international perspective, particularly for leadership roles in public institutions. Advanced students from many countries around the world are now enrolled. All the classes are conducted in English, thus, facilitating the acquisition of international communication skills.
Public Health for Medical School Student: The Public Health education program is comprised of courses in public health, researches on public health related topics, off-campus internships pertaining to public health, and small group seminars. The topics in the Public Health education are the following:
I. Healthcare doctrine; 1. The history of public health, 2. Health concepts and awareness, 3. Synergies of health and the environment, 4. Health determinants, 5. Human living environments, 6. International healthcare, 7. Regional healthcare and medical practice, 8. Urban healthcare, 9. The coordination of healthcare, medical practice, and welfare, 10. Administrative frameworks and resources for healthcare, medical practice, and welfare 11. Social insurance frameworks and medical economics, and 12. Laws relation to healthcare, medical practice, and welfare.
II. Preventive medicine and health promotion; 1. Public health statistics and multivariate analysis, 2. Epidemiology, 3. Health promotion, 4. Health education, 5. Health management, 6. Lifestyles and health, 7. Maternal healthcare, 8. Adult and elderly healthcare, 9. School healthcare, 10. Mental healthcare, 11. Industrial medicine and healthcare, 12. Environmental toxicology, 13. Environmental pollution and its impact on health, 14. Environmental health and global environmental problems, 15. Food health and the impact of diet on health, and 16. Measures against infectious disease.

(5) Publications

[Original Articles]

1. Suresh Munuswamy, Keiko Nakamura, Kaoruko Seino, Masashi Kizuki. Inequalities in Use of Antenatal Care and Its ServiceComponents in India. J Rural Med. 2014; 9(1); 10-19

2. Rahman Mosiur, Nakamura Keiko, Seino Kaoruko, Kizuki Masashi. Intimate partner violence and symptoms of sexually transmitted infections: are the women from low socio-economic strata in Bangladesh at increased risk. Int J Behav Med. 2014.04; 21(2); 348-357

3. Uchimura Mari, Kizuki Masashi, Takano Takehito, Morita Ayako, Seino Kaoruko. Impact of the 2011 Great East Japan Earthquake on community health: ecological time series on transient increase in indirect

mortality and recovery of health and long-term-care system. J Epidemiol Community Health. 2014.09; 68(9); 874-882

4. Rahman Mosiur, Nakamura Keiko, Seino Kaoruko, Kizuki Masashi. Sociodemographic Factors and the Risk of Developing Cardiovascular Disease in Bangladesh. Am J Prev Med. 2014.12;

[Books etc]

1. Takehito Takano. Concise Text of Hygiene and Public Health 2014. Nankodo, 2014.03

[Misc]

1. Takehito Takano. Research on construction of a support system for public health response to disaster (Disaster Health Emergency Assistance Team) 2014.12; 14; 31-38

[Conference Activities & Talks]

1. Takehito Takano. Research on construction of a support system for public health response to disaster (Disaster Health Emergency Assistance Team). The 8th Japan Emergency Management Association Research Meeting, Section I "Public Health and Disaster-Rationale for establishment of DHEAT" 2014.10.18
2. Takehito Takano. Construction of a support system for public health response to disaster (Disaster Health Emergency Assistance Team). The 73th Annual Meeting of Japanese Society of Public Health, Symposium 3 "For construction of a support system for public health response to disaster (Disaster Health Emergency Assistance Team)" 2014.11.05

[Social Contribution]

1. For construction of a support system for public health response to disaster (Disaster Health Emergency Assistance Team), Japanese Society of Public Health, The 73th Annual Meeting of Japanese Society of Public Health, Symposium 3 (Takehito Takano)
2. Director, Promotion Committee for Healthy Cities, (Takehito Takano)
3. Editor, Health Promotion International, Oxford Journal, (Takehito Takano)
4. Director, WHO Collaborating Centre for Healthy Cities and Urban Policy Research , (Takehito Takano)
5. Member, Science Council of Japan , (Takehito Takano)
6. Board member, Joint Subcommittee on Public Health Science of the Committee on Basic Medicine and the Committee on , (Takehito Takano)
7. Board member, Subcommittee on International Assistance for Conflict Resolution and Disaster Restoration, Science C, (Takehito Takano)
8. Expert member, Committee on Research Grant, Japanese Society of Public Health , (Takehito Takano)
9. Board member, Research Ethics Committee, National Institude of Public Health , (Takehito Takano)
10. Board member, Subcommittee on Global Contribution for Disaster Relief, Science Council of Japan, (Takehito Takano)
11. Board member, Healthy Taito 21 Promotion Council , (Takehito Takano)
12. Board member, Katsushika-City Community Health Council , (Takehito Takano)
13. Member, Public Health Forum on Disaster Assistance , (Takehito Takano)
14. Director, Japanese Society of Public Health , (Takehito Takano)
15. Chair, Committee on Professional, Japanese Society of Public Health , (Takehito Takano)
16. Board member, Regional Examination Committee, Japanese Society of Public Health , (Takehito Takano)
17. Board member, Japanese Society for Hygiene , (Takehito Takano)
18. Chief researcher, Public Health Forum on Disaster Assistance, Research group on construction of a support system for public health response to disaster , (Takehito Takano)

Environmental Parasitology

Professor Nobuo OHTA
Associate Professor Nobuaki AKAO
Lecturer Takashi KUMAGAI
Assistant Professor Takenori SEKI (〜2014.9)、Mitsuko SUZUKI (SATREPS Project in Ghana)
Project Professor Takashi SUZUKI (J-GRID Project in Ghana)
PhD Course Students：Toshio ARAI, Eataru KAGAYA, Masafumi YAMABE, Francis Ekow DENNIS (〜2014.9)、Emmanuel BLAY(2014.10〜)、Ripa JAMAL, Katsumi MAEZAWA, Nobuhide HATA
Master Course Students: Daisuke KOBAYASHI, Emi WADA

(1) Outline

Parasitic diseases are still serious health matters in the developing world. In spite of those situations, there is still no enough achievement in the disease control. Our purpose of research and education are based on the global view, and comprehensive research should be done involving development of new tools for disease control. Parasites are highly evolved animals and host-parasite interplay is complicated. Uncovering those enigma is a big challenge for us.
Purpose of our Department is develop human resources to make contributions for health and welfare of the people living in areas with parasitic infections.

(2) Research

(1) Pathological Research on zoonotic parasitoses: Toxocariasis, Dilofilariasis
(2) Epidemiological survey of parasitic diseases: Toxocariasis, Angiostrongyloidiasis, Spirurine larva, Schistosomiasis
(3) Molecular epidemiology of tropical diseases: Drug resistance of malaria parasites, Drug resistance of anopheline mosquitoes, Molecular detection of Trypanosomes in Tsetse fly.
(4) Immunopathology of schistosomiasis: Regulation of egg-granuloma formation in schistosomiasis japonica.
(5) Drug development against parasitic infection: New drug candidates for schistosomiasis
(6) Regulation of gene expression in parasitic helminthes: RNAi and parasitism in schistosome parasites.
(7) Molecular and epidemiological research on parasitic infections in West African sub-region.

(3) Education

Because of the recent development and the global changes in social system and life style, parasitic infections are becoming more heterogeneous. When we consider about factors promoting spreading parasitic diseases, multidisciplinary approaches are needed: medical, zoological and sociological.

Our laboratory mainly deals with pathophysiology and epidemiology of parasitic infections. Immunology, molecular biology and clinico-pathology are approaches employed. Main subjects in our laboratory are schistosomiasis, zoonotic helminthiases, malaria and trypanosomiasis, all of which include laboratory and field investigations. In the schistosomiasis research, we focus on developing new diagnostic method by DNA detection in the sample, and uncovering immunopathogenesis of the typical hepatic inflammation. For zoonotic helminthiases, developments of diagnostic tools are urgent matters to be studied. Our laboratory is one of the reference stations for the diagnosis in Japan.

Since 2008, TMDU started collaboration project on research on infectious diseases at Noguchi Memorial Institute for Medical Research. At the collaboration center at NMIMR, molecular approaches to discover new drug targets for African trypanosomiasis are underway.

(4) Lectures & Courses

Lecture and practices of basic and clinical parasitology are given. Further more, Field practice is important for future career. It is important to have field experiences where each student find matters and problems to be clarified. Together with those, final goal is to develop human resources with enough knowledge and experiences.

(5) Clinical Services & Other Works

Clinical services for the diagnosis of parasitic infections are our routine activities.

(6) Publications

[Original Articles]

1. Arai T, Akao N, Seki T, Kumagai T, Ishikawa H, Ohta N, Hirata N, Nakaji S, Yamauchi K, Hirai M, Shiratori T, Masayoshi Kobayashi, Fujii H, Ishii E, Naito M, Saitoh S-i, Yamaguchi T, Shibata N, Shimo M, Tokiwa T. . Molecular Genotyping of Anisakis Larvae in Middle Eastern Japan and Endoscopic Evidence for Preferential Penetration of Normal over Atrophic Mucosa PLoS ONE. 2014; 9(2); e89118

2. NOriko Matsuo, Yuko Taniguchi, Noriko Ohtaki, Nobuaki Akao. A case of multiple creeping eruptions on the lower leg 2014; 124; 1790

3. Tokiwa T, Ueda W, Takatsuka S, Okawa K, Onodera M, Ohta N, Akao N.. The first genetically confirmed case of Dioctophyme renale (Nematoda: Diophymatida) in a patient with a subcutaneous nodule. Parasitol Int. 2014; 63; 143-147

4. Tong QB, Chen R, Zhang Y, Yang GJ, Kumagai T, Furushima-Shimogawara R, Lou D, Yang K, Wen LY, Lu SH, Ohta N, Zhou XN.. A new surveillance and response tool: Risk map of infected Oncomelania hupensis detected by Loop-mediated isothermal amplification (LAMP) from pooled samples. Acta Tropica. 2014; 141; 170-177

5. Toshio Arai, Nobuaki Akao, Takenori Seki, Takashi Kumagai, Hirofumi Ishikawa, Nobuo Ohta, Nobuto Hirata, So Nakaji, Kenji Yamauchi, Mitsuru Hirai, Toshiyasu Shiratori, Masayoshi Kobayashi, Hiroyuki Fujii, Eiji Ishii, Mikio Naito, Shin-ichi Saitoh, Toshikazu Yamaguchi, Nobumitsu Shibata, Masamune Shimo, Toshihiro Tokiwa. Molecular genotyping of anisakis larvae in Middle Eastern Japan and endoscopic evidence for preferential penetration of normal over atrophic mucosa. PLoS ONE. 2014; 9(2); e89188

6. Arai T, Akao N, Seki T, Kumagai T, Ishikawa H, Ohta N, Hirata N, Nakaji S, Yamauchi K, Hirai M, Shiratori T, Kobayashi M, Fujii H, Ishii E, Naito M, Saitoh S, Yamaguchi T, Shibata N, Shimo M, Tokiwa T.. Molecular genotyping of anisakis larvae in Middle Eastern Japan and endoscopic evidence for preferential penetration of normal over atrophic mucosa. PLoS One. 2014.02; Feb 28;9(2); e89188

7. Dennis FE, Fujii Y, Haga K, Damanka S, Lartey B, Agbemabiese CA, Ohta N, Armah GE, Katayama K.. Identification of novel Ghanaian G8P[6] human-bovine reassortant rotavirus strain by next generation sequencing. PLoS One. 2014.06; 2014 Jun27;9(6); e100699

8. Suzuki K, Okamoto R, Katukura N, Watabe T, Wada Y, Akao N, Watanabe M, Ohta N. Case report of patients with intestinal parasitic diseases at Tokyo Medical and Dental University Hospital. 2014.12; 25(1); 9-12

[Misc]

1. Ido E, Suzuki T, Ampofo WK, Ayi I, Yamaoka S, Koram KA, Ohta N.. Joint research project on Infectious diesaases in West-African Subregion. J Disast Res. 2014; 9; 813-817

2. Tokiwa T, Hashimoto T, Yabe T, Komatsu K, Akao N, Ohta N. Current Topics of angiostrongylus in Ogasawara Islands. 2014.03; 67(3); 182-184

3. Nobuo Ohta. Research collaboration in West-Africa: Japanese contributions and future prospect 2014.05; 30(6); 1274-1282

[Conference Activities & Talks]

1. Yamabe M, Kumagai T, Shimogawara R, Seki T, Kim H, Ohta N.. Efficacy analysis of N-89 and N-251 against Schistosoma mansoni in vitro.. 83rd Annual Meeting of Parasitology 2014.03.27 Matsuyama

2. Ninomiya-Obata K, Ishiwata K, Tsutsui H, Watanabe N, Ohta N, Kanuka H, Karasuyama H.. Protective immunity against Nippostrongylus brasilliensis by M2 macrophages induced by basophilic leukocytes.. 83rd Annual Meeting of Parasitology 2014.03.28 Matsuyama

3. Arai T, Seki T, Kumagai T, Shimogawara R, Akao N, Ohta N, Matsumoto S.. Effect of Schistosoma japonicum eggs on onset of enteritis of SAMP1/Yit mouse, a model mouse of Crohn's disease.. 83rd Annual Meeting of Parasitology 2014.03.28 Matsuyama

4. Kumagai T, Ichimura K, Okino N, Yamabe M, Shimogawara R, Seki T, Ohta N.. Analysisi of exosome-like vesicles released from Schistosoma japonicum by the stimulation of red blood cell membrane.. 83rd Annual Meeting of Parasitology 2014.03.28 Matsuyama

5. Akao N, Ishii A, Tokiwa T, Ohta N.. Study on biomarkers for the severity of brain injury in mice infected with Angiostrongylus cantonensis. . 83rd Annual meeting of Parasitology 2014.03.28 Matsuyama

6. Seki T, Shimogawara R, Ninomiya-Obata K, Kumagai T, Arai T, Yamabe M, Akao N, Karasuyama H, Ohta N.. The role of basophils in the small intestine of mice infected with Schistosoma mansoni.. 83rd Annual Meeting of Parasitology 2014.03.28 Matsuyama

7. Kumagai T, Ichimura K, Okino N, Yamabe M, Shimogawara R, Seki T, Ohta N.. The analysis of exosome-like vesicles from Schistosoma jponicum treated with erythrocytes.. 13rd International Congress of Parasitology 2014.08.12 Mexico City

8. Yamabe M, Kumagai T, Shimogawara R, Ichimura K, Seki T, Kim HS, Ohta N.. Efficacy and target of endoperoxide N-89 and N-251 against larval stage Schistosoma mansoni.. 13rd International Congress of Parasitology 2014.08.12 Mexixo City

9. Kumagai T, Ichimura K, Okino N, Yamabe M, Shimogawara R, Seki T, Ohta N.. The analysis of exosome-like vesicles from Schistosoma jponicum treated with erythrocytes.. 13rd International Congress of Parasitology 2014.08.12 Mexico City

10. Yamabe M, Kumagai T, Shimogawara R, Ichimura K, Seki T, Kim HS, Ohta N.. Efficacy and target of endoperoxide N-89 and N-251 against larval stage Schistosoma mansoni.. 13rd International Congress of Parasitology 2014.08.12 Mexixo City

11. Kumagai T, Ichimura K, Okino N, Yamabe M, Shimogawara R, Seki T, Ohta N.. The analysis of exosome-like vesicles from Schistosoma japonicum treated with erythrocytes.. 13th International Congress of Parasitology 2014.08.12 Mexico City

12. Ohta N, Kumagai T, Shimogawara-Furushika R, Seki T, Ishikawa H, Wang TP, Chen R, Lu SH.. Molecular approach for controlling schistosomiasis japonica through snail monitoring and evaluation.. 13rd International Congress of Parasitology 2014.08.13 Mexico City

13. Ohta N, Kumagai T, Shimogawara-Furushika R, Seki T, Ishikawa H, Wang TP, Chen R, Lu SH.. Molecular approach for controlling schistosomiasis japonica through snail monitoring and evaluation.. 13rd International Congress of Parasitology 2014.08.13 Mexico City

14. Kumagai T, Ichimura K, Yamabe M, Shimogawara R, Ohta N. Male-female interaction through miRNA contained in the extracellular vesicles secreted from Schistosoma japonicum (parasitic platehelminth).. Australasia Extracellular Vesicles Conference 2014 2014.11.20 Cairns

15. Kumagai T, Ichimura K, Yamabe M, Shimogawara R, Ohta N.. Male-female interaction through miRNA contained in the extracellular vesicles secreted from Schistosomsa japonicum (parasitic platihelminth).. Australasia Extracellular Vesicles Conference 2014 2014.11.20 Cairns

16. Kumagai T, Ichimura K, Yamabe M, Shimogawara R, Ohta N.. Male-female interaction through miRNA contained in the extracellular vesicles secreted from Schistosomsa japonicum (parasitic platihelminth).. Australasia Extracellular Vesicles Conference 2014 2014.11.20 Cairns

Forensic Medicine

Professor
Koichi UEMURA

Junior Associate Professor
Toshihiko AKI
Kana UNUMA

Assistant Professor
Takeshi FUNAKOSHI

Graduate Student
Kanako NORITAKE
Mayumi WATANABE
Atsushi YAMADA
Izumi FUNAKOSHI
Naho HIRAYAMA
Yusuke FUJII
Haruka KOJIMA
Yo AIHARA

(1) Research

Research Subjects

1) Toxicology
2) Alcohol medicine
3) Forensic pathology

(2) Education

Purpose of education

Forensic medicine provides fundamental human rights, public safety and nation' s welfare to make a fair judgment on the items on the law which requires the medical knowledge. Education of forensic medicine is included forensic medicine in a narrow sense and medical law. Purpose of education in forensic medicine is to provide students opportunity to study the essential knowledge of the relationship between medical and society (include law, ethics, suit and administration). Students are also taught a blood type and an alcohol medicine in a practical training.

(3) Clinical Services & Other Works

Practical services

Forensic Medicine provides the expert opinion on a living body and a corpse to clarify causes of wound and death, mainly entrusted by a public prosecutor or the police, thereby, contributing fair trial in a court.

(4) Publications

[Original Articles]

1. Hisashi Nagai, Ichiro Kuwahira, Daryl O Schwenke, Hirotsugu Tsuchimochi, Akina Nara, Tadakatsu Inagaki, Sayoko Ogura, Yutaka Fujii, Keiji Umetani, Tatsuo Shimosawa, Ken-ichi Yoshida, James T Pearson, Koichi Uemura, Mikiyasu Shirai. β 2-Adrenergic receptor-dependent attenuation of hypoxic pulmonary vasoconstriction prevents progression of pulmonary arterial hypertension in intermittent hypoxic rats. PLoS ONE. 2014; 9(10); e110693

2. Yamada A, Unuma K, Kojima H, Uemura K.. Subarachnoid hemorrhage caused by a traffic accident: de novo aneurysm ruptured 30 years after surgical neck clipping. J Forensic Leg Med. . 2014.02; 22; 90-92

3. Uchida K, Unuma K, Funakoshi T, Aki T, Uemura K. Activation of Master Autophagy Regulator TFEB During Systemic LPS Administration in the Cornea. J Toxicol Pathol. 2014.07; 27(2); 153-158

4. Kashima J, Shintani-Ishida K, Nakajima M, Maeda H, Unuma K, Uchiyama Y, Yoshida K.. Immunohistochemical study of the autophagy marker microtubule-associated protein 1 light chain 3 in normal and steatotic human livers. Hepatol Res.. 2014.07; 44(7); 779-787

5. Watanabe M, Funakoshi T, Unuma K, Aki T, Uemura K. Activation of the ubiquitin-proteasome system against arsenic trioxide cardiotoxicity involves ubiquitin ligase Parkin for mitochondrial homeostasis. Toxicology. 2014.08; 322; 43-50

[Conference Activities & Talks]

1. Funakoshi-Hirose I, Funakoshi T, Kojima H, Saka K, Uemura K. Sudden death after inhalation of synthetic cannabinoids. 9th International Symposium on Advances in Legal Medicine 2014.06

2. Watanabe M, Funakoshi T, Unuma K, Aki T, Uemura K. Activation of ubiquitin-proteasome system plays a protective role in arsenic trioxide-induced cardiotoxicity. 9th International Symposium on Advances in Legal Medicine 2014.06

3. Yamada A, Funakoshi T, Komatsu A, Aihara Y, Uchida K, Uemura K. An autopsy case of severe hyponatremia suspected to be caused by polydipsia.. 9th International Symposium on Advances in Legal Medicine 2014.06

4. Watanabe M, Unuma K, Fujii Y, Noritake K, Uemura K. A fatal case of vagus nerve injury after acupuncture. 9th International Symposium on Advances in Legal Medicine 2014.06

5. Yamada A, Aki T, Uemura K. Differential induction of epithelial-mesenchymal transition and cell death during paraquat poisoning in human alveolar cell line A549.. 9th International Symposium on Advances in Legal Medicine 2014.06

6. Fujimiya T, Hakucho A, Takase I, Liu X, Uemura K, Liu J. Pharmacokinetic study of alcohol first-pass metabolism in human low-dose cases. 9th International Symposium on Advances in Legal Medicine 2014.06

7. Noritake K, Aki T, Uemura K. Ethanol induces apoptosis with alterations of Cx43 expression and distribution in HL-1 cells.. 9th International Symposium on Advances in Legal Medicine 2014.06

8. Harada K, Nakajima M, Unuma K, Shintani-ishida K, Kanawaku Y, Kohno A, Sato N, Kanetake J, Yoshida K. A muder case with an unusual grid-pattern postmortem dismemberment. 9th International Symposium on Advances in Legal Medicine 2014.06

9. Kana Unuma, Toshihiko Aki, Takeshi Funakoshi, Koichi Uemura. Secretion of mitochondrial contents through autophagolysosomal exocytosis from lipopolysaccharide-stimulated hepatocytes and embryonic fibroblasts.. 9th International Symposium on Advances in Legal Medicine 2014.06 Fukuoka,Japan

International Health and Medicine

Associate Professor: Keiko Nakamura, MD, PhD
Junior Associate Professor: Kaoruko Seino, MMs, PhD
Research Technical Associate: Vanchig Urnaa, MD, MPH, PhD; Rami Hani Al Rifai, BVM, MSc, PhD
RONPAKU (Dissertation PhD) Program Fellow: Tayphasavanh Fengthong, MD, MPH
Graduate Student: Ghada Alkhulaidi, MA; Mosiur Rahman, MSc; Adam Izzeldin Fadl, MSc;
Nguen Huu Chau Duc, MD; Rakprasit Jutarat, MPH;
Shagdarsuren Tserendulam,MA; Saber Al-Sobaihi, MPH; Omar Mohammad Mashal,MD;
Shiro Ochi, MSc,PhD;
Dasavanh Manivong, MD, MSc; Delgermaa Doshzeveg, MPH; Iskander Isaac Maro, MD, MPH
Grafuate Research Student: Yuri Tashiro, MPhrm, MPH

(1) Outline

The department of International Health and Medicine seeks to elucidate physical, social, economic and cultural factors determining inequity in health. The department works closely with WHO and other international agencies to help develop guidelines of scientific evaluation and recommended practices.

(2) Research

The department' s research investigates local, national and international policies and programs to redress health inequalities.
Major Research Topics:
1)Measuring population health to identify inequity in health and determinants thereof
2)Use of geographic information systems for evaluation of public health
3)Transfiguration of the ecosystem and its interaction with human health
4)Socio-cultural factors determining health
5)Outcome and process evaluation of health-development programs
6)Use of information technology to improve public health

(3) Education

Master Programs
Master degree students receive systematic intensive training that leads to the acquisition of broad expertise in the fields of public health, immunology, and medicine of health promotion. This program is open to students who have majored in any field.

PhD Programs
Our doctoral program provides a flexible curriculum that allows students to customize their research goals, methods, and activities based upon their own interests and preferences. A rich variety of educational activities are arranged in the program. These include: individual discussion sessions with professors and other faculty members; field investigations; and seminars on various topics such as community health care, community medicine, public health policy, biostatistics, academic presentation, development of foreign language skills, and

communication skills. Students work closely with faculty members on an individual basis in setting the right direction for their research and confirmation of their progress.

Public Health Leaders (PHL) Program
Students in the PHL program attain the skills required for public health professionals with an international perspective. The program prepares them for leadership roles in public institutions. Advanced students from many countries around the world are now enrolled. All the classes are conducted in English, thus facilitating the acquisition of international communication skills.

(4) Lectures & Courses

The objective of our postgraduate education is to provide professional qualifications to high-caliber people who exhibit leadership in the advancement of public health and promotion of health on an international scale. The department helps students attain the knowledge, skills, attitude, and experiences that are necessary for competent health specialists.

By the end of the completion of the doctoral course, the participants are expected to be able to
- Access health and well being the populations in local, national, and international settings,
- Assess evidence to show effectiveness of health interventions, programs and strategies,
- Think strategically to develop local, national, and international policies,
- Manage projects to successful completion
- Demonstrate leadership in local, national, or international public health programs
- Communicate properly when listening, presenting, writing, and negotiating
- Pursue a full-cycle of academic, public health research
- Facilitate learning of staff, students, and colleagues, and
- Practice and respect professional ethics in a socio-culturally diverse environment.

(5) Publications

[Original Articles]

1. Rahman M, Nakamura K, Seino K, Kizuki M. Intimate partner violence and symptoms of sexually transmitted infections: are the women from low socio-economic strata in Bangladesh at increased risk. Int J Behav Med. 2014.04; 21(2); 348-357

2. Rahman Mosiur, Nakamura Keiko, Seino Kaoruko, Kizuki Masashi. Intimate partner violence and symptoms of sexually transmitted infections: are the women from low socio-economic strata in Bangladesh at increased risk. Int J Behav Med. 2014.04; 21(2); 348-357

3. Uchimura Mari, Kizuki Masashi, Takano Takehito, Morita Ayako, Seino Kaoruko. Impact of the 2011 Great East Japan Earthquake on community health: ecological time series on transient increase in indirect mortality and recovery of health and long-term-care system. J Epidemiol Community Health. 2014.09; 68(9); 874-882

4. Rahman Mosiur, Nakamura Keiko, Seino Kaoruko, Kizuki Masashi. Sociodemographic Factors and the Risk of Developing Cardiovascular Disease in Bangladesh. Am J Prev Med. 2014.12;

5. Nakajima R, Nakamura K, Turagabeci A, Takano T. Barriers to medication adherence among patients with non-communicable diseases. Journal of International Health. 2014.12; 29(4); 313-320

[Misc]

1. Nakamura K. Alliance for Healthy Cities Respecting Diversities 6th Global Conference of the Alliance for Healthy Cities. 2014.10;

[Conference Activities & Talks]

1. Nakamura K. Progress in reducing health inequity in urban areas. Symposium on the Post-2015 Development Agenda - For Integrating Sustainable Development Goals (SDGs) and Post Millennium Development Goals (MDGs) 2014.01.16 Tokyo

2. Nakamura K. Urban Health and Healthy Cities. Joint Seminar of Tokyo Medical and Dental University and Mahidol University 2014.04.10 Tokyo

3. Nakamura K. Urban Public Health and Healthy Cities. International Leadership Program in Health Management Educational Program (Naresuan University - Tokyo Medical and Dental University) 2014.07.07 Tokyo

4. Nakamura K. Alliance for Healthy Cities Respecting Diversities. 6th Global Conference of the Alliance for Healthy Cities 2014.10.29 Hong Kong

5. Nakamura K. Healthy Cities and Urban Policy Research. First Regional Forum of WHO Collaborating centres in the Western Pacific 2014.11.13 Manila

Health Care Management and Planning

Professor	Kazuo KAWAHARA
Assistant Professor	Makiko SUGAWA
Graduate Student	Hidehito TAKENAKA
	Daiske IKEDA
	Youichi SHIMA
	Eiko SHIMIZU
	Takeo NIGA
	Kenjiro IDE
	Keiko YOSHIDA
	Md. Ismail Tareque
	Taro TOMIZUKA
	Towfiqua Mahfuza Islam
	Woonkwan Hyun
	Masakazu KIKUCHI
	Yoko KOMURA
	Jian CHEN
	Masao MURATA
	Takamichi KOGURE
	Daisuke MUMAZAWA
	Hisashi OMOTE
	Masataka YANO

(1) Outline

By analyzing the Japanese healthcare policies and system and by reviewing their interaction with society, the structural characteristics and issues can be clarified. To resolve or find better ways to handle these issues, we conduct research into public health and welfare, and its related disciplinary areas. With the cooperation of active policy makers and personnel from the healthcare departments, the research results can be applied to the present healthcare policies and system. Through this education on collecting data, clarifying issues, analyzing the situation, and evaluating options, students taking this course are expected to grow in their ability to make healthcare policies.

(2) Research

In the academic areas mentioned above, we conduct research under the following topic areas:

1) The significance of public healthcare planning, its challenges, and influences on the healthcare system
We conduct research on issues related to new healthcare policies including planning, analysis, issue resolution, and making positive changes to the healthcare plan. This research area includes the Japanese emergency medical service and the impartial evaluation of the travel distance of aid agents and the time required for them to reach their destination.

2) Structural analyses and policy choices concerning national blood services

In Japan, we experienced HIV infection from tainted blood products. There were various causes for this event, and improvements are required in all processes: collecting blood, screening blood, manufacturing blood products, and following-up on the usage of these products. By analyzing background information related to the adverse events and their causes, we can propose the most appropriate policies related to blood services, thus ensuring safety, and securing a stable supply. To achieve a stable supply of blood products, we also conduct epidemiological studies to review guidelines on collecting blood.

3) The government role in preventing medical errors
Issues related to medical errors and adverse events have recently attracted a great deal of attention in Japan. We study the role that the government should play regarding various medical errors and their prevention as well as review and address the financial loss caused by blood-related adverse events and policies on prevention.

4) Structural analyses of healthcare system in the community
By reviewing and analyzing activities related to disease prevention and health promotion conducted by local healthcare centers, we research the role of the local healthcare system and its effectiveness and efficiency.

5) Systemizing and evaluating public health policies
We review the processes of creating public health policies and systems, address the association with the creating processes and stakeholders such as political parties and lobby groups, evaluate their policies, and then suggest improvements to these policies and systems.

6) The role of healthcare communication to fill in gaps between medical providers and patients, and to share the uncertainties related to medicine and healthcare

7) The influence of healthcare communication on patient and medial safety

8) Reviewing communication tools and skills, and their systematic introduction into the healthcare system in order to realize patient participation and proactive involvement in treatment processes

(3) Publications

[Original Articles]

1. Takamichi Kogure. Spinal Cord Stimulation Ameliorates Neuropathic Pain-Related Sleep Disorders: A Case Series. Neuromodulation Technology at the Neural Interface; (onlinelibrary.wiley.com) DOI. 2014;

2. Yoshida K. Impact of a fixed price system on the supply of institutional long-term care: comparative study of Japanese and German metropolitan areas BMC Health Services Research. 2014;

3. Masataka Yano. Continued administration of antithrombotic agents during transperineal prostate biopsy. Int Braz J Urol. In press. 2014;

4. Tareque MI, Hoque N, Islam TM, Kawahara K, Sugawa, M. Relationships between the active aging index and disability-free life expectancy: A case study in the Rajshahi district of Bangladesh Canadian Journal on Aging.. 2014.01;

5. S. Okamoto. Values and risks of second opinion in Japan's universal health care system Health Policy in publication,. 2014.01;

6. Towfiqua Mahfuza Islam. Correlates of Intimate Partner Violence Against Women in Bangladesh The Journal of Family Violence.. 2014.02;

7. Md. Ismail Tareque. Economic Well-Being and Elder Abuse in Rajshahi District of Bangladesh. SAGE Journal Research on Aging,. 2014.03;

8. Takamichi Kogure. Validity and Reliability of the Japanese Version of the Newest Vital Sign PLOSONE. 2014.04;

[Books etc]

1. Md.Ismail Tareque,Nazrul Hoque,Towfiqua Mahfuza Islam,Kazuo Kawahara,and Makiko Sugawa. Active Aging Index and Health Life Expectancy in Rajshahi District of Bangladesh. Springer, 2014

2. Towfiqua Mahfuza Islam, Md. Ismail Tareque, Makiko Sugawa, Kazuo Kawahara. Correlates of Intimate Partner Violence Against Women in Bangladesh. The Journal of Family Violence (online) , 2014

3. Md. Ismail Tareque,Towfiqua Mahfuza Islam, , Makiko Sugawa, Kazuo Kawahara. Relationships between the Active Aging Index and Disability-Free Life Expectancy. Canadian Journal on Aging, 2014

4. Md. Ismail Tareque,Nazrul Hoque,Towfiqua Mahfuza Islam, , Makiko Sugawa, Kazuo Kawahara,Yasuhiko Saito. Health life expectancy and the correlates of self-rated health in an ageing Population in Rajshahi district of Bangladesh. Cambridge Journal Ageing and Society, 2014

[Conference Activities & Talks]

1. MASATAKA YANO. Effects on serum sex hormone levels by the treatment for localized prostate cancer. Three dimentional conformal radiotherapy versus radical prostatectomy.. 34th Congress of the Societe Internatonale D'Urologie, Grasgow 2014.10.12

Molecular Epidemiology

Professor: Masaaki MURAMATSU
Associate Professor : Noriko SATO
Assistant Professor : Shinobu IKEDA

Adjunct Instructor : Katsuko SUDO, Fumihiro SATA, Jun-ichi TAGUCHI

Graduate Student: Sariya Dechamethakun, Kaung Si Thu,
Khin Thet Thet Zaw, Yuko Maeda, Fujitani,
Tay Zar Kyaw, Tadaaki Katsuta, Jyun-ya Hagiwara,
Norihiko Satake, Riya Tamura
Research Student: Yuiri Tsubota
Research Resident: Maidina Abudushataer, Ake Ko Ko Minn

(1) Outline

Many common chronic diseases are multifactorial in that they are caused by multiple genetic and environmental factors. By applying the technology and information of human genome to epidemiological studies, we aim to clarify the role of genetic polymorphisms, epigenetic changes, as well as their interaction with environmental factors, which may contribute to the development of these diseases.

(2) Research

Our research subjects are as follows.

1. Gene-environment interaction that affects the onset of metabolic syndrome and its related phenotypes.
2. Genetic factors that affect the severity of pathological atherosclerosis.
3. Responder vs non-responder of prodrugs and polymorphisms of drug metabolizing enzymes.
4. Severe cutaneous adverse response (Stevens-Jhonson' s Syndrome) and HLA genotypes.
5. The role of epigenetic regulation and fetal programming in common diseases.
6. Likelihood ratio based integrated personal risk assessment of type 2 diabetes.

(3) Education

Masaaki Muramatsu:Holistic Study of Disease Prevention I
Masaaki Muramatsu:Environmental/Social Health
Masaaki Muramatsu:Clinical Informatics
Masaaki Muramatsu:Negotiation and Debate in English
Noriko Sato, Masaaki Muramatsu: Bioscience I
Noriko Sato: Molecular and Cellular Biology

(4) Lectures & Courses

We focus on common diseases such as diabetes, hypertension, obesity, metabolic syndrome, and atherosclerosis which are caused by multiple genetic and environmental factors, and aim to decipher these factors as well as their interactions by applying the technology and information of human genome to epidemiology. Our goal is not only to identify disease genes and polymorphisms but also to elucidate gene-environment interactions that contribute to the onset and progression of the diseases. Epigenetic changes in common diseases are also in our scope. A new project has been started to study methods for educating genome-based health literacy by employing information generated from personal genome sequences

(5) Publications

[Original Articles]

1. Zhao C, Ikeda S, Arai T, Naka-Mieno M, Sato N, Muramatsu M, Sawabe M.. Association of the RYR3 gene polymorphisms with atherosclerosis in elderly Japanese population. BMC Cardiovasc Disord. 2014; 14; 6

2. Parlayan C, Ikeda S, Sato N, Sawabe M, Muramatsu M, Arai T. Association analysis of single nucleotide polymorphisms in miR-146a and miR-196a2 on the prevalence of cancer in elderly Japanese: a case-control study. Asian Pac. J. Cancer Prev.. 2014; 15(5); 2101-2107

3. Sato N, Htun NC, Daimon M, Tamiya G, Kato T, Kubota I, Ueno Y, Yamashita H,Fukao A, Kayama T, Muramatsu M. . Likelihood ratio-based integrated personal risk assessment of type 2 diabetes. Endocr. J.. 2014; 61(10); 967-988

4. Ueta M, Kaniwa N, Sotozono C, Tokunaga K, Saito Y, Sawai H, Miyadera H, Sugiyama E, Maekawa K, Nakamura R, Nagato M, Aihara M, Matsunaga K, Takahashi Y, Furuya H, Muramatsu M, Ikezawa Z, Kinoshita S. Independent strong association of HLA-A*02:06 and HLA-B*44:03 with cold medicine-related Stevens-Johnson syndrome with severe mucosal involvement. Sci Rep. . 2014; 4; 4862

5. Htun NC, Miyaki K, Zhao C, Muramatsu M, Sato N. Epistasis effects of COMT and MTHFR on inter-individual differences in mental health: under the inverted U-shaped prefrontal dopamine model. Biochem Biophys Res Commun.. 2014; 451(4); 574-579

6. Yatsuga C, Toyohisa D, Fujisawa TX, Nishitani S, Shinohara K, Matsuura N, Ikeda S, Muramatsu M, Hamada A, Tomoda A.. No association between catechol-O-methyltransferase (COMT) genotype and attention deficit hyperactivity disorder (ADHD) in Japanese children. Brain Dev. 2014; 36(7); 620-625

7. Dechamethakun S, Ikeda S, Arai T, Sato N, Sawabe M, Muramatsu M. . Associations between the CDKN2A/B, ADTRP and PDGFD Polymorphisms and the Development of Coronary Atherosclerosis in Japanese Patients. J. Atheroscler. Thromb.. 2014.07; 21(7); 680-690

8. Yamada M, Sato N, Ikeda S, Arai T, Sawabe M, Mori S, Yamada Y, Muramatsu M, Tanaka M.. Association of the chromodomain helicase DNA-binding protein 4 (CHD4) missense variation p.D140E with cancer: potential interaction with smoking. Genes Chromosomes Cancer.. 2014.12;

[Conference Activities & Talks]

1. Muramatsu M, Hayashi M, Yamashita N. The effect of genetic test for common diseases on the perception of health and illness.. The 3rd Conference on Informatics, Biology, Medicine and Pharmacology 2014.10.02

2. Dechamethakun S, Sato N, Ikeda S, Arai T, Sawabe M, Muramatsu M, Tanaka M.. Association of Macrophage Capping Protein (CAPG) Polymorphisms with Cancer in Elderly Japanese. . The 3rd Conference on Informatics, Biology, Medicine and Pharmacology 2014.10.02

Research Development

Faculty Staff
Professor
Kozo TAKASE

Graduate Students
Doctor course
Yuko OJIRO
Yuji HIGASIDE
Akemi HIRABAYASHI
Tomoko IZUGAMI
Akira MIURA
Hidehiro ANDO
Yasumasa OOSHIRO
Hideki TERUYA
Masakazu HARAMO
Rinshuu SHIMABUKURO
Kazushige ENDOH

Master course (Master of Medical Administration)
Takeshi SAKAKIBARA
Akihiko SOTOMATSU
Miki TAKAHASHI
Toshiki TANAKA
Tetsuo HARA
Kenji MACHII

(1) Research

1) Introduction of Clinical Pathway in hospital
2) Medical law suit and professional information
3) Quality management of medical law suit
4) Organizational logic for hospital
5) Health care policy and rational
6) Management of medical information and privacy
7) Hospitality in medicine
8) Clinical guideline and medical quality
9) Development of medical engineering apparatus

(2) Education

1) Hospital Information Management
2) Medical Informatics, statistics
3) TQM in medicine

4) Biological bias and data management
5) Medical Law and Ethics
6) Medical induction course for Judges and Prosecutors (collaborated with the Supreme Court and Department of Justice)
7) Medical Engineering special program with Tokyo Institute of Technology
8) Health Promotion Policy program (General Medicine, Risk Management in Medicine) with Hitotsubashi University

(3) Lectures & Courses

Study on development of medical system and hospital management

Goals/outline:
The goals supposed in the lecture are mastering the technique of implementation of research development and acquiring the ability of management of projects.

(4) Clinical Services & Other Works

Kozo TAKASE

Committee member of Legal Training for Judicial Apprentice, Japanese Supreme Court

Chief Editorial Board of Japanese Society for Clinical Pathway

(5) Publications

[Original Articles]

1. A Study of Restructuring Cost Accounting System at a National University Hospital 2014.11; 9(2); 20-32

Health Policy and Informatics

Professor:Kiyohide FUSHIMI
Graduate Student:Kenjiro MATSUFUJI, Asako TUKASAKI,
kyoko SHINODA, Ayako MATSUO, Motoko TAIMA(SANO),
Toshihiro TAMAKI, Yuya MIZUNO, Daisuke SHINJO,
Hiroki AIZAWA, Tetu OHNUMA, Akira HOMMA, Eishi UECHI,
Nobuo SAKATA, Saki OHSHIMA

(1) Research

1) Functional differentiation and coordination of healthcare facilities
2) Development and application of patient case mix system for Japanese healthcare settings
3) Application of information technology to standardization of health care and sharing of health care information.

(2) Education

Health care informatics is a branch of health policy science which deals with the application of information technology to health policy research. Main objective of health care informatics in the graduate course is to acquire ability to independently design, manage and accomplish researches in health policy and health informatics fields.

(3) Publications

[Original Articles]

1. Yasuhiro Yamauchi, Wakae Hasegawa, Hideo Yasunaga, Mitsuhiro Sunohara, Taisuke Jo, Kazutaka Takami, Hiroki Matsui, Kiyohide Fushimi, Takahide Nagase. Paradoxical association between body mass index and in-hospital mortality in elderly patients with chronic obstructive pulmonary disease in Japan. Int J Chron Obstruct Pulmon Dis. 2014; 9; 1337-1346

2. Seitetsu L Lee, Hideki Hashimoto, Takahide Kohro, Hiromasa Horiguchi, Daisuke Koide, Issei Komuro, Kiyohide Fushimi, Tsutomu Yamazaki, Hideo Yasunaga. Influence of municipality-level mean income on access to aortic valve surgery: a cross-sectional observational study under Japan's universal health-care coverage. PLoS ONE. 2014; 9(10); e111071

3. Wakae Hasegawa, Yasuhiro Yamauchi, Hideo Yasunaga, Mitsuhiro Sunohara, Taisuke Jo, Hiroki Matsui, Kiyohide Fushimi, Kazutaka Takami, Takahide Nagase. Factors affecting mortality following emergency admission for chronic obstructive pulmonary disease. BMC Pulm Med. 2014; 14; 151

4. Maeda Toshiki, Babazono Akira, Nishi Takumi, Matsuda Shinya, Fushimi Kiyohide, Fujimori Kenji. Regional differences in performance of bone marrow transplantation, care-resource use and outcome for adult T-cell leukaemia in Japan. BMC Health Serv Res. 2014; 14; 337

5. Noriko Sasaki, Susumu Kunisawa, Tetsuya Otsubo, Hiroshi Ikai, Kiyohide Fushimi, Yoshio Yasumura, Takeshi Kimura, Yuichi Imanaka. The relationship between the number of cardiologists and clinical

practice patterns in acute heart failure: a cross-sectional observational study. BMJ Open. 2014; 4(12); e005988

6. Hamada Tsuyoshi, Yasunaga Hideo, Nakai Yousuke, Isayama Hiroyuki, Horiguchi Hiromasa, Fushimi Kiyohide, Koike Kazuhiko. Impact of hospital volume on outcomes in acute pancreatitis: a study using a nationwide administrative database. J Gastroenterol. 2014.01; 49(1); 148-155

7. Hamada Tsuyoshi, Yasunaga Hideo, Nakai Yousuke, Isayama Hiroyuki, Horiguchi Hiromasa, Matsuda Shinya, Fushimi Kiyohide, Koike Kazuhiko. Severe bleeding and perforation are rare complications of endoscopic ultrasound-guided fine needle aspiration for pancreatic masses: an analysis of 3,090 patients from 212 hospitals. Gut Liver. 2014.03; 8(2); 215-218

8. Sato Masaya, Tateishi Ryosuke, Yasunaga Hideo, Horiguchi Hiromasa, Yoshida Haruhiko, Matsuda Shinya, Fushimi Kiyohide, Koike Kazuhiko. Acute liver disease in Japan: a nationwide analysis of the Japanese Diagnosis Procedure Combination database. J Gastroenterol. 2014.03; 49(3); 547-554

9. Chikuda Hirotaka, Yasunaga Hideo, Takeshita Katsushi, Horiguchi Hiromasa, Kawaguchi Hiroshi, Ohe Kazuhiko, Fushimi Kiyohide, Tanaka Sakae. Mortality and morbidity after high-dose methylprednisolone treatment in patients with acute cervical spinal cord injury: a propensity-matched analysis using a nationwide administrative database. Emerg Med J. 2014.03; 31(3); 201-206

10. Yoshioka R, Yasunaga H, Hasegawa K, Horiguchi H, Fushimi K, Aoki T, Sakamoto Y, Sugawara Y, Kokudo N. Impact of hospital volume on hospital mortality, length of stay and total costs after pancreaticoduodenectomy. Br J Surg. 2014.04; 101(5); 523-529

11. Shigeoka Hitoshi, Fushimi Kiyohide. Supplier-induced demand for newborn treatment: evidence from Japan. J Health Econ. 2014.05; 35; 162-178

12. Iwagami Masao, Yasunaga Hideo, Doi Kent, Horiguchi Hiromasa, Fushimi Kiyohide, Matsubara Takehiro, Yahagi Naoki, Noiri Eisei. Postoperative polymyxin B hemoperfusion and mortality in patients with abdominal septic shock: a propensity-matched analysis. Crit Care Med. 2014.05; 42(5); 1187-1193

13. Sugihara Toru, Yasunaga Hideo, Horiguchi Hiromasa, Matsuda Shinya, Fushimi Kiyohide, Kattan Michael W, Homma Yukio. Does mechanical bowel preparation ameliorate damage from rectal injury in radical prostatectomy? Analysis of 151 rectal injury cases. Int J Urol. 2014.06; 21(6); 566-570

14. Sako Akahito, Yasunaga Hideo, Horiguchi Hiromasa, Fushimi Kiyohide, Yanai Hidekatsu, Uemura Naomi. Prevalence and in-hospital mortality of gastrostomy and jejunostomy in Japan: a retrospective study with a national administrative database. Gastrointest Endosc. 2014.07; 80(1); 88-96

15. Sumitani Masahiko, Yasunaga Hideo, Uchida Kanji, Horiguchi Hiromasa, Nakamura Masaya, Ohe Kazuhiko, Fushimi Kiyohide, Matsuda Shinya, Yamada Yoshitsugu. Perioperative factors affecting the occurrence of acute complex regional pain syndrome following limb bone fracture surgery: data from the Japanese Diagnosis Procedure Combination database. Rheumatology (Oxford). 2014.07; 53(7); 1186-1193

16. Fujino Yoshihisa, Kubo Tatsuhiko, Muramatsu Keiji, Murata Atsuhiko, Hayashida Kenshi, Tomioka Shinichi, Fushimi Kiyohide, Matsuda Shinya. Impact of regional clinical pathways on the length of stay in hospital among stroke patients in Japan. Med Care. 2014.07; 52(7); 634-640

17. Kaneko Takeshi, Hirakawa Kazuo, Fushimi Kiyohide. Relationship between peri-operative outcomes and hospital surgical volume of total hip arthroplasty in Japan. Health Policy. 2014.07; 117(1); 48-53

18. Takagi Toshio, Sugihara Toru, Yasunaga Hideo, Horiguchi Hiromasa, Fushimi Kiyohide, Kondo Tsunenori, Homma Yukio, Tanabe Kazunari. Cytoreductive nephrectomy for metastatic renal cell carcinoma: a population-based analysis of perioperative outcomes according to clinical stage. Int J Urol. 2014.08; 21(8); 770-775

19. Taguchi Masashi, Kubo Tatsuhiko, Yamamoto Mitsuyoshi, Muramatsu Keiji, Yasunaga Hideo, Horiguchi Hiromasa, Fujimori Kenji, Matsuda Shinya, Fushimi Kiyohide, Harada Masaru. Body mass index influences the outcome of acute pancreatitis: an analysis based on the Japanese administrative database. Pancreas. 2014.08; 43(6); 863-866

20. H Inokuchi, H Yasunaga, Y Nakahara, H Horiguchi, N Ogata, J Fujitani, S Matsuda, K Fushimi, N Haga. Effect of rehabilitation on mortality of patients with Guillain-Barre Syndrome: a propensity-matched analysis using nationwide database. Eur J Phys Rehabil Med. 2014.08; 50(4); 439-446

21. Isogai Toshiaki, Yasunaga Hideo, Matsui Hiroki, Tanaka Hiroyuki, Ueda Tetsuro, Horiguchi Hiromasa, Fushimi Kiyohide. Out-of-hospital versus in-hospital Takotsubo cardiomyopathy: analysis of 3719 patients in the Diagnosis Procedure Combination database in Japan. Int J Cardiol. 2014.09; 176(2); 413-417

22. Hideo Yasunaga, Hiroki Matsui, Hiromasa Horiguchi, Kiyohide Fushimi, Shinya Matsuda. Application of the diagnosis procedure combination (DPC) data to clinical studies. J. UOEH. 2014.09; 36(3); 191-197

23. Tagami T, Matsui H, Horiguchi H, Fushimi K, Yasunaga H. Antithrombin and mortality in severe pneumonia patients with sepsis-associated disseminated intravascular coagulation: an observational nationwide study. J Thromb Haemost. 2014.09; 12(9); 1470-1479

24. Suzuki Sayaka, Yasunaga Hideo, Matsui Hiroki, Horiguchi Hiromasa, Fushimi Kiyohide, Yamasoba Tatsuya. Impact of systemic steroids on posttonsillectomy bleeding: analysis of 61 430 patients using a national inpatient database in Japan. JAMA Otolaryngol Head Neck Surg. 2014.10; 140(10); 906-910

25. Wada Tomoki, Yasunaga Hideo, Inokuchi Ryota, Horiguchi Hiromasa, Fushimi Kiyohide, Matsubara Takehiro, Nakajima Susumu, Yahagi Naoki. Effects of edaravone on early outcomes in acute ischemic stroke patients treated with recombinant tissue plasminogen activator. J Neurol Sci. 2014.10; 345(1-2); 106-111

26. Uchida Kanji, Yasunaga Hideo, Sumitani Masahiko, Horiguchi Hiromasa, Fushimi Kiyohide, Yamada Yoshitsugu. Effects of remifentanil on in-hospital mortality and length of stay following clipping of intracranial aneurysm: a propensity score-matched analysis. J Neurosurg Anesthesiol. 2014.10; 26(4); 291-298

27. Chikuda Hirotaka, Ohya Junichi, Horiguchi Hiromasa, Takeshita Katsushi, Fushimi Kiyohide, Tanaka Sakae, Yasunaga Hideo. Ischemic stroke after cervical spine injury: analysis of 11,005 patients using the Japanese Diagnosis Procedure Combination database. Spine J. 2014.10; 14(10); 2275-2280

28. Ogura Koichi, Yasunaga Hideo, Horiguchi Hiromasa, Fushimi Kiyohide, Tanaka Sakae, Kawano Hirotaka. Nomogram predicting severe adverse events after musculoskeletal tumor surgery: analysis of a national administrative database. Ann Surg Oncol. 2014.10; 21(11); 3564-3571

29. Toru Sugihara, Hideo Yasunaga, Changhong Yu, Hiromasa Horiguchi, Hiroaki Nishimatsu, Kiyohide Fushimi, Mickeal W Kattan, Yukio Homma. Perioperative outcome comparisons between open and laparoscopic nephroureterectomy among a population-based cohort in 2010-2012. J. Endourol.. 2014.11;

30. Michio Naganuma, Hiroki Matsui, Kiyohide Fushimi, Hideo Yasunaga. Clinical features of isolated dissections of abdominal aortic branches. Heart Vessels. 2014.11;

31. K Uehara, H Yasunaga, Y Morizaki, H Horiguchi, K Fushimi, S Tanaka. Necrotising soft-tissue infections of the upper limb: risk factors for amputation and death. Bone Joint J. 2014.11; 96-B(11); 1530-1534

32. Sugihara Toru, Yasunaga Hideo, Horiguchi Hiromasa, Matsui Hiroki, Fujimura Tetsuya, Nishimatsu Hiroaki, Fukuhara Hiroshi, Kume Haruki, Changhong Yu, Kattan Michael W, Fushimi Kiyohide, Homma Yukio. Robot-assisted versus other types of radical prostatectomy: Population-based safety and cost comparison in Japan, 2012-2013. Cancer Sci. 2014.11; 105(11); 1421-1426

33. Sugihara Toru, Yasunaga Hideo, Horiguchi Hiromasa, Fushimi Kiyohide, Dalton Jarrod E, Schold Jesse, Kattan Michael W, Homma Yukio. Performance comparisons in major uro-oncological surgeries between the USA and Japan. Int J Urol. 2014.11; 21(11); 1145-1150

34. Tsuda Yusuke, Yasunaga Hideo, Horiguchi Hiromasa, Fushimi Kiyohide, Kawano Hirotaka, Tanaka Sakae. Effects of fondaparinux on pulmonary embolism following hemiarthroplasty for femoral neck fracture: a retrospective observational study using the Japanese Diagnosis Procedure Combination database. J Orthop Sci. 2014.11; 19(6); 991-996

35. Sugihara Toru, Yasunaga Hideo, Horiguchi Hiromasa, Matsui Hiroki, Nishimatsu Hiroaki, Nakagawa Tohru, Fushimi Kiyohide, Kattan Michael W, Homma Yukio. Comparison of perioperative outcomes including severe bladder injury between monopolar and bipolar transurethral resection of bladder tumors: a population based comparison. J Urol. 2014.11; 192(5); 1355-1359

36. Masato Takeuchi, Takeshi Tomomasa, Hideo Yasunaga, Hiromasa Horiguchi, Kiyohide Fushimi. Descriptive Epidemiology of Children Hospitalized for Inflammatory Bowel Disease in Japan: Inpatient Database Analyses. Pediatr Int. 2014.12;

37. Michihata Nobuaki, Matsui Hiroki, Fushimi Kiyohide, Yasunaga Hideo. Comparison between enteral nutrition and intravenous hyperalimentation in patients with eating disorders: results from the Japanese diagnosis procedure combination database. Eat Weight Disord. 2014.12; 19(4); 473-478

38. Ogura Koichi, Yasunaga Hideo, Horiguchi Hiromasa, Fushimi Kiyohide, Kawano Hirotaka. What is the effect of advanced age and comorbidity on postoperative morbidity and mortality after musculoskeletal tumor surgery? Clin Orthop Relat Res. 2014.12; 472(12); 3971-3978

39. Sayaka Suzuki, Hideo Yasunaga, Hiroki Matsui, Kiyohide Fushimi, Tatsuya Yamasoba. Factors associated with severe epiglottitis in adults: Analysis of a Japanese inpatient database. Laryngoscope. 2014.12;

40. Sugihara Toru, Yasunaga Hideo, Horiguchi Hiromasa, Fujimura Tetsuya, Fushimi Kiyohide, Yu Changhong, Kattan Michael W, Homma Yukio. Factors affecting choice between ureterostomy, ileal conduit and continent reservoir after radical cystectomy: Japanese series. Int J Clin Oncol. 2014.12; 19(6); 1098-1104

41. Hayato Yamana, Hiroki Matsui, Yusuke Sasabuchi, Kiyohide Fushimi, Hideo Yasunaga. Categorized diagnoses and procedure records in an administrative database improved mortality prediction. J Clin Epidemiol. 2014.12;

[Conference Activities & Talks]

1. Imai1, S., Fushimi, K., Karolina, a. Sundell. . The impact of pharmaceutical policies on pharmaceutical sales patterns in Sweden and Japan.. ISPOR 17th Annual European Congress 2014.11.08 Amsterdam,The Netherlands

2. Shimizu, S., Ishikawa, K.B., Ikeda, S., Fushimi, K.. The impact of modifications of the formula for generic drug prescription rate on the switch to new brand-name drugs with similar therapeutic uses. ISPOR 17th Annual European Congress 2014.11.08 ISPOR 17th Annual European Congress

Life Sciences and Bioethics

Masayuki Yoshida
Yuka Ozasa
Hitoshi Kuwana
Mizuko Osaka
Eiichiro Kanda
Hiroko Kohbata

(1) Outline

Department of Life Sciences and Bioethics (Bioethics Research Center) offers classes and seminars regarding bioethics, research ethics, and clinical ethics in Graduate School of Medical and Dental Sciences, Graduate School of Health Care Sciences, and School of Medicine. Our lecture includes fundamental bioethics and research ethics so that students can absorb the current concept of the bioethics and research ethics. We try to include clinical materials such as cases of genetic counseling, where ethics-based approach is critically important.
Apart from class for juniors, we give bioethics seminars for hospital staff and faculties based on the research ethics guideline revised 2008, in which attendance of bioethics lecture is mandatory for any person who conducts medical research.
We dynamically participated in extra-campus activities; such as the ethical committee members of the National Institute of Health etc.

(2) Publications

[Original Articles]

1. Katsuhiko Hamada, Mizuko Osaka, Masayuki Yoshida. Cell density impacts epigenetic regulation of cytokine-induced E-selectin gene expression in vascular endothelium. PLoS ONE. 2014; 9(4); e90502

2. Hiroyoshi Yokoi, Ryuji Nohara, Hiroyuki Daida, Mitsumasa Hata, Kohei Kaku, Ryuzo Kawamori, Junji Kishimoto, Masahiko Kurabayashi, Izuru Masuda, Ichiro Sakuma, Tsutomu Yamazaki, Masayuki Yoshida. Change in carotid intima-media thickness in a high-risk group of patients by intensive lipid-lowering therapy with rosuvastatin: subanalysis of the JART study. Int Heart J. 2014; 55(2); 146-152

3. Eiichiro Kanda, Masumi Ai, Renjiro Kuriyama, Masayuki Yoshida, Tatsuo Shiigai. Dietary acid intake and kidney disease progression in the elderly. Am. J. Nephrol.. 2014; 39(2); 145-152

4. Yuya Matsue, Kazuki Yoshida, Wataru Nagahori, Masakazu Ohno, Makoto Suzuki, Akihiko Matsumura, Yuji Hashimoto, Masayuki Yoshida. Peripheral microvascular dysfunction predicts residual risk in coronary artery disease patients on statin therapy. Atherosclerosis. 2014.01; 232(1); 186-190

5. Hiroyuki Daida, Ryuji Nohara, Mitsumasa Hata, Kohei Kaku, Ryuzo Kawamori, Junji Kishimoto, Masahiko Kurabayashi, Izuru Masuda, Ichiro Sakuma, Tsutomu Yamazaki, Hiroyoshi Yokoi, Masayuki Yoshida. Can Intensive Lipid-Lowering Therapy Improve the Carotid Intima-Media Thickness in Japanese Subjects Under Primary Prevention for Cardiovascular Disease?: The JART and JART Extension Subanalysis. J. Atheroscler. Thromb.. 2014.07; 21(7); 739-754

6. Kotaro Aihara, Mizuko Osaka, Masayuki Yoshida. Oral administration of the milk casein-derived tripeptide Val-Pro-Pro attenuates high-fat diet-induced adipose tissue inflammation in mice. Br. J. Nutr.. 2014.08; 112(4); 513-519

[Misc]

1. Shunsuke Ito, Masayuki Yoshida. Protein-bound uremic toxins: new culprits of cardiovascular events in chronic kidney disease patients. Toxins (Basel). 2014.02; 6(2); 665-678

[Conference Activities & Talks]

1. Mizuko Osaka, Shunsuke Ito, Masayuki Yoshida. Critical role of neutrophil-derived MCP-1 in the initial phase of high fat diet-induced vascular inflammation in mouse femoral artery. The 78th Annual Scientific Meeting of the Japanese Circulation Society 2014.03.21 Tokyo

2. Katsuhiko Hamada, Mizuko Osaka, Masayuki Yoshida. Cell Density Impacts Epigenetic Regulation of Cytokine-Induced E-selectin Gene Expression in Vascular Endothelium. The 78th Annual Scientific Meeting of the Japanese Circulation Society 2014.03.21 Tokyo

3. Shunsuke Ito, Mizuko Osaka, Katsuhiko Hamada, Yoshiharu Ito, Masayuki Yoshida. Uremic Toxin-induced Vascular Inflammation is Mediated by Aryl Hydrocarbon Receptor. The 78th Annual Scientific Meeting of the Japanese Circulation Society 2014.03.21 Tokyo

4. Mizuko Osaka, Shunsuke Ito, Masayuki Yoshida. Critical role of neutrophil in the early phase of high fat diet-induced vascular inflammation in mouse femoral artery. The 18th International Vascular Biology Meeting 2014.04.14 Kyoto

5. Shunsuke Ito, Mizuko Osaka, Katsuhiko Hamada, Yoshiharu Ito, Masayuki Yoshida. Indoxyl Sulfate-induced E-selectin Expression via Aryl Hydrocarbon Receptor Involves AP-1, but Not CRE, Dependent Gene Regulation in Vascular Endothelial Cells. 8th International Congress on Uremia Research and Toxicity 2014.05.13 Okinawa

6. Shunsuke Ito, Mizuko Osaka, Katsuhiko Hamada, Yoshiharu Ito, Masayuki Yoshida. Critical Role of Aryl Hydrocarbon Receptor in Uremic Toxin-induced Vascular Inflammation in Vivo and in Vitro. AHA Scientific Sessions2014 2014.11 Chicago

7. Shunsuke Ito, Mizuko Osaka, Katsuhiko Hamada, Yoshiharu Ito, Masayuki Yoshida. Activation of Aryl Hydrocarbon Receptor by Indoxyl Sulfate, a Uremic Toxin, is Critically Involved in Vascular Inflammation. ASN kidney week 2014 2014.11.13 Philadelphia

Health Care Economics

Koichi Kawabuchi
Isao Igarashi

(1) Outline

The role of health care extends to improving such aspects of life as dietary habit and relationship with others, and is deeply connected to quality of life. Looking back, however, discussion on healthcare has too often originated from political dynamics and interests of parties involved, and not from the voices of general public. This is due partially to the lack of quality data available among the people. The reality of healthcare and what it brings to the society are not necessarily always clear to the general public. In terms of dental care especially, it is hard to say that enough evidences have been established and widely recognized among people to the extent that matches to its importance in providing quality life. Thus, we apply economics in conducting interdisciplinary review of healthcare along with other related fields, and pursue how the healthcare system should be for the people.

(2) Research

Research activities involve conducting analysis on phenomena and observations in health care from the viewpoint of macro as well as micro economics.
Main focuses are:
1) Cross-sectional research on healthcare, dental care, nursing care, long-term care, and pharmaceutics from the viewpoint of economics
2) Proposals on policy making in efficient delivery of healthcare, nursing care, and long-term care
3) Borderless and mutual development of various specialties such as dental care, healthcare, economics, management and accounting.

(3) Education

Understanding the methods of research on phenomena and observations in health care field through economics point of view. As we have many part-time students with jobs as well as foreign students, the lecture will be centered around such topics as the approach to a research theme in economics and other social sciences (especially empirical studies) , how to proceed with the research, and paper writing. Specifically, we will provide outline of healthcare economics by a weekly lecture for Ph. D. candidates as well as once a year lecture for the master course. Some of them adapt more interactive style of problem solving with input from visiting lecturers. Emphasis is placed on methods of quantitative analysis, learning both theoretical and empirical approaches to phenomena and observations in health care field through economics point of view. Lectures for undergraduate education will be focused on the outline of healthcare economics in dental care, with specific themes as 1) Economical analysis of dental healthcare, 2) Expenditure on dental care, 3) Reimbursement, and 4) Quality assessment of dental care.

(4) Lectures & Courses

Faced with recent changes in healthcare and long-term care, core hospitals and other healthcare related institutions in communities with responsibility of supporting front-line healthcare long for personnel competent in healthcare management. Call for such personnel is strong among research organizations and public offices as well, looking for those who are proficient in qualitative and quantitative analysis. Therefore, we aim to train students to be capable in making immediate contribution to the healthcare and welfare field, and to educate future "academic doctors" who can voice their messages in policy making.

(5) Clinical Services & Other Works

Igarashi, Assistant Professor in our department, practices three times a week in the clinic for Oral Diagnosis and General Dentistry of the Dental Hospital. Findings from our research activities are shared to the public through papers, reports, lectures and symposiums in both academic and less academic settings. Comments on healthcare reform, for instance, have been televised on and printed in various media.

(6) Publications

[Original Articles]

1. Hirano E, Fuji H, Onoe T, Kumar V, Shirato H, Kawabuchi K. Cost-effectiveness analysis of cochlear dose reduction by proton beam therapy for medulloblastoma in childhood. J Radiat Res. 2014.03; 55(2); 320-327

[Misc]

1. Koichi Kawabuchi. FY2014 Healthcare System Reformation - Would We Be Happier in Japan or Italy? JAPAN HOSPITALS. 2014.10; (33); 29-34

[Conference Activities & Talks]

1. Koichi Kawabuchi. Application of ACG to Japanese Health care setting. 2014 International ACG Conference 2014.04.28 Seatlle
2. Koichi Kawabuchi. An Economic Evaluation of Particle Radiotherapy. CARS2014 28th International Congress and Exhibition, Fukuoka 2014.06.27

Dental Education Development

Professor MORIO Ikuko
Assistant Professor
SEKI Naoko
Graduate Student
MATSUKAWA Chinatsu
Graduate Student
TAKINAGA Akira
Graduate Student
MUROGA Rei
Graduate Student
NGUYEN Thi Thanh Tam

(1) Research

1) Research on curriculum for health care professional education
2) Comparative study of domestic and international dental education
3) Research and development of educational methods in health care professional education
4) Research and development of English education programs in health care professional education

(2) Education

Main educational goal of this section as part of graduate school is to help students in health care sciences learn the basics of medical/dental curriculum: educational objectives, strategies and evaluation. This section is currently involved in the undergraduate dental education as the coordinators of multiple modules: the students' research project, courses for global communication, and the electives including various English courses and courses for international exchange for dental students.

(3) Clinical Services & Other Works

[Coordination for International Seminar, Symposium, Workshop or other events]
1.Lifelong learning seminar in Bangkok, Thailand, February 28.
2.Lifelong learning seminar in Phitsanulok, Thailand, June 23.
3.Lifelong learning seminar in Bangkok, Thailand, July 15.
4.TMDU exhibition at the Southeast Asian Association for Dental Education 25th Annual Scientific Meeting and the International Association for Dental Research Southeast Asian Division 28th Annual Scientific Meeting (IADR-SEAADE), Kuching Malaysia, 11-14 August.
5.Conference/meeting "Development of Dental Education in Asia 2014", Tokyo,October 29.

(4) Publications

[Original Articles]

1. Rodis Omar Mm, Barroga Edward, Barron J Patrick, Hobbs James, Jayawardena Jayanetti A, Kageyama Ikuo, Kalubi Bukasa, Langham Clive, Matsuka Yoshizo, Miyake Yoichiro, Seki Naoko, Oka Hiroko, Peters Martin, Shibata Yo, Stegaroiu Roxana, Suzuki Kazuyoshi, Takahashi Shigeru, Tsuchiya Hironori, Yoshida Toshiko, Yoshimoto Katsuhiko. A proposed core curriculum for dental English education in Japan. BMC Med Educ. 2014; 14; 239

2. Muroga R. Tsuruta J, Morio I. Disparity in perception of the working condition of dental hygienists between dentists and dental hygiene students in Japan International Journal of Dental Hygiene. 2014.10;

3. Morio I, Seki N, Kawaguchi Y. Dental Education in France -Current Situation and Future Directions- The Journal of Japanese Dental Education Association. 2014.12; 30(3); 176-186

4. Seki N, Fukui Y, Sunaga M, Moross J, Kinoshita A, Morio I. Development of New Interactive Materials for Medical Interviews in English The Journal of Japanese Dental Education Association. 2014.12; 30(3); 170-175

[Books etc]

1. Naoko SEKI, Masayo SUNAGA, Yuji FUKUI, Janell MOROSS, Yuji KABASAWA, Atsuhiro KINOSHITA. TMDU Clinical Training Series for ESL Dentists on Medical Interviews. University of Tokyo Press, 2014

[Conference Activities & Talks]

1. Morio I, Araki K. Reintroducing a dental accreditation system in Japan. 2014 Workshop on Dental Education in Vietnam 2014.03.30 Ho Chi Minh City, Vietnam

2. Takehara S, Morio I, Kawaguchi Y, Araki K, Tagami J. Survey on International Exchange among Dental Students. 33rd Annual Meeting of JDEA 2014.07.04 Kita-kyushu City

3. Seki N, Fukui Y, Sunaga M, Moross J, Kinoshita A, Morio I. Development of new interactive materials for medical interview in English. 33rd Annual Meeting of JDEA 2014.07.04 Fukuoka

4. Seki N, Miyoshi T, Hobo K, Sunaga M, Kinoshita A, Morio I. Needs, Evaluation and applicability of the new interactive materials for dental treatments in English. 79th Annual Meeting of the Stomatological Society 2014.12.06 Tokyo

Oral Health Promotion

Professor Yoko Kawaguchi
Associate Professor Masayuki Ueno
Assistant Professor Sayaka Furukawa(～ March)
Takashi Zaitsu(April ～)
Hospital Staff Mari Ohnuki(～ March)
Akiko Ohshiro(April ～)
Office administrator Reika Nagaoka
Part-time Lecturer Akiko Ohshiro(～ March)
Takashi Zaitsu(～ March)
Sachiko Takehara (International Exchange Center)
Registered Resident Hiromi Nishiyama
Takashi Tanemura(November ～)
Graduate Student Haslina Binti Rani
Ei Ei Aung
Yuri Uraoka
Anastasiya Blizniuk
Sachiko Komori
Nguyen Thi Hoang Yen
Yuka Shizuma(April ～)
Kaung Myat Thwin(October ～)

(1) Research

Research Subjects
Research topics are innovative, academic and international research in the field of dental public health and preventive dentistry to proceed with oral health promotion that contributes to human health. The current main research themes are:
1. Epidemiology and prevention of dental disease
2. Oral health care system
3. Relationship between oral health and general health
4. Oral health promotion
5. Diagnosis and treatment system construction of oral malodor
6. International oral health

(2) Lectures & Courses

1) Graduate School, Oral Health Promotion
The educational purpose is to foster professionals in dental public health and preventive dentistry who can think oral health problems as related issues with living environment, life style, health policy and social condition, and can conduct innovative, academic and international research on oral health for maintaining and improving oral health.
2) Undergraduate Education

The department is in charge of module units of “Introduction to dentistry”, “Environment and society II” and “Comprehensive problem exercise” for the third year dental students, and module units of “Basis for dentistry”, “Prevention and health management I”, “Prevention and health management II” and “Dentistry and nutrition" for the fourth year dental students. The department is also in charge of “Experiential research exercise” for the fourth year dental students, and “Comprehensive clinical practice phase I & II” for the fourth and fifth year dental students, in cooperation with other departments.

(3) Clinical Services & Other Works

Clinical Services
“Fresh breath clinic” in Dental hospital, Tokyo Medical and Dental University is a special clinic for diagnosis, treatment and prevention of oral malodor. About half of oral malodor patients are referred from other departments in the dental hospital or outside dental clinics. Other patients visit the clinic by finding the information of the clinic from mass media such as the internet, newspapers and television.
For oral malodor examination, gas chromatography and gas sensor instrument are used to measure the concentration of volatile sulfur compounds (VSCs) along with the organoleptic test. Oral malodor is treated based on diagnosis by precise measurement and oral examination, besides psychological aspects of the patient are paid attention. Treatment of oral malodor needs continuous periodontal disease management and oral care in cooperation with oral care department in the dental hospital and patient’s family dentist.

(4) Publications

[Original Articles]

1. Takashi ZAITSU, Toshiko OHTA, Hiroshi OHSHIMA and Chiaki MUKAI. The Importance and Necessity of Space Dentistry TRANSACTIONS OF THE JAPAN SOCIETY FOR AERONAUTICAL AND SPACE SCIENCES, AEROSPACE TECHNOLOGY JAPAN. 2014; 12(ists29); Tp_7-Tp_9

2. Masayuki Ueno, Susumu Takeuchi, Sachiko Takehara, Yoko Kawaguchi. Saliva viscosity as a potential risk factor for oral malodor Acta Odontologica Scandinavica. 2014; 72(8); 1005-1009

3. Masayuki Ueno, Ayumi Takayama, Melissa Adiatman, Mari Ohnuki, Takashi Zaitsu, Yoko Kawaguchi. Application of visual oral health literacy instrument in health education for senior high school students International Journal of Health Promotion and Education. 2014; 52(1); 38-46

4. Mari Ohnuki, Masayuki Ueno, Takashi Zaitsu, Yoko Kawaguchi. Taste hyposensitivity in Japanese schoolchildren. BMC Oral Health. 2014; 14; 36

5. Blizniuk Anastasiya, Ueno Masayuki, Furukawa Sayaka, Kawaguchi Yoko. Evaluation of a Russian version of the oral health literacy instrument (OHLI). BMC Oral Health. 2014; 14; 141

6. Ueno Masayuki, Takeuchi Susumu, Takehara Sachiko, Kawaguchi Yoko. Saliva viscosity as a potential risk factor for oral malodor. Acta Odontol Scand. 2014.11; 72(8); 1005-1009

7. Morio I, Seki N, Kawaguchi Y. Dental Education in France -Current Situation and Future Directions- The Journal of Japanese Dental Education Association. 2014.12; 30(3); 176-186

8. Chisato Konishi, Chiyoko Hakuta, Masayuki Ueno, Kayoko Shinada, Clive FA Wright, Yoko Kawaguchi. Factors associated with self-assessed oral health in the Japanese independent elderly. Gerodontology. 27; 53-61

[Conference Activities & Talks]

1. Yoko Kawaguchi. Principles of Oral health promotion activites in times of disaster. The 36th annual scientific conference on dental research,Toward evidence – based practice in Dentistry 2014.04.01

2. A.Blizniuk,S.Furukawa, M.Ueno,Y.Kawaguchi. Reliability and Validity of the Russian Version of the Oral Health Literacy Instrument. The 63th general meeting of Japanese Society for Oral Health 2014.05.29

3. H.Rani,S.Furukawa, M.Ueno,Y.Kawaguchi. Self-perceived and Clinical Oral Malodor Status among Dental Students in Malaysia. The 63th general meeting of Japanese Society for Oral Health 2014.05.29
4. Ei Ei Aung, Sayaka Furukawa, Masayuki Ueno, Yoko Kawaguchi. Effects of Oral Hygiene Regimens on Oral Malodor Reduction. The 63th general meeting of Japanese Society for Oral Health 2014.05.29
5. T H Yen Nguyen, M.Ueno,Y.Kawaguchi. Comparison of Oral Health Status between Vietnam and Japan. The 63th general meeting of Japanese Society for Oral Health 2014.05.29
6. T Zaitsu. The importance of oral health management for Japanese Antarctic Research Expedition (JARE). 2014.07.19
7. T Zaitsu. The Importance and Necessity of Space Dentistry. IADR-SEAADE 2014 2014.08.11
8. Masayuki Ueno, Satoko Ohara, Yoko Kawaguchi. Relationship between parity and oral health status among Japanese women. The 11th International Conference of Asian Academy of Preventive Dentistry (AAPD) 2014.09.17
9. Yoko Kawaguchi. Oral Health Programs for preschool children in Japan. The 11th International Conference of Asian Academy of Preventive Dentistry (AAPD) 2014.09.17
10. A Blizniuk, T Zaitsu, M Ueno,Y Kawaguchi. Association of oral health with socio-demographic behavioral factors. The 11th International Conference of Asian Academy of Preventive Dentistry (AAPD) 2014.09.17
11. Y Shizuma,S Komori,T Zaitsu,M Ueno,Y Kawaguchi. Self-evaluated and clinical oral health among high school students. The 11th International Conference of Asian Academy of Preventive Dentistry (AAPD) 2014.09.17
12. Yoko Kawaguchi. Latest Topics in Global Oral Health. Inter-University Exchange Program toward and Dental Networking in Southeast Asia 2014.10.21
13. Haslina Rani. Plevalence and Associating Factors of Oral Malodor in Malaysia. Inter-University Exchange Program toward and Dental Networking in Southeast Asia 2014.10.21
14. EiEi Aung. Effectiveness of Oral Hygiene Regimens on Oral Malodor Reduction in Myanmar People. Inter-University Exchange Program toward and Dental Networking in Southeast Asia 2014.10.21
15. Blizniuk Anastasiya. Association of Oral Health Literacy with Oral Health Behavior and Oral Health Status. Inter-University Exchange Program toward and Dental Networking in Southeast Asia 2014.10.21

Sports Medicine and Dentistry

[Associate Professor] Toshiaki Ueno
[Assistant Professor] Toshiyuki Takahashi, Hiroshi Churei
[Clinical fellow] Katsuhide Kurokawa
[Graduate Student] Ruman Uddin Chowdhury, Takayuki Ishigami, Kairi Hayashi, Mai Tanabe, Akihiro Mitsuyama, Sintaro Fukasawa, Abhishekhi Shrestha, Takahiro Sirako, Yuriko Yoshida
[Research Student] Satoshi Kawabata, Nana Shiota, Takaaki Fukuda
[Part-time Instructor] Goshi Kondo, Yukio Sasaki, Ryo Sato, Takuto Yamanaka
[Part-time Resident] Hiromi Miura, Koichiro Adachi, Sachiko Fujino, Keisuke Abe

(1) Outline

Sport medicine/dentistry is a branch of clinical medical and dental sciences which deals with the clinical management of oral health of athletes and sports-active people, the safety measures of sports-related traumatic injuries and disorders, and medical and dental supports to improve athletic performance.

(2) Research

1) Oral health promotion of athletes and sports-active people
(1) Field survey of oral health conditions in athletes and sports-active people
(2) Changes of oral environment associated with physical and sporting activities
(3) Influences of sports drinks and supplements on oral health
2) Safety measures of sports-related dental and maxillofacial traumatic injuries
(1) Diagnosis and treatment techniques for sports-related dental and maxillofacial injuries
(2) Development and innovation of sports mouthguard
(3) Development and innovation of sports faceguard
(4) Development and innovation of scuba diving mouthpiece
3) Correlations between occlusion and general motor functions
(1) Biomechanical assessment of motor performance associated with occlusion
(2) Electrophysiological analysis of neuromuscular function associated with occlusion
4) Correlations between occlusion and body posture
(1)Effect of occlusion on static posture
(2)Influence of occlusion on dynamic posture
5) Relations between mastication and occlusion and brain functions
6) Application of HBO therapy to sports-related dental diseases and traumatic injury

(3) Education

academic classes for sports medicine/dentistryin undergraduate and graduate courses in undergraduate and graduate courses are listed as follows;
1)D3:Sogo-Kadai-Ensyu
2)D3:Rinsyo-Taiken-Jissyu
3)D4:Kadai-Togo-Seminar/Occlusion
4)D4:Kenkyu-Taiken-Jissyu

5)D5-D6:Hokatsu Rinsyo-Jissyu Phase I to II
6)OH2:Kiso-Kagaku-Jissyu
7)OH3:Seijin-Koukuhoken-Eiseigaku
8)OH3-OH4:Koukuhoken-Eisei-Jissyu
9)OHE4:Sports dental engineering
10)Master course:Kankyo-Syakai-Ishigaku
11)PhD course: Tokuron, Ensyu and Kenkyu-Jissyu of Sports Medicine and Dentitry
12)Clinical training course:Sports Dentistry

(4) Lectures & Courses

Main objectives of academic education programs of sports medicine/dentistry in from undergraduate to graduate courses is to provide the students to study the oral health conditions in athletes and sports-active people, the changes of oral environment associated with physical and sporting activities, the possible correlations between occlusion and general motor functions and body posture, the novel techniques of sports mouthguard and faceguard, the relations between mastication and occlusion and brain functions, and so on. Students are also taught to advanced knowledge on sports medicine/dentistry and up-to-date techniques to fabricate custom mouthguard and faceguard.

(5) Clinical Services & Other Works

Sports dentistry clinic in Dental Hospital of Tokyo Medical and Dental University offers comprehensive care and clinical management for athletes and sports-active people suffered dental diseases and traumatic injuries. Custom-fitted protective gears such as mouthguard and faceguard against sports-related dental and maxillofacial trauma are also handled for participants in contact sports such as a boxing, American football, rugby football, hockey, lacrosse, and martial art. Sports dentistry clinic is positioned as a dental branch of Clinical Center for Sports Medicine and Dentistry under TMDU Sports Science Organization. In addition, Our clinic maintains close cooperation with Japan Institute of Sports Science/National Training Center under Japan Sport Council.

(6) Clinical Performances

< Certified specialists>
Toshiaki Ueno (1.JASA Sports Dentist certified by Japan Sports Association, 2.Dental specialist certified by Japanese Academy of Sports Dentistry, 3.Mouthguard technical instructor certified by JASD, 4.Dental specialist certified by Japanese Academy of Maxillofacial Prosthetics)
Toshiyuki Takahashi (1.MG technical instructor certified by JASD)
Hiroshi Churei (1.Dental specialist certified by JASD, 2. MG technical instructor certified by JASD)
Katsuhide Kurokawa (1.MG technical instructor certified by JASD)
Sachiko Fujino (1.Dental specialist certified by JASD, 2.MG technical instructor certified by JASD)
Keisuke Abe (1.Dental specialist certified by JASD, 2.MG technical instructor certified by JASD)
Takayuki Ishigami (1.MG technical instructor certified by JASD)
Kairi Hayashi (1.MG technical instructor certified by JASD)
Mai Tanabe (1. Sports dental hygienist certified by JASD)

(7) Publications

[Original Articles]

1. Reza F, Churei H, Takahashi H, Iwasaki N, Ueno T. Flexural impact force absorption of mouthguard materials using film sensor system Dental Traumatology. 2014.06; 30(3); 193-197

2. Chowdhury RU, Churei H, Takahashi H, Wada T, Uo M, Fukasawa S, Sahrin S, Abe K, Ueno T. Combined analysis of shock absorption capability and dispersion force of mouthguard material from different impact objects Dental Materials Journal. 2014.07; 33(4); 551-556

3. Chowdhury RU, Churei H, Takahashi H, Shahrin S, Fukasawa S, Shrestha A, Negoro T, Ueno T. Suitable design of mouthguard for sports active person with spaced dentition Dental Traumatology. 2014.10; Online published;

[Books etc]

1. Toshiaki Ueno. Jissen Sports Mouthguard. Igaku Joho-Sha Ltd., 2014.07 (ISBN : 978-4-903553-50-4)

[Conference Activities & Talks]

1. Hayashi K, Takahashi T, Tanabe M, Horie M, Enomoto M, Kato T, Shibata S, Yagishita K, Ueno T. Effect of membrane bone wound healing by hyperbaric oxygen treatment. 2014 International Association for Dental Research/Pan European Regional Congress 2014.09.10 Dubrovnik, Croatia

Educational System in Dentistry

Professor Kouji ARAKI
Junior Associate Professor(non-full time) Yukio NAKAMURA Hiroki KATAOKA
Graduate Student Michiyo KUROSA Moriyuki KATOH Kazuki TAKAHASHI
Secretary Satomi ITOH

(1) Outline

Main object of educational system in dentistry in the graduate course is to provide opportunity to study evaluation method for dental education curriculum, inspection method of the validity and reliability of the evaluation system for dental education, evaluation system compared between international and Japanese education level in undergraduate or after the graduation periods, and dental clinical skills improvement by the virtual reality simulation system.

(2) Research

1) The development of evaluation method for dental education curriculum
2) The development of inspection method of the validity and reliability of the evaluation system for dental education
3) The development of evaluation system compared between international and Japanese education level in undergraduate or after the graduation periods
4) The development of the program for dental clinical skills improvement by the virtual reality simulation system

(3) Education

The education to the postgraduate students performs a lecture,
practice, and Lab.
The education to the undergraduate students performs of a lecture and practice of all human general oral diagnoses.

(4) Lectures & Courses

The aim of the lecture is to understand the purpose and method about the evaluation of dental education system. In addition, it is to understand the level and inspection method of international dental education. The aim of the practice is to understand a method of data analysis provided by the evaluation system for the dental education, In addition, it is to understand the comparison with the international education level.
The aim of the Lab is to manage the teaching materials developed for simulation education and is to understand the inspection method of the evaluation for new education system.

(5) Clinical Services & Other Works

In the Clinic of Oral Diagnosis and General Dentistry, University Hospital, we performs manner and oral diagnosis education, for a student during clinical training.

(6) Publications

[Conference Activities & Talks]

1. Ikuko MORIO, Kouji ARAKI. Reintroducing a dental accreditaion system in Japan. WORKSHOP ON DENTAL EDUCATION 2014 ”Dental Education in Vietnam : Roadmap for International Integration" 2014.03.31 Vietnam
2. Tonami.K, Tsuruta J, Noritake K, Umemori S, Yamada A, Iwaki M, Ohara S, Hideshima M, Nitta H, Oda S, Kinoshita A, Mataki S, Araki K. Clinical traning of differential diagnosis in Tokyo Medical and Dental University.. The 40th ADEE Annnual Meeting 2014.08.28 Riga, Latvia

Educational Media Development

Professor KINOSHITA Atsuhiro
Assistant Professor
SUNAGA Masayo
Graduate Student
HOBO Koki
Graduate Student
MIYOSHI Tomoe

(1) Research

1) Development of computer-assisted clinical simulation system for medical and dental practice training.
In our university, we executed the Establishment of Computer-Assisted Education System on Clinical Simulation for Medical and Dental Practice Training project, which was adopted as part of the Support Program for Distinctive University Education in 2005, and developed the computer simulation materials on clinical education by utilizing digital clinical data from our Medical and Dental hospitals. We have expanded our study into a new project, 'Progress of Computer-Assisted Simulation for Medical and Dental Practice Training. Computer-Assisted Simulation Promoting Clinical Inference, Decision-making, Problem Solving and Cooperation Abilities of Health Professionals', which was subsequently selected to be part of the Program for Promoting the University Education Reform in 2009 by the Ministry of Education, Culture, Sports, Science and Technology. After utilizing the simulation materials for our students, we will evaluate and analyze their educational efficacy. Furthermore, we will develop a computer-assisted clinical simulation system for the entire university.

2) Development of new education system using information and communication technologies for medical and dental students.
At our university, we executed the Integration of Information and Communication Technologies into Clinical Training project, which was adopted as part of the Support Program for the Contemporary Educational Needs in 2007. The aim of this program is to integrate traditional educational methods with advanced information and communication technologies in order to allow clinical training, practical training and lectures to be effectively interlinked. By expanding digital content and employing an automatic visual recording system, we are planning to establish a digital archive of treatments and surgeries, demonstrations of dental techniques, lectures and student training. We will then launch an on-demand distribution system in order to incorporate this content into clinical education, which the students will be able to use for their self-evaluation and learning.

3) Development and utilization of an educational media for medical and dental students.
• Development and Study of Computerized Dental Simulator for Training of Dental Cavity Preparation and Prosthodontic Tooth Preparation practices:
We plan to develop a new computerized dental simulator and evaluate its effectiveness for training in dental cavity preparation and prosthodontic tooth preparation.
• Development and Study of Dental Model and Kit for Practical Training:
Dental and dental hygiene students must acquire skills for measuring periodontal pockets and must learn to identify the base of the pocket. However, few dental models are commercially available, and students cannot measure deep periodontal pockets by practicing on one another. Thus, we developed a new dental model with which the students can practice the probing of deep periodontal pockets, and plan to evaluate its effectiveness in training and evaluation of examiners.
• Development of Composing and Screening System for Original 3D Movies from Operator's Viewpoint:
If students can experience and recognize three-dimensional space from the operator's (instructor's) viewpoint during their practice sessions and lectures, it would have educational benefits. Thus, we plan to develop a Composing and Screening System for Original 3D Movies from an Operator's Viewpoint. Furthermore, we will

improve the quality of distance learning and remotely operated instruction using the superimposing method.
• Development of Dental Handpiece System with CCD camera:
We plan to develop a system equipped with a CCD camera, mirror and reverse image units in order to allow students in the lecture room to observe dental treatment sites in real-time, thereby giving them a sense of being at a clinic.

(2) Education

We will assist graduate students in understanding new educational systems and media utilizing information-communication technologies, such as the computer-assisted education system, the e-learning system and the live broadcasting lecture system. We will also assist these students in mastering how to create related educational media and apply it to medical, dental, nursing and dental hygiene education, as well as interprofessional cooperation.
First-year students at the School of Dentistry, and first and second-year students at the School of Oral Health Care Sciences will learn to process media information and create media content, as well as how to search the Internet for information that is necessary for their study and research activities. They will also learn how to make use of various databases.
Fourth-year students at the School of Dentistry will acquire the practical knowledge, communication skills and attitude to build good relationships with patients by gaining clinical experience at an early stage. This practice consists of two units; clinical experience in the teaching clinic and the computer-assisted simulation practice. This experience will enhance the students' abilities, enabling them to be effective clinicians.

(3) Publications

[Conference Activities & Talks]

1. KINOSHITA Atsuhiro, SUNAGA Masayo, FUKUI Yuji, ONODA Katsuji. Life-long Education with Simulation Learning Materials and Hands-on Seminar for Creating Simulation Learning Materials . Life-long Education with Simulation Learning Materials and Hands-on Seminar for Creating Simulation Learning Materials 2014.07.15 Chulalongkorn University, Bangkok

2. Tonami K, Tsuruta J, Noritake K, Umemori S, Yamada A, Iwaki M, Ohara S, Hideshima M, Nitta H, Oda S, Kinoshita A, Mataki S, Araki K. Clinical training of differential diagnosis in Tokyo Medical and Dental University. The 40th ADEE Annual Meeting. 2014.08.28-30, Programme and Abstract, p124 2014.08.29 Riga, Latvia

Insured Medical Care Management

Professor Masumi AI
J Associate Professor Noboru NUMAO (Dec. 2014)

(1) Outline

Our department supports an appropriate practice on insured medical care and billing for medical service fees at the TMDU medical hospital.
We also focus on development of methodology and materials for education on medical insurance system and rules for insured medical treatment.

(2) Research

1) Development of methodology and materials for education on medical insurance system and rules for insured medical treatment.
2) Studies on management and supports for billing for medical service fees at insurance medical institutions.
3) Studies on affairs of medical insurance system and provision of medical services.
In addition, the staff has been engaged in clinical studies and epidemiological studies on lipid metabolism, diabetes mellitus, atherosclerosis, laboratory medicine, and urology.

(3) Education

The staff has been in charge for education of social health insurance system and rules for insured medical treatment at the TMDU medical hospital (April and December in 2014).

(4) Lectures & Courses

*Providing practical supports for an appropriate insured medical care in the clinical fields.
Providing individual support for an appropriate billing for medical service fees at the medical hospital.
We also focus on development of methodology and materials for education on medical insurance system and rules for insured medical treatment.

(5) Clinical Services & Other Works

The staff has been in charge for assisting appropriate medical fee claims, and also providing clinical service on diabetes, dyslipidemia, atherosclerosis, geriatrics, and Urology.

(6) Clinical Performances

As a managing section of the medical hospital, we collaborate all kinds of hospital workers practically and efficiently to provide an appropriate insured medical care.

(7) Publications

[Original Articles]

1. Eiichiro Kanda, Masumi Ai, Renjiro Kuriyama, Masayuki Yoshida, Tatsuo Shiigai. Dietary acid intake and kidney disease progression in the elderly. Am. J. Nephrol.. 2014; 39(2); 145-152

2. Yachida Yuki, Yoshida Soichiro, Takeshita Hideki, Sawamura Chigusa, Tanaka Hiroshi, Satoh Shiro, Uchida Yusuke, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Koga Fumitaka, Saito Kazutaka, Fujii Yasuhisa, Kihara Kazunori. Bone abnormal signal incidentally found in pre-biopsy diffusion-weighted MRI for suspected prostate cancer: what does it reflect? Urol Int. 2014; 93(2); 170-175

3. Kobayashi Shuichiro, Fujii Yasuhisa, Koga Fumitaka, Yokoyama Minato, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Masuda Hitoshi, Kihara Kazunori. Impact of bladder neck involvement on progression in patients with primary non-muscle invasive bladder cancer: a prospective validation study. Urol Oncol. 2014.01; 32(1); 38.e29-38.e36

4. Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Tanaka Hiroshi, Kumagai Jiro, Yoshida Soichiro, Koga Fumitaka, Masuda Hitoshi, Kawakami Satoru, Fujii Yasuhisa, Kihara Kazunori. Combination of diffusion-weighted magnetic resonance imaging and extended prostate biopsy predicts lobes without significant cancer: application in patient selection for hemiablative focal therapy. Eur Urol. 2014.01; 65(1); 186-192

5. Ishioka Junichiro, Saito Kazutaka, Kijima Toshiki, Nakanishi Yasukazu, Yoshida Soichiro, Yokoyama Minato, Matsuoka Yoh, Numao Noboru, Koga Fumitaka, Masuda Hitoshi, Fujii Yasuhisa, Sakai Yasuyuki, Arisawa Chizuru, Okuno Tetsuo, Nagahama Katsuhi, Kamata Shigeyoshi, Sakura Mizuaki, Yonese Junji, Morimoto Shinji, Noro Akira, Tsujii Toshihiko, Kitahara Satoshi, Gotoh Shuichi, Higashi Yotsuo, Kihara Kazunori. Risk stratification for bladder recurrence of upper urinary tract urothelial carcinoma after radical nephroureterectomy. BJU Int. 2014.02;

6. Bae Hyeyeol, Yoshida Soichiro, Matsuoka Yoh, Nakajima Hiroshi, Ito Eisaku, Tanaka Hiroshi, Oya Miyako, Nakayama Takayuki, Takeshita Hideki, Kijima Toshiki, Ishioka Junichiro, Numao Noboru, Koga Fumitaka, Saito Kazutaka, Akashi Takumi, Fujii Yasuhisa, Kihara Kazunori. Apparent diffusion coefficient value as a biomarker reflecting morphological and biological features of prostate cancer. Int Urol Nephrol. 2014.03; 46(3); 555-561

7. Takashi Miida, Kunihiro Nishimura, Tomonori Okamura, Satoshi Hirayama, Hirotoshi Ohmura, Hiroshi Yoshida, Yoh Miyashita, Masumi Ai, Akira Tanaka, Hiroyuki Sumino, Masami Murakami, Ikuo Inoue, Yuzo Kayamori, Masakazu Nakamura, Tsutomu Nobori, Yukihisa Miyazawa, Tamio Teramoto, Shinji Yokoyama. Validation of homogeneous assays for HDL-cholesterol using fresh samples from healthy and diseased subjects. Atherosclerosis. 2014.03; 233(1); 253-259

8. Takeshita Hideki, Kawakami Satoru, Numao Noboru, Sakura Mizuaki, Tatokoro Manabu, Yamamoto Shinya, Kijima Toshiki, Komai Yoshinobu, Saito Kazutaka, Koga Fumitaka, Fujii Yasuhisa, Fukui Iwao, Kihara Kazunori. Diagnostic performance and safety of a three-dimensional 14-core systematic biopsy method. BJU Int. 2014.04;

9. Koga Fumitaka, Kobayashi Shuichiro, Fujii Yasuhisa, Ishioka Junichiro, Yokoyama Minato, Nakanishi Yasukazu, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Masuda Hitoshi, Kihara Kazunori. Significance of positive urine cytology on progression and cancer-specific mortality of non–muscle-invasive bladder cancer. Clin Genitourin Cancer. 2014.06; 12(3); e87-e93

10. Takayuki Nakayama, Kazutaka Saito, Yasuhisa Fujii, Shiho Abe-Suzuki, Yasukazu Nakanishi, Toshiki Kijima, Soichiro Yoshida, Junichiro Ishioka, Yoh Matsuoka, Noboru Numao, Fumitaka Koga, Kazunori Kihara. Pre-operative risk stratification for cancer-specific survival in patients with renal cell carcinoma with venous involvement who underwent nephrectomy. Jpn. J. Clin. Oncol. 2014.08; 44(8); 756-761

11. Yoshida Soichiro, Kihara Kazunori, Takeshita Hideki, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa. Head-Mounted Display for a Personal Integrated Image Monitoring System: Ureteral Stent Placement. Urol Int. 2014.08;

12. Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Tanaka Hiroshi, Kumagai Jiro, Yoshida Soichiro, Ishioka Junichiro, Koga Fumitaka, Masuda Hitoshi, Kawakami Satoru, Fujii Yasuhisa, Kihara Kazunori. Candidate selection for quadrant-based focal ablation through a combination of diffusion-weighted magnetic resonance imaging and prostate biopsy. BJU Int. 2014.08;

13. Takeshita Hideki, Kihara Kazunori, Yoshida Soichiro, Higuchi Saori, Ito Masaya, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa. Clinical application of a modern high-definition head-mounted display in sonography. J Ultrasound Med. 2014.08; 33(8); 1499-1504

14. Ishioka Junichiro, Kihara Kazunori, Higuchi Saori, Nakayama Takayuki, Takeshita Hideki, Yoshida Soichiro, Nakanishi Yasukazu, Kijima Toshiki, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa. New head-mounted display system applied to endoscopic management of upper urinary tract carcinomas. Int Braz J Urol. 2014.11; 40(6); 842-845

15. Fukushima Hiroshi, Saito Kazutaka, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Koga Fumitaka, Masuda Hitoshi, Fujii Yasuhisa, Sakai Yasuyuki, Arisawa Chizuru, Okuno Tetsuo, Yonese Junji, Kamata Shigeyoshi, Nagahama Katsushi, Noro Akira, Morimoto Shinji, Tsujii Toshihiko, Kitahara Satoshi, Gotoh Shuichi, Higashi Yotsuo, Kihara Kazunori. Equivalent survival and improved preservation of renal function after distal ureterectomy compared with nephroureterectomy in patients with urothelial carcinoma of the distal ureter: a propensity score-matched multicenter study. Int J Urol. 2014.11; 21(11); 1098-1104

16. Fujii Yasuhisa, Kihara Kazunori, Yoshida Soichiro, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka. A three-dimensional head-mounted display system (RoboSurgeon system) for gasless laparoendoscopic single-port partial cystectomy. Wideochir Inne Tech Malo Inwazyjne. 2014.12; 9(4); 638-643

[Misc]

1. Katsuyuki Nakajima, Takeaki Nagamine, Masaki Q Fujita, Masumi Ai, Akira Tanaka, Ernst Schaefer. Apolipoprotein B-48: a unique marker of chylomicron metabolism. Adv Clin Chem. 2014; 64; 117-177

[Conference Activities & Talks]

1. Yoshida Soichiro, Kihara Kazunori, Takeshita Hideki, Inoue Masaharu, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa. A head-mounted display-based personal integrated-image monitoring system for transurethral resection of the prostate: HMD-based PIM System. (Yoshida Soichiro, Kihara Kazunori, Takeshita Hideki, Inoue Masaharu, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa). The 102nd Annual Meeting of Japanese Urological Association 2014

2. Yoshida Soichiro, Ito Masaya, Tatokoro Manabu, Yokoyama Minato, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa, Kihara Kazunori. Initial experience of diffusion-weighted magnetic resonance imaging to assess therapeutic response to induction chemoradiotherapy against muscle-invasive bladder cancer. (Yoshida Soichiro, Ito Masaya, Tatokoro Manabu, Yokoyama Minato, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa, Kihara Kazunori). The 79th Annual Meeting of the Eastern Section of Japanese Urological Association. 2014

3. Masaharu Inoue, Fumitaka Koga, Soichiro Yoshida, Toshiki Kijima, Yasukazu Nakanishi, Jun-ichiro Ishioka, Yoh Matsuoka, Noboru Numao, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara. ErbB2 overexpression predicts chemoradiotherapy resistance and worse prognosis in muscle-invasive bladder cancer patients treated with induction chemoradiotherapy followed by partial or radical cystectomy. the 29th Annual EAU Congress 2014.04.13

4. Yoshida Soichiro, Kihara Kazunori, Takeshita Hideki, Inoue Masaharu, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa. Head-mounted display-based personal integrated-image monitoring system for TURP. (Yoshida Soichiro, Kihara Kazunori, Takeshita Hideki, Inoue Masaharu, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa). The 29th Annual Congress of the European Association of Urology 2014.04.13 Stockholm, Sweden

5. Matsuoka Y, Numao N, Saito K, Tanaka H, Kijima T, Nakanishi Y, Yoshida S, Ishioka J, Fujii Y, Kihara K. Topographical risk stratification of undertreatment in focal therapy for prostate cancer: Mid-apical biopsy compensates for MRI underdiagnosis. The 29th Annual Congress of the European Association of Urology 2014.04.13 Stockholm

6. Masaharu Inoue, Noboru Numao, Masaya Ito, Hideki Takeshita, Toshiki Kijima, Yasukazu Nakanishi, Soichiro Yoshida, Jun-ichiro Ishioka, Yoh Matsuoka, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara. Impact of androgen deprivation therapy on cardiovascular disease in patients with non-metastatic high-risk prostate cancer. the 29th Annual EAU Congress 2014.04.14

7. Noboru Numao, Yoh Matsuoka, Masaya Ito, Soichiro Yoshida, Yudai Ishikawa, Yusuke Uchida, Masahiro Toide, Saori Higuchi, Takayuki Nakayama, Masaharu Inoue, Hideki Takeshita, Toshiki Kijima, Yasukazu Nakanishi, Junichiro Ishioka, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara. Direct comparison of the ability to detect significant prostate cancer and assess cancer characteristics between magnetic resonance imaging targeted biopsy and systematic 14-core biopsy, including anterior samplings (Noboru Numao, Yoh Matsuoka, Masaya Ito, Soichiro Yoshida, Yudai Ishikawa, Yusuke Uchida, Masahiro Toide, Saori Higuchi, Takayuki Nakayama, Masaharu Inoue, Hideki Takeshita, Toshiki Kijima, Yasukazu Nakanishi, Junichiro Ishioka, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara). The 29th Annual Congress of the European Association of Urology 2014.04.14 Stockholm

8. Yoshida Soichiro, Koga Fumitaka, Tanaka Hiroshi, Satoh Shiro, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kasutaka, Fujii Yasuhisa, Kihara Kazunori. Diffusion-weighted MRI for assessing the response of muscle-invasive bladder cancer to chemoradiotherapy. (Yoshida Soichiro, Koga Fumitaka, Tanaka Hiroshi, Satoh Shiro, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kasutaka, Fujii Yasuhisa, Kihara Kazunori). The 108th annual meeting of the American Urological Association 2014.05.17 Orlando, USA

9. Masaharu Inoue, Fumitaka Koga, Soichiro Yoshida, Toshiki Kijima, Yasukazu Nakanishi, Junichiro Ishioka, Yoh Matsuoka, Noboru Numao, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara. ErbB2 overexpression is relevant to therapeutic resistance and poor prognosis in muscle-invasive bladder cancer patients treated with chemoradiation-based bladder-sparing protocol. AUA 2014 annual meeting 2014.05.18

10. Noboru Numao, Yoh Matsuoka, Masaya Ito, Soichiro Yoshida, Yudai Ishikawa, Yusuke Uchida, Masahiro Toide, Saori Higuchi, Takayuki Nakayama, Masaharu Inoue, Hideki Takeshita, Toshiki Kijima, Yasukazu Nakanishi, Junichiro Ishioka, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara. Potential of additional magnetic resonance imaging (MRI)-targeted prostate biopsy to avoid underestimation of systematic 14-core biopsy (Noboru Numao, Yoh Matsuoka, Masaya Ito, Soichiro Yoshida, Yudai Ishikawa, Yusuke Uchida, Masahiro Toide, Saori Higuchi, Takayuki Nakayama, Masaharu Inoue, Hideki Takeshita, Toshiki Kijima, Yasukazu Nakanishi, Junichiro Ishioka, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara). The 108th annual meeting of the American Urological Association 2014.05.18

11. Yokoyama Minato, Fujii Yasuhisa, Inoue Masaharu, Takeshita Hideki, Yoshida Soichiro, Ishioka Junichiro, Numao Noboru, Matsuoka Yoh, Koga Fumitaka, Saito Kazutaka, Masuda Hitoshi, Kihara Kazunori.. Does anatomical tumor complexity affect renal function after clampless partial nephrectomy? A functional analysis using renal scintigraphy. (Yokoyama Minato, Fujii Yasuhisa, Inoue Masaharu, Takeshita Hideki, Yoshida Soichiro, Ishioka Junichiro, Numao Noboru, Matsuoka Yoh, Koga Fumitaka, Saito Kazutaka, Masuda Hitoshi, Kihara Kazunori.). 34th congress of the SIU 2014.10.13 Glasgow, UK

[Others]

1. IRB Member, Tokyo Institute of Technology 2011-

2. IRB Member, Sony Corporation 2012-

Geriatrics and Vascular Medicine

Professor : Kentaro SHIMOKADO
Associate Professor : Eiji KANEKO
Assistant Professor : Yasuko ABE
Graduate Student : Kenji TOYOSIMA, Norihiko IZUMIMOTO
Ayumi TOBA, Kae ITO, Yasuko USHIO
Tomomi HAKAMADA, Yuki KISHIMOTO
Keita TAKAHASHI, Hirofumi MASUTOMI
Marie NAKAMURA, Suguru MABUCHI, Mari SASAKI

(1) Research

1) Cell biological mechanisms of atherogenesis
2) Mechanisms involved in dyslipidemia
3) Mechanisms of aging and age-related diseases
4) Undergraduate and postgraduate education in geriatrics

(2) Education

1) Undergraduate education of medical students with a particular emphasis on geriatrics

2) Development of research on aging and age-related diseases with a particular emphasis on atherosclerosis

(3) Clinical Services & Other Works

As a division of the Department of Internal Medicine, we are taking care of elderly patients who are better treated by us rather than by highly specialized experts both at the outpatient clinics and the ward of our university hospital. We also provide subspecialty service such as oriental herbal medicine, mononuclear cell transplantation for PAD, and dyslipidemia clinic.

(4) Publications

[Original Articles]

1. Shinozaki Shohei, Chang Kyungho, Sakai Michihiro, Shimizu Nobuyuki, Yamada Marina, Tanaka Tomokazu, Nakazawa Harumasa, Ichinose Fumito, Yamada Yoshitsugu, Ishigami Akihito, Ito Hideki, Ouchi Yasuyoshi, Starr Marlene E, Saito Hiroshi, Shimokado Kentaro, Stamler Jonathan S, Kaneki Masao. Inflammatory stimuli induce inhibitory S-nitrosylation of the deacetylase SIRT1 to increase acetylation and activation of p53 and p65. Sci Signal. 2014; 7(351); ra106

2. Ito Kae, Morikawa Suimei, Okamura Tsuyoshi, Shimokado Kentaro, Awata Shuichi. Factors associated with mental well-being of homeless people in Japan. Psychiatry Clin Neurosci. 2014.02; 68(2); 145-153

3. Takahashi Keita, Kishimoto Yuki, Konishi Tomokazu, Fujita Yasunori, Ito Masafumi, Shimokado Kentaro, Maruyama Naoki, Ishigami Akihito. Ascorbic acid deficiency affects genes for oxidation-reduction and lipid metabolism in livers from SMP30/GNL knockout mice. Biochim Biophys Acta. 2014.07; 1840(7); 2289-2298

Rehabilitation Medicine

Associate Professor Sadao MORITA
Graduate Student
Tomoko ARAKI,
Kashitarou HYOUDOU
Junying PIAO
Tomokazu MASAOKA
Chisato TAKADA
Maierhaba AILIXIDING
Kazuko KATSUKI
Takanori KOKUBUN
Takashi IKEDA
Masayuki HIRAO
Ryohei TAKADA

(1) Research

Research Subjects
1) 3-dimention motion analysis in activities of daily living
2) Balance and occlusion
3) Biomechanical analysis of artificial limb
4) Prevention of dislocation after total hip arthroplasty
5) Prevention of disuse bone atrop

(2) Lectures & Courses

Purpose of Education:
Rehabilitation medicine consists of physical, occupational and speech therapy. Main theme of rehabilitation medicine in graduate course is to study 3-dimentional motion analysis in activities of daily living and molecular biological analysis of disuse atrophy.

(3) Publications

[Original Articles]

1. Takada R, Jinnno T, Koga D, Hoshino C, Morita S, Ohkawa A. Effect of the Histem length on the anteversion and aligment of stem 2014.08; 40; 616-619

[Misc]

1. Jinnno T, Morita S, Aizawa J, Masuda T. Problems and a new definition of the angle of shoulder axial rotation The Japanese Journal of Rehabilitation Medicine. 2014.08; 51(8/9); 574-581

2. Morita S, Jinno T, Aizawa J, Masuda T. Motion analysis using magnetic sensor Journal of Clinical Rehabilitation. 2014.11; 23(11); 1116-1120

[Conference Activities & Talks]

1. Ryohei Takada, Tetsuya Jinno, Daisuke Koga, Masanobu Hirao, Chisato Hoshino, Yoshinori Asou, Sadao Morita, Takeshi Muneta, Atsushi Okawa. Risk factors related to dislocation after primary total hip arthroplasty. 15th European Federation of National Associations of Orthopaedics and Traumatology(EFFORT) Congress 2014.06.04 London UK

Gerodontology and Oral Rehabilitation

Professor MINAKUCHI Shunsuke
Associate Professor
OWATARI Tsuneto
Associate Professor
TOHARA Haruka
Junior Associate Professor

KOBAYASHI Ken-ichi
Junior Associate Professor

SEKITA Toshiaki
Assistant Professor
AKIBA Norihisa
Assistant Professor
KANAZAWA Manabu
Assistant Professor
KOMAGAMINE Yuriko
Assistant Professor
MOTOMURA Kazuo
Assistant Professor
MURATA Shino
Assistant Professor
NAKANE Ayako
Assistant Professor
OKUBO Mai
Assistant Professor
SATO Yusuke
Assistant Professor
TAKEUCHI Shuhei
Assistant Professor
WAKASUGI Yoko
Assistant Professor
IWAKI Maiko
Project Assistant Professor
HAMA Youhei
Graduate Student
AMAGAI Noriko
Graduate Student
ARAKIDA Toshio
Graduate Student
BABA Yuuya
Graduate Student
HIROKO Namai
Graduate Student
HORIE Tsuyoshi

Graduate Student
KAIDILIYA Yalikun
Graduate Student
KAJISA Eriko
Graduate Student
KAMOCHI Gou
Graduate Student
KUBOTA Chieko
Graduate Student
MACHIDA Nami
Graduate Student
MATSUBARA Mariko
Graduate Student
MATSUDA Yuhei
Graduate Student
MIURA Akemi
Graduate Student
MIYAYASU Anna
Graduate Student
MIZUNO Akane
Graduate Student
NAKAMURA Toshinari
Graduate Student
OBA Shoko
Graduate Student
ODA Ken
Graduate Student
OMURA Yuri
Graduate Student
OOWADA Gaku
Graduate Student
SATO Marie
Graduate Student
SHINOZAKI Hiromichi
Graduate Student
SHOJI Hirotaka
Graduate Student
SOEDA Hitomi
Graduate Student
SUZUKI Hiroyuki
Graduate Student
TAGASHIRA Itoe
Graduate Student
YAMADA Ayako
Graduate Student
YAMAZAKI Yasuhiro
Graduate Student
YOSHII Eiji
Graduate Student
YOSHIZAKI Taro
Graduate Student
ZHAO Hui Zi
Graduate Student
HIRAYAMA Daisuke
Graduate Student
JOU Ayami
Graduate Student
TANIMOTO Hiroyuki

Graduate Student
TANOUE Mariko
Graduate Student
YOSHIZUMI Yuu
Dental Resident
HOSHINO Yoshihito
Dental Resident
INOKUCHI Nobuhiro
Dental Resident
KAGAWA Tomonori
Dental Resident
KIKUCHI Keisuke
Dental Resident
Naohiko Hino
Dental Resident
TAKESHITA Shin
Dental Resident
YAMAGA Eijirou
Dental Resident
YAMAMOTO Shinta
Dental Resident
INOUE Minoru

(1) Research

1) Medical management of Elderly Patients During Dental Treatment
2) New Examination Method for Dry Mouth
3) Oral Stereognosis Ability in the Elderly
4) Threshold of Mucous Membrane under Denture Base in Elderly Oral Mucosa Patients
5) State of the art Lasers in Zirconia Prosthetic Processing and Pain-free Treatment
6) Denture Mobility
7) Deglutition in Elderly Patients Requiring Nursing Care
8) Eating and Swallowing Rehabilitation in Post-Oral Tumor Surgery Patients
9) Dysphagia of Medullary Infarction Patients
10) Dental Approaches to Dysphagia
11) Screening Methods of Silent Aspiration
12) Swallowing Dynamics and Brain Activity
13) Stress analyses of implant overdenture
14) Factorial analysis of complete denture prosthesis
15) Resilient denture lining material
16) CAD/CAM system for fabricating complete dentures
17) Evaluations of masticatory performance using color-changeable chewing gum

(2) Education

Given the increased health needs of an aging society, we aim to integrate diverse clinical specialties related to geriatric dental practice and to educate individuals of fundamental studies in each field. We emphasize a comprehensive approach to patient interactions by examining daily life functionality rather than focusing only on their diseases.
With regard to dysphagia, which can lead to aspiration pneumonia, we provide comprehensive education on causes, diagnostic methods, and rehabilitation options from a dentistry point of view. Since we regard rehabilitation as the medicine of daily living, we emphasize that dysphagia rehabilitation should be considered a method to ameliorate disability rather than diseases by introducing practical approaches in addition to factual knowledge.

(3) Clinical Performances

We manage the prosthodontic, special care and dysphagia rehabilitation departments.

(4) Publications

[Original Articles]

1. Yohei Hama, Manabu Kanazawa, Shunsuke Minakuchi, Tatsuro Uchida, Yoshiyuki Sasaki. Reliability and validity of a quantitative color scale to evaluate masticatory performance using color-changeable chewing gum. J. Med. Dent. Sci.. 2014; 61(1); 1-6

2. Yuriko Komagamine, Manabu Kanazawa, Yoshinori Kaiba, Yusuke Sato, Shunsuke Minakuchi. Reliability and validity of a questionnaire for self-assessment of complete dentures. BMC Oral Health. 2014; 14; 45

3. Kagawa Tomonori, Narita Noriyuki, Iwaki Sunao, Kawasaki Shingo, Kamiya Kazunobu, Minakuchi Shunsuke. Does shape discrimination by the mouth activate the parietal and occipital lobes? - near-infrared spectroscopy study. PLoS One. 2014; 9(10); e108685

4. Yoshihito Hoshino, Hiroshi Nakajima, Norihisa Akiba, Yasushi Hibino, Yuko Nagasawa, Yasunori Sumi, Shunsuke Minakuchi. Effect of composition of experimental fluorinated soft lining materials on bond strength to denture base resin. Dent Mater J. 2014; 33(5); 621-630

5. Ryuichi Sanpei, Haruka Tohara, Shuzo Fujita, Mashimi Yanagimachi, Kimiko Abe, Enri Nakayama, Motoharu Inoue, Mitsuyasu Sato, Satoko Wada, Koichiro Ueda. Video-endoscopic comparison of swallowing waxy rice mochi and waxy wheat mochi: improvement of a traditional Japanese food that presents a choking hazard. Biosci. Biotechnol. Biochem.. 2014; 78(3); 472-477

6. Method for detecting aspiration based on image processing-assisted B-mode video ultrasonography 2014; 1(1); 12-20

7. Yoko Wakasugi, Haruka Tohara, Ayako Nakane, Shino Murata, Shinya Mikushi, Chiaki Susa, Maho Takashima, Yoshiko Umeda, Ruriko Suzuki, Hiroshi Uematsu. Usefulness of a handheld nebulizer in cough test to screen for silent aspiration. Odontology. 2014.01; 102(1); 76-80

8. Yohei Hama, Manabu Kanazawa, Shunsuke Minakuchi, Tatsuro Uchida, Yoshiyuki Sasaki. Properties of a color-changeable chewing gum used to evaluate masticatory performance. J Prosthodont Res. 2014.04; 58(2); 102-106

9. Inokoshi M, De Munck J, Minakuchi S, Van Meerbeek B. Meta-analysis of bonding effectiveness to zirconia ceramics. J Dent Res. 2014.04; 93(4); 329-334

10. Kikuchi Keisuke, Akiba Norihisa, Sadr Alireza, Sumi Yasunori, Tagami Junji, Minakuchi Shunsuke. Evaluation of the marginal fit at implant-abutment interface by optical coherence tomography. J Biomed Opt. 2014.05; 19(5); 055002

11. Koji Hara, Haruka Tohara, Satoko Wada, Takatoshi Iida, Koichiro Ueda, Toshihiro Ansai. Jaw-opening force test to screen for Dysphagia: preliminary results. Arch Phys Med Rehabil. 2014.05; 95(5); 867-874

12. Inokoshi Masanao, Zhang Fei, De Munck Jan, Minakuchi Shunsuke, Naert Ignace, Vleugels Jozef, Van Meerbeek Bart, Vanmeensel Kim. Influence of sintering conditions on low-temperature degradation of dental zirconia. Dent Mater. 2014.06; 30(6); 669-678

13. Yuka Miura, Gojiro Nakagami, Koichi Yabunaka, Haruka Tohara, Ryoko Murayama, Hiroshi Noguchi, Taketoshi Mori, Hiromi Sanada. Method for detection of aspiration based on B-mode video ultrasonography. Radiol Phys Technol. 2014.07; 7(2); 290-295

14. Shinta Yamamoto, Manabu Kanazawa, Maiko Iwaki, Ana Jokanovic, Shunsuke Minakuchi. Effects of offset values for artificial teeth positions in CAD/CAM complete denture. Comput. Biol. Med.. 2014.09; 52; 1-7

15. Shoji Hirotaka, Nakane Ayako, Omosu Yumiko, Sawashima Karin, Teranaka Satoshi, Umeda Yoshiko, Inokuchi Nobuhiro, Takeuchi Shuhei, Kamikawatoko Yutaka, Minakuchi Shunsuke. The prognosis of dysphagia patients over 100 years old. Arch Gerontol Geriatr. 2014.09; 59(2); 480-484

16. Inokoshi Masanao, Poitevin Andre, De Munck Jan, Minakuchi Shunsuke, Van Meerbeek Bart. Bonding effectiveness to different chemically pre-treated dental zirconia. Clin Oral Investig. 2014.09; 18(7); 1803-1812

17. T Horie, M Kanazawa, Y Komagamine, Y Hama, S Minakuchi. Association between near occlusal contact areas and mixing ability. J Oral Rehabil. 2014.11; 41(11); 829-835

18. Motoko Watanabe, Yojiro Umezaki, Spica Suzuki, Anna Miura, Yukiko Shinohara, Tatsuya Yoshikawa, Tomomi Sakuma, Chisa Shitano, Ayano Katagiri, Yusuke Sato, Miho Takenoshita, Akira Toyofuku. Psychiatric comorbidities and psychopharmacological outcomes of phantom bite syndrome. J Psychosom Res. 2014.11;

19. Marie Saito, Manabu Kanazawa, Hidekazu Takahashi, Motohiro Uo, Shunsuke Minakuchi. Trend of change in retentive force for bar attachments with different materials. J Prosthet Dent. 2014.12; 112(6); 1545-1552

20. Kanazawa Manabu, Iwaki Maiko, Minakuchi Shunsuke, Nomura Naoyuki. Fabrication of titanium alloy frameworks for complete dentures by selective laser melting. J Prosthet Dent. 2014.12; 112(6); 1441-1447

21. Kanazawa M, Omura Y, Sato D, Takeshita S, Ochi M, Minakuchi S.. Randomized controlled clinical trial of immediately loaded madibular 2-implant over dentures retained by magnetic attachments: preliminary report J J Mag Dent. 2014.12; 23(2); 20-23

22. E Nakayama, H Tohara, T Hino, M Sato, H Hiraba, K Abe, K Ueda. The effects of ADL on recovery of swallowing function in stroke patients after acute phase. J Oral Rehabil. 2014.12; 41(12); 904-911

23. Shimoyama K, Sato Y, Minakuchi S. Influence of Dentures on Taste Perception in Complete Denture Wearers 91st General Session & Exhibition of the IADR.

24. Yamaga E, Sato Y, Minakuchi S.. Predictors for complete denture therapy. A structural equation modelling analysis 91st General Session & Exhibition of the IADR.

25. Okubo M, Sato Y, Kagawa T, Horie T, Minakuchi S.. Introduction of silicon models in practical training increases students' self-evaluation Journal of Dental Research. 91(Special issue B);

26. Mariko Tanoue, Manabu Kanazawa, Shin Takeshita, Shunsuke Minakuchi. Effects of clip materials on stress distribution to maxillary implant overdentures with bar attachments Journal of Prosthetic Dentistry.

[Misc]

1. Yohei Hama, Manabu Kanazawa, Yuriko Komagamine, Eijirou Yamaga, Shunsuke Minakuchi. A Simple Evaluation of Masticatory Performance for Whole Generations, from Children to the Elderly 2014.11; 33(11); 46-56

[Conference Activities & Talks]

1. M. Kanazawa. Determining the responsiveness of a new questionnaire: a pilot study on immediate loading of 2-implant overdentures.. McGill university, OHS Forum 2014.01

2. M. Kanazawa, Y. Omura, D. Sato, S. Takeshita, M. Ochi, S. Minakuchi. Randomized controlled clinical trial of immediately loaded mandibular 2-implant overdenture retained by magnetic attachments: preliminary report. . The 13th International Conference on Magnetic Applications in Dentistry 2014.03

3. M. Kanazawa. Determining the responsiveness of a new questionnaire: a pilot study on immediate loading of 2-implant overdentures.. Universite de Montreal, Journal club 2014.04

4. Mariko Tanoue, Manabu Kanazawa, Shin Takeshita, Ken Oda, Megumi Ochi, Yui Omura, Kaidiliya Yalikun, Shunsuke Minakuchi.. Stress analysis of the surrounding bar attachment in maxillary implant overdenture. The 123th Annual meeting of the Japan Prosthodontic SocietyS 2014.05.24

5. H. ZHAO, N. AKIBA, H. TANIMOTO, T. YOSHIZAKI, S. MINAKUCHI. Effect of temperature-responsive hydrogel on the viscoelasticity of denture adhesives. 92nd General Session & Exhibition of the International Association for Dental Research (IADR) 2014.06.26

6. Yuri Omura, Manabu Kanazawa, Daisuke Sato, Shin Takeshita, Mariko Tanoue, Ken Oda, Anna Miyayasu, Kaidiliya Yalikun, Shohei Kasugai, Shunsuke Minakuchi. . Immediate loading of mandibular two-implant overdenture retained by magnetic attachments: a preliminary report.. The 9th Scientific Meeting of the Asian Academy of Osseointegration 2014.07.05

7. Mariko Tanoue, Manabu Kanazawa, Shin Takeshita, Ken Oda, Yuri Omura, Kaidiliya Yalikun, Shunsuke Minakuchi. . Effect of material and number of the clip for bar attachment of the maxillary implant overdenture. The 9th Scientific Meeting of the Asian Academy of Osseointegration 2014.07.05

8. Haruka Tohara. Importance of the home-visit dysphagia rehabilitation in an aged society. The International Dysphagia Symposium Commemorating the 20th Anniversary of Japanese Society of Dysphagia Rehabilitation 2014.09.05 Tokyo, Japan

9. Mariko Tanoue, Manabu Kanazawa, Shin Takeshita, Ken Oda, Yui Omura, Kaidiliya Yalikun, Shunsuke Minakuchi.. Stress analysis of maxillary implant overdenture using bar attachments with metal and plastic clips. The European Association for Osseointegration' s 23rd Scientific Meeting 2014.09.24

10. M. Kanazawa. Randomized controlled trial of immediate loading of magnetic 2-implant overdentures.. Indonesia Japan Prosthodontic Society Joint Meeting 2014 2014.10

11. Hirayama D, Minakuchi S, Sakai Y, Akiba N, Kanazawa, M. Cushion type denture adhesive models' viscoelastic analyses by SPH method. Indonesia Japan Prosthodontic Society Joint Meeting 2014.10.28 Bali

12. Mariko Tanoue, Manabu Kanazawa, Shin Takeshita, Ken Oda, Yui Omura, Kaidiliya Yalikun, Shunsuke Minakuchi.. Analysis of stress concentration on the maxillary implant overdenture with bar attachments. Indonesia Japan Prosthodontic Society Joint Meeting 2014 2014.10.28

13. S. Minakuchi. CAD/CAM system for fabricating complete dentures. Indonesia Japan Prosthodontic Society Joint Meeting 2014 2014.10.30

14. M. Kanazawa, Y. Komagamine, Y. Hama, E. Yamaga, A. Yamada, S. Minakuchi. Evaluation of Masticatory Performance using Color Changeable Chewing Gum with Colorimeter and Colour Scale. Indonesia Japan Prosthodontic Society Joint Meeting 2014 2014.11 Indonesia

15. Jo A,Kanazawa M,Sato Y,Akiba N,Iwaki M,Minakuchi S,Ando S. Influence of the different impression methods for complete denture fabrication on Patient Reported Outcomes. 2014.11.09

[Awards & Honors]

1. 2014 Judson C. Hickey Scientific Writing Award in the Research Category, The Journal of Prosthetic Densistry, 2014.03

Laboratory Medicine

Professor Nobuo NARA
Associate Professor Shuji TOHDA
Research Associate Mai ITOH
Graduate Students Yusuke TAKAHASHI, Mika OHTAKA, Erika SHIRATORI, Shijun O

(1) Outline

Laboratory medicine is a field of research to develop analytical methods of pathophysiology of various diseases, new diagnostic tests, and diagnosis-supporting system using laboratory tests.

(2) Research

Our research subjects are as follows:
1) Mechanism of abnormal growth of acute leukemia cells
2) Molecular diagnostic tests for cancer and infectious diseases
3) Mechanism of abnormal growth of lymphoma cells
4) Detection of minimal residual leukemia or lymphoma cells

(3) Education

To graduates students, we provide opportunity to study and develop novel diagnostic tests using cellular and molecular biological techeque in our laboratories.
To undergraduate students, we give a lecture and practical training on laboratory medicine.

(4) Lectures & Courses

Main objective of Laboratory Medicine in the graduate course is to provide students opportunity to study analysis of pathophysiology, development of new diagnostic tests, and establishment of diagnosis-supporting system using laboratory tests. We focus on the analysis of pathophysiology of hematological malignancies and the development of molecular diagnostic tests for cancer and infectious diseases.

(5) Clinical Services & Other Works

We are performing laboratory tests for hematology, clinical chemistry, immunology, and microbiology in co-operation with doctors and technologists of clinical laboratory in University hospital. We give a lecture on laboratory tests at meetings of laboratory medicine-related societies.

(6) Clinical Performances

We are developing new diagnostic methods collaborating with various clinical departments. We are also supporting them in their diagnostic procedure.

(7) Publications

[Original Articles]

1. Nagao T, Kurosu T, Umezawa Y, Nogami A, Oshikawa G, Tohda S, Yamamoto M, Miura O. Proliferation and survival signaling from both Jak2-V617F and Lyn involving GSK3 and mTOR/p70S6K/4EBP1 in PVTL-1 cell line newly established from acute myeloid leukemia transformed from polycythemia vera. PLoS ONE. 2014; 9(1); e84746

2. Takahashi Y, Itoh M, Nara N, Tohda S. Effect of EPH-ephrin signaling on the growth of human leukemia cells. Anticancer Research. 2014; 34; 2913-2918

3. Mizuno N, Kanamori E, Saito H, Murakami N, Tojo N, Tohda S. A Case of Gray Platelet Syndrome Masked by Immune Thrombocytopenia at Presentation. Acta Haematol. 2014.02; 132(2); 163-165

4. Takebe I, Sawabe E, Ohkusu K, Tojo N, Tohda S. Catheter-related Bloodstream Infection by Tsukamurella inchonensis in an Immunocompromised Patient. J Clin Microbiol. 2014.03; 52(6); 2251-2253

5. Saito R, Takahashi R, Sawabe E, Koyano S, Takahashi Y, Shima M, Ushizawa H, Fujie T, Tosaka N, Kato Y, Moriya K, Tohda S, Tojo N, Koike R, Kubota T. First Report of KPC-2 Carbapenemase-Producing Klebsiella pneumoniae in Japan. Antimicrob Agents Chemother. 2014.05; 58(5); 2961-2963

[Misc]

1. Tohda S. NOTCH signaling roles in acute myeloid leukemia cell growth and interaction with other stemness-related signals. Anticancer Research. 2014; 34(11); 6259-6264

[Conference Activities & Talks]

1. Yuki Okuhashi, Yusuke Takahashi, Mika Ohtaka, Erika Shiratori, Shijun O, Mai Itoh, Shuji Tohda. Effects of GLI1 and CTNNB1 knockdown on NOTCH signaling of leukemia cells. The 56th American Society of Hematology 2014.12.06 San Francisco, USA

Critical Care Medicine

Associate Professor:
Chieko Mitaka (Critical Care Medicine)(1999.4.1 2015.3.31)
Koichi Nakazawa(Critical Care Medicine)(2014.4.1)

Assistant Professor:
Fumi Maruyama (Intensive Care Unit) (2014.4.1)
Takahiro Masuda (Intensive Care Unit) (2014.4.1)
Ken Shinoda (Intensive Care Unit) (2014.4.1 2015.3.31)
Takabumi Omori (Intensive Care Unit) (2014.4.1)
Takasi Hakusui (Anesthesiology) (2014.4.1 2015.3.31)
Yudai Yamamoto (Anesthesiology) (2014.4.1 2015.3.31)

Postgraduate students:
Mariko Senda (2014.4.1)

(1) Outline

Critical care medicine provides intensive care and treatment of critically ill patients. The role of intensivists take charge treatment of critically ill patients in the ICU. To treat critically ill patients, intensivists have to catch the changes of the patients' condition by monitoring and evaluation, and practice appropriate therapy. It is important that intensivists practice minute-to-minute titration therapy in cooperation with attending physician. The purpose of critical care medicine is to treat and improve the serious condition by maintaining the patients' hemodynamics to be stable.
Critical care medicine includes intensive care for various types of shock, acute respiratory distress syndrome/acute lung injury, sepsis, multiple organ dysfunction syndrome, abnormal acid-base balance, abnormal electrolyte, acute kidney injury, central nervous system dysfunction, and hospital-acquired infection, mechanical ventilation, pharmacological support, cardiopulmonary support system, blood purification, and nutrition support.

(2) Research

Our themes of research are derived from clinical questions in critically ill patients.
Basic research: We have made experiments by using rats.
1)Treatment for endotoxin-induced acute lung injury by poly (ADP-ribose) synthetase inhibitor
2)Effects of atrial natriuretic peptide on renal ischemia-reperfusion injury
3)Elucidation of mechanisms of polymyxin B hemoperfusion treatment in polymicrobial sepsis
Clinical research:
Multiple institutes randomized control trial: Japanese Trial for Acute Kidney Injury in Post-cardiovascular Surgery by Atrial Natriuretic Peptide (JAPAN study)
Eleven Japanese hospitals were included in this trial.

(3) Education

Undergraduate education
Lectures: Fourth-year medical students
1) Acute respiratory failure and mechanical ventilation (Mitaka)
2) Sepsis and multiple organ dysfunction syndrome (Mitaka)
3) Airwaay management (Nakazawa)
4) Respiratory physiology (Nakazawa)
5) Examination of critical care medicine
Clinical clerkship: Fifth-year and Sixth-year medical students
Critical care medicine is a branch of faculty of medicine which deals with monitoring and care of critically ill patients. Main objective of critical care medicine is to provide students opportunity to study diagnosis and treatment of critically ill patients in the intensive care unit (ICU). Students are taught on clinical practice in the ICU. Students take charge of 1-2 patients with attending physician and intensivist. Students check clinical data every morning and evening and make system-oriented presentation at ICU rounds.
Conference: Students are assigned to read recent articles of critical care medicine and make presentations by power point at the conference.
Residents: Residents are training in the ICU for 2 months. They study respiratory, circulatory, and metabolic management of critically ill patients. They learn how to use ultrasound and bronchoscope. In addition, they make a presentation of new articles of Intensive care Medicine.

(4) Clinical Services & Other Works

Intensivists are staying in the ICU, and take charge treatment of critically ill patients in the ICU.
Every morning, intensivists, nurses, and attending physicians get together, go round, and talk about the best treatment of the patients.

(5) Publications

[Original Articles]

1. Tulafu M, Mitaka C, Hnin Si MK, Abe S, Kitagawa M, Ikeda S, Eishi Y, Kurata S, Tomita M. Atrial natriuretic peptide attenuates kidney-lung crosstalk in kidney injury. J Surg Res. 2014; 186; 217-225

2. 38. Hnin Si MK, Mitaka C, Tulafu M, Abe S, Kitagawa M, Ikeda S, Eishi Y, Kurata S, Tomita M. Inhibition of poly(adenosine diphosphate-ribose) polymerase attenuates lung-kidney crosstalk induced by intratracheal lipopolysaccharide instillation in rats. Respir Res. 2014; 14; 126-133

3. Mitaka C, Fujiwara N, Yamamoto M, Toyofuku T, Haraguchi G, Tomita M. Polymyxin B-immobilized fiber column hemoperfusion removes endotoxin throughout a 24-hour treatment period. J Critical Care. 2014.03; 29; 728-732

4. Zhao D, Zhou J, Haraguchi G, Arai H, Mitaka C. Procalcitonin for the differential diagnosis of infectious and non-infectious systemic inflammatory response syndrome after cardiac surgery. J Intensive Care. 2014.06; 2; 35

5. Uzawa Y, Otsuji M, Nakazawa K, Fan W, Yamada Y. Derivation of recruitment function from the pressure-volume curve in an acute lung injury model. Respiratory Physiology & Neurobiology. 2014.09; (1);

6. Mitaka C, Hnin Si MK, Tulafu M, Qi Y, Uchida T, Abe S, Kitagawa M, Ikeda S, Eishi Y, Tomita M. Effects of atrial natriuretic peptide on inter-organ crosstalk among the kidney, lung, and heart in a rat model of renal ischemia-reperfusion injury. Intensive Care Medicine Experimental. 2014.11; 2; 28-44

7. Kunio Suzuki, Sonomi Tanaka, Tokujiro Uchida, Koichi Nakazawa, Koshi Makita. . Catecholamine release induces elevation in plasma lactate levels in patients undergoing adrenalectomy for pheochromocytoma. Journal of Clinical Anesthesia. 2014.12; 26; 616-622

[Conference Activities & Talks]

1. May Khin HS, Tulaf M, Abe S, Mitaka C. ANP attenuates contrast-induced nephropathy in rats. International session. 41th Japanese Society of Intensive Care Medicine 2014.02.28 Kyouto, Japan

2. Sugiura M, Mitaka C, Haraguchi G, Tomita M, Inase N. Polymyxin B-immobilized fiber column hemoperfusion in treatment for septic shock contributes to constrict peripheral blood vessels.. 27th Annual congress of European Society of Intensive Care Medicine 2014.09.28

3. Mariko Senda, Wei Fan, Koichi Nakazawa, Koshi Makita. Effects of inhaled aerosolized insulin on acutely injured lungs under normoglycemia: insulin may contribute to enhance alveolar liquid clearance through epithelial sodium channel expression.. 27th Annual congress of European Society of Intensive Care Medicine 2014.10.01 Barcellona, Spain

Liaison Psychiatry and Palliative Medicine

Associate Professor Eisuke MATSUSHIMA
Junior Associate Professor Miho MIYAJIMA
Tokunin Assistant Professor
Hospital Staff
Secretary Kyoko NAKAGAWA
Graduate Student
HirofumiNAKAMURA, Makiko KOIKE, Ako HANEKAWA, Mare NISHIURA, Mariko KOBAYASHI, Yuhko KOHNO, Nao NAKAYAMA,Satsuki WATANABE,Aya YAMASITA,Kanako ICHIKURA, Rie OMOYA,Takamasa NODA,Toshimi TAKANO,Noriko ISHIDUKA,Saho WADA, Noriko YOSHIDA,Toshi KURIYAMA,Shino UMEZAWA,Hiroshi KOBO,Yoko SUZUKI,Ayasa MATSUDA, Natsumi NAKAMURA.
Research Student Okihiko AIHARA, Ryuho IBARAKI.

(1) Outline

The purpose of the section is to help understanding characteristics of psychosocial distress in patients with physical and mental disorders from a comprehensive viewpoint. Objects are mainly physical patients accompanied with pain, anxiety, depressive mood and so on. Students study these patients' symptoms, how to diagnose, practice of treatment and methods of preventive measures.

(2) Research

1) Assessment of mental state in cancer and other physical patients using written questionnaire
2) Research on quality of life (QOL) in cancer patients and their families
3) Investigation cognitive function of patients with organic disorders (SLE, diabetics, and so on) undergoing a battery of psychometry tests and neuroimaging examinations
4) Explanation for the relationship between physical symptoms and mental states in patients with psychosomatic diseases including chronic pain and irritable bowel syndrome (IBS)
5) Examination for physiological phenomenon of psychiatric patients using eye mark recorder, electroencephalogram (EEG) and functional MRI (fMRI)

(3) Clinical Services & Other Works

Psychosomatic clinic provides consultation-liaison psychiatry services at the request of the treating medical or surgical staffs. Patients accompanied with insomnia, anxiety, depressive mood and delirium are treated with psychotherapy and prescription medicines.

(4) Publications

[Original Articles]

1. Hirose Y, Hara K, Miyajima M, Matsuda A, Maehara T, Hara M, Matsushima E, Ohta K, Matsuura M. Changes in the duration and frequency of deviant stimuli engender different mismatch negativity patterns in temporal lobe epilepsy. Epilepsy Behav. 2014; 31; 136-142

2. Kono Y, Matsushima E, Uji M. Psychometric properties of the 25-item Work Limitations Questionnaire in Japan: factor structure, validity, and reliability in information and communication technology company employees. J Occup Environ Med. 2014; 56(2); 184-188

3. Terauchi M, Hiramitsu S, Akiyoshi M, Owa Y, Kato K, Obayashi S, Matsushima E, Kubota T. . Effects of the Kampo formula Tokishakuyakusan on headaches and concomitant depression in middle-aged women. Evid Based Complement Alternat Med . 2014;

4. Work stress among nurses engaged in palliative care on general wards.. Work stress among nurses engaged in palliative care on general wards. Psycho-oncology. 2014; 13;

5. Nakamura H, Watanabe N, Matsushima E. . Structual equation model of factors related to quality of life for community-dwelling schizophrenic patients in Japan. Int J Ment Health Syst. 2014; 8; 32

6. Umezawa S, Fujisawa D, Fujimori M, Ogawa A, Matsushima E, Miyashita M. . Prevalence, associated factors and source of support concerning supportive care needs among Japanese cancer survivors. Psychooncology.. 2014; 6;

7. OKUMURA Yasuyuki., ICHIKURA Kanako. Efficacy and acceptability of group cognitive behavioral therapy for depression: a systematic review and meta-analysis. Journal of affective disorders, . 2014; 164; 155-164

8. Mare Nishiura, Atsushi Tamura, Hideaki Nagai and Eisuke Matsushima. Assessment of sleep disturbance in lung cancer patients: Relationship between sleep disturbance and pain, fatigue, quality of life, and psychological distress Palliative and supportive care. 2014; 1-7

9. Makiko Koike, Hiroki Hori, Takeshi Rikiishi, Akira Hayakawa, Naoko Tsuji, Tsukasa Yonemoto, Hideko Uryu and Eisuke Matsushima. Development of the Japanese version of the Minneapolis-Manchester Quality of Life Survey of Health - Adolescent Form (MMQL-AF) and investigation of its reliability and validity. Health and Quality of Life Outcomes. 2014; 12; 127

10. Ogawa S, Fujii T, Koga N, Hori H, Teraishi T, Hattori K, Noda T, Higuchi T, Motohashi N, Kunugi H. . Plasma L-tryptophan concentration in major depressive disorder: new data and meta-analysis. J Clin Psychiatry.. 2014; 75(9); 906-915

11. Takizawa R, Fukuda M, Kawasaki S, Kasai K, Mimura M, Pu S, Noda T, Niwa S, Okazaki Y. Joint Project for Psychiatric Application of Near-Infrared Spectroscopy (JPSY-NIRS) Group. Neuroimaging-aided differential diagnosis of the depressive state. Neuroimage. . 2014.01; 85(1); 498-507

12. Ota M, Noda T, Sato N, Hattori K, Teraishi T, Hori H, Nagashima A, Shimoji K, Higuchi T, Kunugi H. . Characteristic distributions of regional cerebral blood flow changes in major depressive disorder patients: a pseudo-continuous arterial spin labeling (pCASL) study. J Affect Disord.. 2014.08; 165; 59-63

13. Fujisawa D, Umezawa S, Basaki-Tange A, Fujimori M, Miyashita M.. Smoking status, service use and associated factors among Japanese cancer survivors—a web-based survey Support Care Cancer. 2014.12; 22(12); 3125-3134

14. Go Taniguchi, Miho Miyajima, Masako Watanabe, Yoshiko Murata, Daichi Sone, Yutaka Watanabe, Mitsutoshi Okazaki, Motonori Kobayashi-Kimura, Masaaki Kato, Teiichi Onuma. . Nonconvulsive status epilepticus in the elderly associated with newer antidepressants used at therapeutic doses: A report of three cases. Epilepsy Behav. (accepted).

[Conference Activities & Talks]

1. Nakagawa, J., Miyauchi, C. M., Fan, H., Takahashi, M., Okada, R., Matsushima, E., and Matsuda, T.. The value of a gift is modulated by a sender' s attractiveness.. Presented at the HBM 2014, 20th Annual Meeting of the Organization on Human Brain Mapping 2014.06.09

2. Suzuki Y, Miyajima M, Ohta K, Yoshida N, Okumura M, Nakamura M, Sawada Y, Sasano T, Kawara T, Matsuura M, Matsushima E. . Cardiac autonomic nervous system changes after electroconvulsive therapy in depression. 36 th Annual International Conference of the IEEE Engineering in Medicine and Biology Society.. 36 th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. 2014.08.26

3. Nakagawa, J., Takahashi, M., Okada, R., Sue, A., Watanabe, M., Matsushima, E., and Matsuda, T.. Judgment of the sender' s attractiveness modifies the value of a present.. Presented at the The 37th Annual Meeting of the Japan Neuroscience Society, 2014.09.12

4. K. Fujiwara, E. Abe, Y. Suzuki, M. Miyajima, T. Yamakawa, M. Kano, T. Maehara, K. Ohta and T.Sasano. Epileptic Seizure Monitoring by One-Class Support Vector Machine. APSIPA ASC 2014.12.09 Cambodia

5. Toshitaka Yamakawa, Koichi Fujiwara, Miho Miyajima, Erika Abe, Manabu Kano, Yuichi Ueda. "Real-Time Heart Rate Variability Monitoring Employing a Wearable Telemeter and a Smartphone". APSIPA ASC 2014.12.09 Cambodia

Pharmacokinetics and Pharmacodynamics

Professor Masato Yasuhara
Associate Professor Masashi Nagata
Research student Yuri Kimura
Secretary Takako Iguchi

(1) Research

1) Investigation on the membrane transport of drugs
2) Kinetics of drug action in disease states
3) Therapeutic drug monitoring and clinical pharmacokinetics
4) Development of new drug delivery systems

(2) Education

Department of Pharmacokinetics and Pharmacodynamics is in charge of the education of pharmacokinetics and pharmacodynamics for the establishment of safe and effective drug therapy. In the graduate course, the lecture on the recent progress of the pharmacokinetic analysis and drug transport will be given. Students will have the practice of pharmacokinetic analysis and animal experiments.

(3) Publications

[Books etc]

1. Masato Yasuhara. Terminology of Pharmaceutical Health Care and Sciences. Jiho, 2014.03

[Conference Activities & Talks]

1. Masato Yasuhara. Investigation on the outcome of team medical care and community medicine by pharmacists. 2014 Symposium by Health and Labor Sciences Research Grant 2014.02.16 Tokyo

2. Masato Yasuhara. Challenges to intractable diseases. The 134th Annual Meeting of Pharmaceutical Society of Japan 2014.03.28 Kumamoto

3. Masashi Nagata, Yasuyoshi Ishiwata, Masato Yasuhara, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara. PK-PD modeling and simulation of sunitinib-induced thrombocytopenia . The 29th Annual Meeting of The Academy of Pharmaceutical Science and Technology, Japan 2014.05.20 Omiya

4. Yasuyoshi Ishiwata, Masashi Nagata, Hiromitu Takahashi, Daisuke Tomizawa, Yuki Aoki, Reiji Miyawaki, Tomohiro Morio, Masato Yasuhara . Therapeutic drug moitoring of busulfan after once a day dosing for conditioning of BMT. The 24th Annual Meeting of the Japanese Society of Pharmaceutical Care and Sciences 2014.09.27 Nagoya

5. Nagata M. Clarification of mechanism an risk factors of adverse drug reactions using pharmacokinetic-pharmacodynamic analysis. The 24th Annual Meeting of Japanese Society of Pharmaceutical Health Care and Sciences 2014.09.28 Nagoya

6. M. Nagata, Y. Ishiwata, M. Yasuhara, K. Saito, Y. Fujii, K. Kihara. PK-PD modeling of sunitinib-induced thrombocytopenia in patients with renal cell carcinoma. 2014 AAPS Annual Meeting and Exposition 2014.11.02 San Diego, USA

Medical Education Research and Development

Professor Yujiro TANAKA
Junior Associate Professor Makoto TAKAHASHI
Junior Associate Professor Yasuhiro ITSUI
Junior Associate Professor Toshifumi KUDO
Junior Associate Professor Eriko OKADA
Senior Resident Takako WATANABE

(1) Outline

Department of General Medicine was established in 2000, when Prof. Yujiro Tanaka assumed the role of chairman of the department. Since then, our aim has been to coordinate and support a wide range of new innovations for the department of medicine and its affiliated hospitals. Accordingly, we launched the following projects to carry out our mission; 1) Designing a new postgraduate clinical training program for TMDU affiliated hospitals, 2) Forming a patient support system including social casework, 3) Establishing the Center for Cell Therapy, and 4) Reforming undergraduate medical education.
In response to the expansion of our activities, we have had some reforms in our organizations. 1) We founded the Center for Postgraduate Medical Education in 2002. (Director: Prof. Tanaka. Associate Director: Dr. Masanaga Yamawaki/former, Dr. Yoshihito Momohara/former, and Dr. Makoto Takahashi/previous) 2) In 2002, we also established the Center for Health and Welfare. And two years later in 2004, it was developed into an independent center as the Department of Medicine when Dr. Masayoshi Shichiri was appointed as the Director. 3) The Center for Cell Therapy, which was first established as a part of the Blood Transfusion Department in March, 2001, became an independent organization in 2003. Then Dr. Tomohiro Morio became the director. 4) Prof. Tanaka became a member of the Board of Education and worked at the committee for curriculum renovations in the Department of Medicine. Then he became the chair of the Education Committee in 2004.
In addition to the curriculum reforms, the Department of General Medicine has been in charge of early clinical training, PBL implementation, supervising patient-doctor communication education, OSCE (objective structured clinical examination) preparation, and BSL (bedside learning). We have also promoted educational alliances with Harvard University since 2002 and with Imperial College, London since 2003.

As mentioned above, a couple of years after their launch, the Center for Health and Welfare and the Center for Cell Therapy became independent from the Department of General Medicine. Meanwhile, new working groups were formed within the department in 2004; the Working Group for Ward Management and the Safety Management Committee. The Department of General Medicine also devised an evaluation system for the residency training program (EPOC), which was later adopted as a national online evaluation system for postgraduate clinical training. We are working in close cooperation with Center for Interprofessional Education which we took in part of its establishment to materialize the interprofessional education introduced due to a revision of new curriculum in 2011.

(2) Research

Research on continuing education in clinical EBM (Tanaka)
Although the theory of EBM (Evidence-Based Medicine) has become common knowledge, there are many practical problems yet to be solved. Research on teaching and assessment techniques for under-and post-

graduate clinical training are ongoing.

Medical risk education using the HAZOP method-through analyzing basic surgical procedure (Takahashi)
Structured risk analysis methods, HAZOP, are applied for medical risk management. We have also developed computer software for risk analysis with HAZOP. As a method of medical education for medical risk as well, HAZOP is a comprehensive method that is effective in reducing medical errors.

Review of clinical training in postgraduate clinical education (Takahashi)
The performance evaluation system using EPOC, which is used in 60% of educational hospitals in Japan, was primarily developed at Tokyo Medical and Dental University. We applied this system to a clerkship program to compare its educational effect with that of a residency program.

General research on medical education (Tanaka, Takahashi, Itsui, Kudou, Okada)
We are developing a comprehensive research project regarding postgraduate medical education, primary care in rural regions, development of clinical competence, and a new PBL system.

(3) Education

Undergraduate Education
As a division, which is responsible for the education of students and residents, our primary goal is to foster doctors who have both a 'patient-centered perspective as a specialist' and 'up-to-date knowledge as a generalist'. To achieve our goal, we are designing and offering a continuing medical educational (CME) program for clerkship students, emphasizing on educational systems spreading among multiple departments. Since we think it is crucial to foster medical prospective with a patient-centered perspective, we introduced an early exposure course (MIC: Medical Introductory Course) for the 1st and 2nd year medical students, as well as some medicine oriented English courses, including a special course titled "Language and Philosophy of Western Medicine" regarding some of the needs of this globalized era of medicine. In addition, we are managing a training course for simulated patients who can contribute to medical education cooperating with the International Center for Medical Education at the University of Tokyo. To improve the quality of clinical training, we are currently developing an evaluation system for tutors and trainers.

Postgraduate Education (Clinical Training)
Our department has offered the postgraduate clinical training since 2004 according to the new national residency system in Japan. We have also played an important role in developing the online evaluation system for postgraduate clinical training (EPOC), which is used in 60% of education hospitals in Japan. Results of the questionnaire in Match, 2013 showed one of the highest satisfaction rate among all national universities.

Postgraduate Education (Master's degree courses)
We have been offering master's degree courses in Medical Administration since this MMA program started in 2004, and were in charge of two courses this year, "Human resources management" and "Leadership in the medical care."

(4) Clinical Services & Other Works

Second Opinion (Itsui)
Our hospital is open to the public who ask for second opinions about their recommended treatments so that we can continue to contribute to the provision of safe and high-quality advanced medical technology. Over 300 consultation cases have been performed for patients coming from other hospitals nationwide. The purpose of this section is to assist the patients to exercise their right of self-determination and to be informed of new treatments and diagnostic tests. To provide a qualified second opinion, we have organized the network of specialists in TMDU.

Patient Safety (Kudou)
Dr.Ooka is the General Risk Manager of our university hospital, and our department regularly organizes seminars and training courses. In collaboration with other departments (e.g., Skills Laboratory Center, Infectious Control Committee, etc.), we are working for greater safety and quality of healthcare.

(5) Publications

[Original Articles]

1. Igari K, Kudo T, Uchiyama H, Toyofuku T, Inoue Y.. Quantitative evaluation of microvascular dysfunction in peripheral neuropathy with diabetes by indocyanine green angiography. Diabetes Res Clin Pract.. 2014.04; (1); 121-125

2. Igari K, Kudo T, Toyofuku T, Jibiki M, Inoue Y.. Comparison between endovascular repair and open surgery for isolated iliac artery aneurysms. Surg Today. 2014.07;

3. Igari K, Kudo T, Uchiyama H, Toyofuku T, Inoue Y.. Early experience with the endowedge technique and snorkel technique for endovascular aneurysm repair with challenging neck anatomy. Ann Vasc Dis.. 2014.07; (1); 46-51

4. Igari K, Sugano N, Kudo T, Toyofuku T, Jibiki M, Inoue Y, Iwai T.. Surgical treatment for popliteal artery entrapment syndrome. Ann Vasc Dis.. 2014.07; (1); 28-33

5. Igari K, Kudo T, Uchiyama H, Toyofuku T, Inoue Y.. Intraarterial injection of indocyanine green for evaluation of peripheral blood circulation in patients with peripheral arterial disease. Ann Vasc Surg.. 2014.07; (5); 1280-1285

6. Igari K, Kudo T, Uchiyama H, Toyofuku T, Inoue Y.. Indocyanine green angiography for the diagnosis of peripheral arterial disease with isolated infrapopliteal lesions. Ann Vasc Surg.. 2014.08; (6); 1479-1484

[Conference Activities & Talks]

1. Medical risk education using a process hazard analysis: a preliminary report. 2014.07.18

2. KUDOU Toshifumi. All About Stent Graft. ENDOLOGIX Intuitrak Powerlink System. Complex Cardiovascular Therapeutics (CCT) 2014.10.30 Kobe.

3. Watanabe Takako, Asahina Yasuhiro, Nakagawa Mina, et al.. Emergence or selection of resistant associated variant immediately after initiation of the therapy is predictive for failure of direct acting antiviral therapy: ultra-deep sequencing analyses for serial time points. 2014.11.11

Acute Critical Care and Disaster Medicine

Professor Yasuhiro Otomo

(1) Outline

1. Purpose of Education
We, the department of acute critical care and disaster medicine, investigate following wide range of fields, such as the search for mechanisms of biological response to severe stresses, the development of strategy for multiple organ dysfunction from the view of intensive care medicine, basic and clinical research about trauma, trauma preventive medicine and disaster medicine. Our targets of research are practical and cutting edge to work not only as a medical scientist but as a researcher for government projects.

2. Research Subjects
Basic research of the mechanism of multiple organ dysfunction following hemorrhagic/septic shock
Development of strategy for multiple organ dysfunction
Basic and clinical research of multiple trauma
Trauma epidemiology and trauma preventive medicine
Disaster medicine
Clinical research of cerebrovascular disease on acute phase

3. Clinical Services
Our emergency center was authorized to hold the 21st level I center in Tokyo on April 1, 2007. We give treatments over 8000 patients annual who are under critical condition like multiple organ dysfunction, severe sepsis and septic shock, life-threatening trauma as well. We also contribute to medical services, rushing to the emergency scene by a Doctor-Car/Helicopter at times.

(2) Publications

[Original Articles]

1. Endo Akira, Shiraishi Atsushi, Aiboshi Junichi, Hayashi Yoshiro, Otomo Yasuhiro. A case of purpura fulminans caused by Hemophilus influenzae complicated by reversible cardiomyopathy. J Intensive Care. 2014; 2(1); 13
2. Burkle Frederick M Jr, Egawa Shinichi, MacIntyre Anthony G, Otomo Yasuhiro, Beadling Charles W, Walsh John T. The 2015 Hyogo Framework for Action: cautious optimism. Disaster Med Public Health Prep. 2014.06; 8(3); 191-192
3. Otomo Yasuhiro, Burkle Frederick M. Breakout session 1 summary: frameworks and policies relating to medical preparedness and health management in disasters. Disaster Med Public Health Prep. 2014.08; 8(4); 359-360
4. Anan Hideaki, Akasaka Osamu, Kondo Hisayoshi, Nakayama Shinichi, Morino Kazuma, Homma Masato, Koido Yuichi, Otomo Yasuhiro. Experience from the Great East Japan Earthquake Response as the Basis for Revising the Japanese Disaster Medical Assistance Team (DMAT) Training Program. Disaster Med Public Health Prep. 2014.11; 1-8

5. Fukuike S,Otomo Y. Cardiac Arrest Cases and Automated External Defibrillator Use in Railroad Stations in Tokyo International Journal of Clinical Medicine . 2014.11; Volume 5(Number 20); 1328-1336

[Conference Activities & Talks]

1. Otomo Y. Special Lecture The issues on Trauma surgery in Japan What we have done, What we should do next. The 2014 Annual Meeting of the Taiwan Surgical Association 2014.03.16

2. Otomo Y. 2nd Joint Scientific Congress of KSACS and JSACS. 6th Annual Congress of Korean Society of Acute Care Surgery 2nd Joint Scientific Congress of KSACS and JSACS (Seoul) 2014.04.12

3. Murata K,Otomo Y. How to Bring up Young Acute Care Surgeon? Our Attempt in Tokyo Medical and Dental University. 6th Annual Congress of Korean Society of Acute Care Surgery 2nd Joint Scientific Congress of KSACS and JSACS (Seoul) 2014.04.12

4. Kojima M,Murata K, Kaji M, OtomoY. Surgical Treatment for Spontaneous Esophageal Rupture . 6th Annual Congress of Korean Society of Acute Care Surgery 2nd Joint Scientific Congress of KSACS and JSACS (Seoul) 2014.04.12

5. Yoshikawa K,Shiraishi A, Otomo Y. Doctor ambulance dispatch was an independent predictor of favorable outcome in ROSC,survival and functional outcome.. Resuscitation 2014 2014.05.16

6. Review of the Hyogo Framework for Action 2005-2015 Frameworks and policies relating to medical preparedness and health management in disasters Co-Lead. International Symposium for Disaster Medical and Public Health Management 2014.05.21

7. Otomo Y. Multi-organ damage control strategies Vascular Damage Control: Ligation, shunts and other maneuvers. 15th European Congress of Trauma & Emergency Surgery 2nd World Trauma Congress (Frankfurt) 2014.05.25 Frankfurt

8. Otomo Y. Multi-organ damage control strategies. 15th European Congress of Trauma & Emergency Surgery 2nd World Trauma Congress (Frankfurt) 2014.05.25 Frankfurt

9. Ichinose T,Shiraishi A,Yoshiyuki A,Otomo Y. Transarterial embolization may be an alternative to open surgery in low severerity abdominal trauma cases: A report from Japan Trauma Data Bank. 15th European Congress of Trauma & Emergency Surgery 2nd World Trauma Congress (Frankfurt) 2014.05.25 Frankfurt

10. Kojima M,Shiraishi A,Otomo Y. The use of laparoscopy in Japanese trauma patients with abdominal injury. 15th European Congress of Trauma & Emergency Surgery 2nd World Trauma Congress (Frankfurt) 2014.05.25 Frankfurt

11. Shiraishi A,Nakatsutsumi K,Otomo Y. Is CT scan the tunnel of death in most severely injured trauma victims?. 15th European Congress of Trauma & Emergency Surgery 2nd World Trauma Congress (Frankfurt) 2014.05.26 Frankfurt

12. Yoshikawa S,Shiraishi A,Kojima M,Shoko T,Otomo Y. Measurement of serum lactate accurately predicts mortality in patients with pelvic fracture.. 15th European Congress of Trauma & Emergency Surgery 2nd World Trauma Congress (Frankfurt) 2014.05.26 Frankfurt

13. Otomo Y. Who cares for the trauma patient around the world? The Japanese System. 15th European Congress of Trauma & Emergency Surgery 2nd World Trauma Congress (Frankfurt) 2014.05.27 Frankfurt

14. Hondo K,Shiraishi A,Saida F,Otomo Y. Mortality of the severely injured patient with DCS hasn't improved in Japan.. 15th European Congress of Trauma & Emergency Surgery 2nd World Trauma Congress (Frankfurt) 2014.05.27 Frankfurt

15. Haruta K,Shiraishi A,Yoshiyuki A,Otomo Y. Laparotomy after Intra-aorta balloon occlusion (IABO) is hazardaous in patients with severe abdominal trauma: A report from Japan Trauma Data Bank. 15th European Congress of Trauma & Emergency Surgery 2nd World Trauma Congress (Frankfurt) 2014.05.27 Frankfurt

16. Otomo Y. oral presentation [disaster-1] . The 17th Japanese Society for Emergency Medicine 2014.06.01

17. Otomo Y. ASEM: Natural Disaster in Asia: Impact to Emergency Physician and Disaster Preparedness Japanese disaster medical system - An experience from the Japan tsunami disaster and the nuclear power plant accident. International Conference on Emergency Medicine (ICEM) 2014 in Hong Kong 2014.06.13

18. Otomo Y. PPTC2014: Plenary Session 1 What's New after Japan Earthquake. The second Pan-Pacific Trauma Congress 2014 in Seoul 2014.06.27 Seoul

19. Otomo Y. Invited lecture Enhancing Disaster Awarness on the CBRNE Medical Response to NBC Terrorism in Japan. 5th International Conference on Disaster Nuesing, Daejeon, Korea 2014.09.04

20. Otomo Y. AAST Invited Discussant Overwhelming tPA Release, not PAI-1 Degradation, is Responsible for Hyperfibrinolysis in Severely Injured Trauma Patients. the 73th annual meeting of American Association for the Surgery of Trauma 2014.09.11

21. Morishita K,Ueno A,Aiboshi J,Otomo Y,Coimbra R. Symposium 3-1 Vagus nerve stimulation: the cholinergic anti-inflammatory pathway.. The 42th Japanese Association for Acute Medicine 2014.10.29 Fukuoka

22. Otomo Y. Invited lecture Disaster Medical Service Symposium of Seoul National University Hospital Lessens Learned from the Japan Tsunami Disaster. Disaster Medical Service Symposium of Seoul National University Hospital 2014.12.08 Seoul

23. Otomo Y. Invited lecture 10 Years Tsunami Phuket: The Next Tsunami Zero Lost Lessens Learned from the Japan Tsunami Disaster. 10 Years Tsunami Phuket: The Next Tsunami Zero Lost 2014.12.11 Phuket,Thailand

Clinical Oncology

Professor Satoshi Miyake
Associate Professor Shinya Oooka
Assistant Professor Hiroyuki Sakashita

(1) Outline

Department of Clinical Oncology was established in May 2012 to promote the field of palliative medicine and cancer chemotherapy according to “Training Program for Next Generation Specialists to Promote Cancer Therapy”. As for the education in medical school, we are involved in the course of Hematology-Oncology block and have a class of palliative medicine in the third year grade. In addition, we have a class of clinical ethics mainly focusing on the end-of-life care. As for the post-graduate education, we organized the “Training Program for Next Generation Specialists to Promote Cancer Therapy”.

(2) Research

1)Application of palliative care when the patient is diagnosed as cancer.
2)Improvement of QOL in the end-of -life care of cancer patients.
3)Communication skills in the team health care.
4)Multi-institutional research in pancreatic cancer treatment.
5)The role of biomarkers for newly developed anti-cancer drugs in lung cancer.

(3) Clinical Services & Other Works

Department of Clinical Oncology manages Cancer Center of the medical school hospital.
There are five divisions below.
1)Division of palliative medicine
2)Division of cancer chemotherapy
3)Division of cancer registory
4)Division of coordination of cancer treatment
5)Division of cancer consultation and support

Dentistry for Persons with Disabilities

Associate Professor
Osamu SHINOZUKA

Junior Associate Professor (Part-time)
Minoru INADA
Goro SEKIGUCHI
Hiroyuki ISHIKAWA
Yohei TAKEUCHI
Syohei TAMURA
Moriyuki NAKAMURA

Assistant Professor
Yasuka KUSUMOTO

Hospital Staff
Tomo SUZUKI
Naoki HAYASHI
Taiji HOSHIAI
Yousuke KINOSHITA

Graduate International Research Student
Hirotoshi YAMAWAKI
Shohei TAKAHASHI
Visiting Clinical
Junior Associate Professor
Seiji SAKURAI

(1) Research

1) Formation of oral biofilm
2) Elimination of oral biofilm of persons with disabilities
3) Oral health status of the medically compromised patient
4) Oral management of genetic syndrome

(2) Lectures & Courses

Our department was started as a graduate course of the special dentistry section on April, 1999. The sections are the dentistry for persons with disabilities and medically compromised individuals .
The main objective of this course is to provide the opportunity for students to understand the outline of the reconstruction of functional and esthetic disorders of oral and/or maxillofacial areas by means of the high-advanced dental cares for patients with special needs.

(3) Clinical Performances

The clinical purpose of our department is to treat oral problems of special patients who are unable to receive normal dental care by reason of a disability which may be physical, mental, medical, or emotional, or combination of any of these under using behavior management and systemic support.
For example,
1) The patients requiring behavior management are physically disabled, mental retardation, autistic spectrum disorder, etc.
2) The patients requiring systemic support are internal impediment, dental phobia, etc.

(4) Publications

[Original Articles]

1. Yasuka Kusumoto, Osamu Shinozuka. Oral findings and dental treatment in a patient with Dandy-Walker syndrome: a case report. Special Care in Dentistry. 2014; 34(3); 151-155

[Conference Activities & Talks]

1. Yasuka Kusumoto, Osamu Shinozuka, Haruhisa Fukayama. Prevention of postdental treatment infections in a patient with agammaglobulinaemia. Journal of Disability and Oral Health . 22nd Congress IADH 2014.10.02 Berlin

General Dentistry

Associate Professor Shigeru ODA
Junior Associate Professor Masayuki HIDESHIMA
Junior Associate Professor Satoko OHARA
Junior Associate Professor Ken-ichi TONAMI
Assistant Professor Azusa YAMADA
Assistant Professor Maiko Iwaki
Assistant Professor Sachi UMEMORI
Assistant Professor Kanako NORITAKE
Hospital Staff Ayaka INAKAZU
Hospital Staff Yuko MITSUMA
Hospital Staff Mina GOTO
Hospital Staff Naoko BANDO
Hospital Staff Yasuyuki KIMURA
Hospital Staff Akiko ENDO

(1) Outline

Recent dentistry is sectionalized into various specialized fields of research and education. On the other hand, as a general practitioner, a dentist must possess not only integrated knowledge and skills of all the fields but also should be competent to apply such generalized knowledge and skills to individual patients. The department of General Dentistry performs researches and education for practicing such general and holistic dentistry. General dentistry related to clinical and affective education for dental students and residents. Therefore, the research theme includes dental education as well as oral diagnosis and general dentistry, cooperating with the department of Educational System in Dentistry, Behavioral Dentistry and Educational Media Development. Researches for sleep apnea syndrome have been also conducted in association with Dental Clinic for Sleep Disorders. The clinic of department of General Dentistry is Oral Diagnosis and General Dentistry which missions in the Dental Hospital are initial diagnosis for new outpatients and general dental practice. Clinics of General Dentistry 1 and 2, where dental students and residents are trained, also relate to the department of General Dentistry.

(2) Research

Recent research themes are listed below.
1. Study for structure of health problems and treatment planning for dental patients.
2. Study for verification and improvement of oral diagnosis.
3. Study for dental education for dental students and residents.

(3) Education

The educational objective of General Dentistry is that the students/residents acquire transversal academic framework of dental knowledge and skills and competency to provide patients with personalized treatment.

(4) Lectures & Courses

1. Introduction to the Behavioral Science. (For the 2nd-year dental students)
2. Holistic Oral Diagnosis. For the (5th-year dental students)
3. Comprehensive Clinical Training Phase1, Phase 2. (For the 5th and 6th-year dental students)
4. Clinical training (For the dental residents)

(5) Clinical Services & Other Works

The clinic of department of General Dentistry is Oral Diagnosis and General Dentistry. In the clinic, dental examination and health assessment for new outpatients are conducted to decide initial treatment plan and a clinic in charge for the patients. The patients who need comprehensive dental care and who cannot cooperate students' practice also attend this clinic to receive general dental practice.

(6) Clinical Performances

In the dental hospital, the clinic of Oral Diagnosis and General Dentistry is the first clinic for new outpatients. That is, the clinic is responsible for constructing good relationship between patients and the hospital. Therefore, the doctors pay attention actively to psychosocial aspects of patients during examination. In diagnosing and deciding clinic for patients, initial-treatment plans are introduced to patients. In this process, doctors think treatment plans together with patients thoroughly to obtain sound informed consent. Many patients who visits the dental hospital demands high medical level of the university hospital while not a few patients needs primary care. Oral Diagnosis and General Dentistry provides such patients with general dental practice to meet various kinds of patients' needs, makes effort to improve patients' satisfaction.

(7) Publications

[Original Articles]

1. Yasuyuki Kimura, Motohiro Komaki, Kengo Iwasaki, Masataka Sata, Yuichi Izumi, Ikuo Morita. Recruitment of bone marrow-derived cells to periodontal tissue defects. Front Cell Dev Biol. 2014; 2; 19

2. Kanako Noritake, Shinji Kuroda, Myat Nyan, Yuji Atsuzawa, Motohiro Uo, Keiichi Ohya, Shohei Kasugai. Use of a gelatin hydrogel membrane containing β-tricalcium phosphate for guided bone regeneration enhances rapid bone formation. Dent Mater J. 2014; 33(5); 674-680

3. Shioyama H, Mizitani K, Aoyama N, Suda T, Tanaka T, Endo A, Kusunoki Y, Yamawaki F, Fujiwara-Takahashi K, Kinoshita A, Arakawa S, Oda S, Izumi Y. Evaluation of Advanced Dental Technology with Enamel Matrix Derivative and Examination of Prognostic Factors in Periodontal Regenerative Therapy J Jpn Soc Periodontol. 2014; 56; 302-313

4. T. Matsuura, T. Akizuki, S. Hoshi, T. Ikawa, A. Kinoshita, M. Sunaga, S. Oda, Y. Kuboki, Y. Izumi. Effect of a tunnel-structured b-tricalcium phosphate graft material on periodontal regeneration: a pilot study in a canine one-wall intrabony defect model Journal of Periodontal Research. 2014;

5. Kengo Iwasaki, Motohiro Komaki, Naoki Yokoyama, Yuichi Tanaka, Atsuko Taki, Izumi Honda, Yasuyuki Kimura, Masaki Takeda, Keiko Akazawa, Shigeru Oda, Yuichi Izumi, Ikuo Morita. Periodontal regeneration using periodontal ligament stem cell-transferred amnion. Tissue Eng Part A. 2014.02; 20(3-4); 693-704

6. Ken-ichi Tonami, Sachi Umemori, Hiroshi Nitta, Shiro Mataki. Factor analysis of the perception of clinical attire in the Dental Hospital, Tokyo Medical and Dental University J Med Dent Sci. 2014.06; 61(2); 49-54

[Misc]

1. Kanako Noritake, Masaru Yatabe. The basic of usage and handling of dentures for dental hygienist DHstyle. 2014.03; 8(04); 62-65

2. Kanako Noritake, Masaru Yatabe. The lecture about denture cleaner for dental hygienists DHstyle. 2014.05; 8(06); 56-60

3. Masaru Yatabe, Kanako Noritake. The lecture about denture adhesive for dental hygienists DHstyle. 2014.10; 8(11); 60-64

[Conference Activities & Talks]

1. Satoru Onizuka, Takanori Iwata, Azusa Yamada, Masayuki Yamato, Teruo Okano, Yuichi Izumi. Functional analysis of ZBTB16 during the osteoblastic differentiation of hPDL-MSCs. 92nd General Session and Exhibition of the IADR 2014.06.25

2. Tonami K, Tsuruta J, Noritake K, Umemori S, Yamada A, Iwaki M, Ohara S, Hideshima M, Nitta H, Oda S, Kinoshita A, Mataki S, Araki K. Clinical training of differential diagnosis in Tokyo Medical and Dental University. The 40th ADEE Annual Meeting 2014.08.28 Riga, Latvia

3. T. Iwata, K. Washio, Y. Tsumanuma, A. Yamada, S. Onizuka, Y. Izumi, T. Ando, M. Yamato, T. Okano, I. Ishikawa. PERIODONTAL REGENERATION WITH AUTOLOGOUS PERIODONTAL LIGAMENT-DERIVED CELL SHEETS IN HUMANS.. 100th American Academy of Periodontology Annual Meeting 2014.09.19

Psychosomatic Dentistry

Professor	Akira Toyofuku
Assistant Professor	Miho Takenoshita
Hospital Staff	Tatsuya Yoshikawa
	Chisa Shitano
	Tomomi Sakuma Kurasawa
Graduate Student	Motoko Watanabe
	Yukiko Shinohara
	Anna Suzuki
	Spica Suzuki
Lecturer (part-time)	Haruhiko Motomura
	Ayano Katagiri
	Yuuichi Kato

(1) Research

1)Study on pathophysiological mechanisms of oral psychosomatic disorders
2)Psychosomatic study on oro-facial medically and psychiatrically unexplained symptoms
3) Brain imaging of oral psychosomatic disorders
4)Psychopharmacological study on oral psychosomatic disorders

(2) Lectures & Courses

It is not uncommon to see the patients diagnosed with "Oral Psychosomatic Disorders", so there is a growing need for proper treatment of the disorders from both sides of doctors and patients. It is, therefore, extremely important for dental students to instruct in psychosomatic dentistry. However, few Dental Universities in Japan are following this. At the same time, there's a great deal of misunderstanding about psychosomatic dentistry, in spite of we have many years of consistent education. For example, "Your work is only hearing to complaints from patients", "Patients with not otherwise specified mental illness is eventually referred to your clinic", or "The mission of your clinic is to calm down your patients with unidentified dental and oral complaints".
So, regarding undergraduate medical education, we focus on not only lessons from lectures and books but also practical experience trough clinical training. We have comprehensive medical teaching for fifth and sixth-year students. Students can listen to patient's complaints directly and deepen their understanding. Actually they can see patients with dental psychosomatic disorders, and they know that these disorders are treatable. Moreover, they can learn negative effects of wrong ideas as a psychogenic disorder, and they can understand serious distress in patients and family members.
This practice is arduous effort, but in the future, it is hoped that efforts will be made to facilitate uniformed services for patients with dental psychosomatic disorders, enhance coping skills for refractory cases, and reduce trouble with patients by the graduates of our department who mastered psychosomatic dentistry.
It is important to have identity as a dentist on practice of psychosomatic dentistry. Therefore we have advanced strengthening of human resource development. In particular, we focus on cultivation of dentists who can be readily applied their knowledge of psychosomatic medicine to clinical practice. And we are working towards establishment of 'psychosomatic dentistry' introduced psychotherapy.

Also regarding education for graduate student, we focus on clinical practice for development of dentists who have great skill in psychosomatic dentistry.

(3) Clinical Services & Other Works

We take charge of “Psychosomatic Dentistry clinic” in dental hospital of Tokyo Medical and Dental University. This special clinic is for patients with oral psychosomatic disorders, such as glossodynia (burning mouth syndrome), atypical facial pain, atypical odontalgia, oral dysesthesia, occlusal discomfort(dysesthesia).
Main psychosomatic treatment is psychopharmacological one with SSRIs(Selective Serotonin Reuptake Inhibitors), SNRI(Serotonin-Noradrenaline Reuptake Inhibitor), SDAs(Serotonin-Dopamin antagonists) etc. And supportive psychotherapies are applied.
Intractable cases are increasing year by year, we take care of every patient and have good clinical courses about 70% of them.
We believe there are exactly “oral psychosomatic disorders”, and dentists should be in charge of treatment. Psychosis, as a matter of course, should be taken care by psychiatrists, so we discriminate them from oral psychosomatic disorders, and properly refer to psychiatry.
On the other hand, on “functional somatic symptoms secondary to psychiatry disorders”, which are refer to us from psychiatrists, we do our best in cooperation with psychiatrists.
We have about 600 new outpatients per year, and almost of them were referred from other specialists not only in dentistry but also internal medicine, otorhinolaryngology, dermatology, psychosomatic medicine, and psychiatry. They come from the Metropolitan area, of course, Osaka, Kyushu, Hokkaido and so on. We take fine-grained care and follow up, total number of patients is up to 10,000 per year.
We have a mission to meet the demand of these patients and their families, so better treatment outcome and increasing efficiency are required, and cooperation with other medical specialists is needed.

(4) Publications

[Original Articles]

1. Miho TAKENOSHITA, Motoko WATANABE, Supika SUZUKI, Yukiko SHINOHARA, Anna MIURA, Yusuke SATO, Ayano KATAGIRI, Tomomi SAKUMA, Chisa SHITANO, Tatsuya YOSHIKAWA, Akira TOYOFUKU. Two Cases of Atypical Odontalgia successfully treated with the use of aripiprazole added on amitriptyline Japanese Journal of Psychosomatic Dentistry . 2014; 29;

2. Motoko Watanabe, Yojiro Umezaki, Spica Suzuki, Anna Miura, Yukiko Shinohara, Tatsuya Yoshikawa, Tomomi Sakuma, Chisa Shitano, Ayano Katagiri, Yusuke Sato, Miho Takenoshita, Akira Toyofuku. Psychiatric comorbidities and psychopharmacological outcomes of phantom bite syndrome. J Psychosom Res. 2014.11;

3. Akihito Uezato, Akira Toyofuku, Yojiro Umezaki, Motoko Watanabe, Akira Toriihara, Makoto Tomita, Naoki Yamamoto, Akeo Kurumaji, Toru Nishikawa. Oral Dysesthesia Rating Scale: a tool for assessing psychosomatic symptoms in oral regions. BMC Psychiatry. 2014.12; 14(1); 359

[Conference Activities & Talks]

1. Miho TAKENOSHITA, Motoko WATANABE, Supika SUZUKI, Anna MIURA, Yukiko SHINOHARA, Tomomi SAKUMA, Chisa SHITANO, Tatsuya YOSHIKAWA, Akira TOYOFUKU . Effectiveness of antidepressants for the treatment of persistent nonorganic oral pain and their psychiatric history. The 16th Congress of Asian College of Psychosomatic Medicine 2014.08.22 Jakarta

2. Miho TAKENOSHITA, Motoko WATANABE, Supika SUZUKI, Anna MIURA, Yukiko SHINOHARA, Tomomi SAKUMA, Chisa SHITANO, Tatsuya YOSHIKAWA, Akira TOYOFUKU. Effectiveness of antidepressants for the treatment of persistent nonorganic oral pain and their psychiatric history.. The 16th Congress of Asian College of Psychosomatic Medicine 2014.08.22 Jakarta

3. Motoko Watanabe, Yojiro Umezaki, Supica Suzuki, Anna Miura, Yukiko Shinohara, Tatsuya Yoshikawa, Tomomi Sakuma, Chisa Shitano, Miho Takenoshita, Akira Toriihara, Akihito Uezato, Toru Nishikawa

Haruhiko Motomura, Akira Toyofuku,. Compaison of the cerebral blood flow in oral somatic delusion with and without depression.. The 16th Congress of Asian College of Psychosomatic Medicine 2014.08.22 Jakarta

Behavioral Dentistry

Professor Shiro Mataki
Associate Professor Hiroshi Nitta
Research Associate Azusa Yamada
Research Associate Sachi Sakairi (child-care leave)

Graduate Student Ayako Kubota
Graduate Student Le Son Hoang (Vietnam)
Graduate Student Shizuka Tanaka

(1) Research

1) Construction of educational system of behavioral dentistry for dental students
2) Application of behavioral science to development of dental educational curriculum
3) Patients' evaluation of the dental hospital and the dental educational system
4) Application of behavioral science to dental clinic

(2) Lectures & Courses

Topic of Behavioral Dentistry included characteristics of human behavior, especially of relationship between patients and dental staff based on the informed consent. Main objective of behavioral dentistry in the graduate course is to provide students opportunity to study application of behavioral science to deal with dental patients showing various perception and behavior in clinic.

(3) Clinical Services & Other Works

Behavioral Dentistry provides medical interview for preliminary diagnosis and general dental practice at the clinic of oral diagnosis and general dentist cooperating with General Dentistry.

(4) Publications

[Conference Activities & Talks]

1. Satoru Onizuka, Takanori Iwata, Azusa Yamada, Masayuki Yamato, Teruo Okano, Yuichi Izumi. Functional analysis of ZBTB16 during the osteoblastic differentiation of hPDL-MSCs. 92nd General Session and Exhibition of the IADR 2014.06.25

2. T. Iwata, K. Washio, Y. Tsumanuma, A. Yamada, S. Onizuka, Y. Izumi, T. Ando, M. Yamato, T. Okano, I. Ishikawa. PERIODONTAL REGENERATION WITH AUTOLOGOUS PERIODONTAL LIGAMENT-DERIVED CELL SHEETS IN HUMANS.. 100th American Academy of Periodontology Annual Meeting 2014.09.19

Temporomandibular Joint and Oral Function

Associate Professor Koji KINO
Assistant Professor Akira NISHIYAMA
Hospital Staff Hiroko KIMURA, Shoko TOBE
Natsuko OTOMO
Graduate Student Kaori TUKAGOSHI, Rena NAKAYAMA

(1) Research

1) Development of multidimensional evaluation system for etiological factors of TMD
2) Influence of patients' psychosomatic factors for TMD
3) Sleep bruxism: its etiology, influence and treatment
4) Effectiveness of physiological therapy for TMD
5) Mechanisms of occlusal discomfort

(2) Education

Purpose of education for students and residents in this course is to provide an opportunity to learn basic knowledge on diagnostic and therapeutic procedures for temporomandibular diseases. In special course for graduate students and under graduate students, we instruct statistical techniques especially with the multi variate analysis by using clinical data acquired from patients with temporomandibular disorders (TMD).

(3) Clinical Services & Other Works

Temporomandibular joint clinic provides diagnosis and treatment for diseases and disfunctions of temporomandibular joint and masticatory muscles. We also provide the treatments for the nocturnal bruxism and the occlusal discomfort.

(4) Publications

[Original Articles]

1. Nishiyama A, Kino K, Tsukagoshi K, Tobe S, Otomo N.. Effect of water-soluble titanium microparticle-permeated tape on temporomandibular disorders-related pain: A preliminary study. Acta Odont Scand.. 2014; 72; 428-431
2. Nishiyama A, Kino K, Tsukagoshi K, Tobe S, Otomo N.. Magnitude of bite force that is interpreted as clenching in patients with temporomandibular disorders: A pilot study. Dentistry. 2014; S 2 ; 004
3. Nishiyama A, Kuruma E, Hayashi K, Tsukagoshi K, Kino K, Sugisaki M.. Evaluation of therapeutic effects using the limitation of daily functions questionnaire in patients with temporomandibular disorders. Oral Health and Dental Management. 2014; 13; 982-986
4. Akira Nishiyama, Natsuko Otomo, Kaori Tsukagoshi, Shoko Tobe, Koji Kino.. The True-Positive Rate of a Screening Questionnaire for Temporomandibular Disorders. The Open Dent J. 2014; 8; 236-240

Professional Development in Health Sciences

Professor Kazuki Takada
Associate Professor Jun Tsuruta
Associate Professor Mina Nakagawa
Junior Associate Professor Kumiko Yamaguchi

(1) Outline

Worldwide, accelerated aging and the shift in disease burdens have created a demand for innovations in health sciences, healthcare, and the healthcare delivery system. Innovation requires not only a vast amount of knowledge and superior skills, but also critical and creative thinking skills. Innovation concerning new drugs and medical devices further requires understanding of the entire flow and process of research and development. In our department, we provides educational opportunities for learners to acquire high-level and practical knowledge of the followings: history of medical and dental education in Japan, professional education/development/certification in Japan and North American/European countries, key pedagogical theories and learning methods, process-based approach and logic models in curriculum development, and competencies and their assessment/evaluation.

(2) Research

· Needs assessment in health care and in professional development in health science fields · Curriculum development for professionals of the future needs in health sciences
· Interprofessional education curriculum development

(3) Clinical Services & Other Works

Medical Hospital
Kazuki TAKADA : Rheumatology
Mina NAKAGAWA : Gastroenterology and Hepatology

Dental Hospital
Jun TSURUTA : Oral Diagnosis and General Dentistry

(4) Publications

[Original Articles]

1. Waka Yokoyama, Kazuki Takada, Nobuyuki Miyasaka, Hitoshi Kohsaka. Myelitis and optic neuritis induced by a long course of etanercept in a patient with rheumatoid arthritis. BMJ Case Rep. 2014; 2014; bcr-2014

2. Yasuhiro Asahina, Kaoru Tsuchiya, Takashi Nishimura, Masaru Muraoka, Yuichiro Suzuki, Nobuharu Tamaki, Yutaka Yasui, Takanori Hosokawa, Ken Ueda, Hiroyuki Nakanishi, Jun Itakura, Yuka Takahashi, Masayuki Kurosaki, Nobuyuki Enomoto, Mina Nakagawa, Sei Kakinuma, Mamoru Watanabe, Namiki Izumi. Genetic variation near interleukin 28B and the risk of hepatocellular carcinoma in patients with chronic hepatitis C. J. Gastroenterol.. 2014.07; 49(7); 1152-1162

3. Tomoyuki Yano, Mutsumi Okazaki, Kumiko Yamaguchi, Keiichi Akita. Anatomy of the middle temporal vein：implications for skull-base and craniofacial reconstruction using free flaps. Plast Reconstr Surg. 2014.07; 134(1); 92e-101e

4. R Muroga, J Tsuruta, I Morio. Disparity in perception of the working condition of dental hygienists between dentists and dental hygiene students in Japan. Int J Dent Hyg. 2014.08;

5. Satoru Muro, Kumiko Yamaguchi, Yasuo Nakajima, Kentaro Watanabe, Masayo Harada, Akimoto Nimura, Keiichi Akita. Dynamic intersection of the longitudinal muscle and external anal sphincter in the layered structure of the anal canal posterior wall. Surg Radiol Anat. 2014.08; 36(6); 551-559

6. Goki Suda, Yoshiya Yamamoto, Astushi Nagasaka, Ken Furuya, Mineo Kudo, Yoshimichi Chuganji, Yoko Tsukuda, Seiji Tsunematsu, Fumiyuki Sato, Katsumi Terasita, Masato Nakai, Hiromasa Horimoto, Takuya Sho, Mitsuteru Natsuizaka, Kouji Ogawa, Shunsuke Ohnishi, Makoto Chuma, Yasuyuki Fujita, Riichiro Abe, Miki Taniguchi, Mina Nakagawa, Yasuhiro Asahina, Naoya Sakamoto, . Serum granulysin levels as a predictor of serious telaprevir-induced dermatological reactions. Hepatol Res.. 2014.09;

7. Juri Kiyokawa, Kumiko Yamaguchi, Ryuhei Okada, Taketoshi Maehara, Keiichi Akita. Origin, course and distribution of the nerves to the posterosuperior wall of the external acoustic meatus. Anat Sci Int. 2014.09; 89(4); 238-245

8. Yoshihito Kano, Sei Kakinuma, Fumio Goto, Seishin Azuma, Yuki Nishimura-Sakurai, Yasuhiro Itsui , Mina Nakagawa, Atsushi Kudo, Minoru Tanabe, Susumu Kirimura, Tomonori Amano, Takashi Ito , Takumi Akashi, Yasuhiro Asahina, Mamoru Watanabe. Primary Hepatic Neuroendocrine Carcinoma with a Cholangiocellular Carcinoma Component in One Nodule. Clinical Journal of Gastroenterology. 2014.10; 7; 449-454

9. Ryuzo Arai, Akimoto Nimura, Kumiko Yamaguchi, Hideya Yoshimura, Hiroyuki Sugaya, Takahiko Saji, Shuichi Matsuda, Keiichi Akita. The anatomy of the coracohumeral ligament and its relation to the subscapularis muscle. J Shoulder Elbow Surg. 2014.10; 23(10); 1575-1581

[Conference Activities & Talks]

1. Jun Tsuruta. Interprofessional Education in Dental Education -Tokyo Medical and Dental University-. DTEAM2014 2014.02

2. Jun Tsuruta. Interprofessional Education. DTEAM2014 2014.02

3. Fujishiro H, Hayashi N, Yamaguchi K, Shimazaki K, Ono T, Akita K. . Positional relationship between articular disc and condylar process. . 31st Annual Meeting American Association of Clinical Anatomists 2014.07.08

4. Tsuruta J., Yamamoto H., Kuwana H1, Segawa Y., Yamaguchi K., Nakagawa M., Takada K, . Students' perspectives on interprofessional work after participating in a final-year interprofessional education program “Introduction to Team Approach in Health Care”. , Association of Dental Educaiton in Europe, Riga 2014.08 Riga

5. Kumiko Yamaguchi, Mina Nakagawa, Yuko Segawa-Tokunaga, Hiroto Yamamoto, Jun Tsuruta, Kazuki Takada. The impact of final-year interprofessional education (IPE) for medical and dental students. AMEE2014 2014.09.01

6. Hayashi N, Sakaguchi T, Fujishiro H, Yamaguchi K, Akita K. . Insertion areas of the lateral pterygoid muscle and the temporalis on the condylar process of the mandible.. Asian Joint Congress of Clinical Anatomy 2014.11.08

7. Hayashi N, Sakaguchi T, Fujishiro H, Yamaguchi K, Akita K. . Anatomic relationship between lateral meniscus and anterior cruciate ligament. . Asian Joint Congress of Clinical Anatomy 2014.11.08

8. Nakagawa M, Asahina Y, Taniguchi M, Watanabe T, Nishimura-Sakurai Y, Itsui Y, Azuma S, Kakinuma S, Tanaka Y, Watanabe M. Impact of host and therapeutic factors and resistant associated variants on response to interferon based-direct acting antiviral treatment in difficult-to-treat chronic hepatitis C patients. The 65th. Annual Meeting of American Association for the Study of Liver Diseases（AASLD The Liver Meeting 2014) 2014.11.09 Boston

9. Kawai-Kitahata F, Asahina Y, Kaneko S, Nagata H, Goto F, Otani S, Taniguchi M , Murakawa M , Nitta S, Watanabe T, Itsui Y, Nakagawa M, Kakinuma S, Enomoto N, Watanabe M. Gene alterations in β-catenin and p53/cell cycle control pathway are closely associated with development and prognosis of hepatocellular carcinoma: Comprehensive analyses by next generation sequencing technology. The 65th. Annual Meeting of American Association for the Study of Liver Diseases（AASLD The Liver Meeting 2014) 2014.11.10 Boston

10. Murakawa M, Asahina Y, Nakagawa M, Kawai-Kitahata F, Taniguchi M, Nitta S, Watanabe T, Itsui Y, Kakinuma S, Sakamoto N, Watanabe M. Expression of IFN λ 4 in liver and PBMC is closely associated with higher basal expression of ISGs and impaired induction of IL28B by interferon treatment in chronic hepatitis C non-responder patients. The 65th. Annual Meeting of American Association for the Study of Liver Diseases（AASLD The Liver Meeting 2014) 2014.11.11 Boston

11. Watanabe T, Asahina Y, Nakagawa M, Kakinuma S, Itsui Y, Taniguchi M, Murakawa M, Nagata H, Miura M, Maekawa S, Enomoto N, Watanabe M. Emergence or selection of resistant associated variant immediately after initiation of the therapy is predictive for failure of direct acting antiviral therapy:ultra-deep sequencing analyses for serial time points. The 65th. Annual Meeting of American Association for the Study of Liver Diseases（AASLD The Liver Meeting 2014) 2014.11.11 Boston

12. Hayashi N, Sakaguchi T, Fujishiro H, Yamaguchi K, Akita K. . Positional relationships between the muscle bundle of the temporalis and the lateral pterygoid muscle. . 11th Australian & New Zealand Association of Clinical Anatomy 2014.12.03

Neuroanatomy and Cellular Neurobiology

Professor: TERADA Sumio
Assistant Professor: KAWAGISHI Masahiko
Assistant Professor: SAITO Kenta
Assistant Professor: SATO Keisuke
Graduate Student, MD-PhD Course, Research Fellow of the Japan Society for the Promotion of Science: SATO Fumiya
Lab Manager, Administrative Assistant: TAGUCHI Mie

(1) Research

Our lab has focused in two major directions:

(1) How are cytoplasmic proteins transported in cells, and what other intracellular elements are necessary for their quality control during transport? How are the dynamics of cytoskeletal proteins in neurons regulated and coordinated?

Neuronal cells such as neurons and glial cells are atypical and asymmetric in their morphology; both of them having long processes. They have to endure the burden of energy-consuming long-distance intracellular transport, and develop specialized cytoskeletal structures. Both intracellular transport and cytoskeletal dynamics are inseparably interrelated, and essential for the cellular homeostasis and function. One of the main interests of our laboratory is to understand how their dynamics are regulated and how these dynamics define neuronal morphologies and functions.

(2) How do inhalation anesthetics exert their effects on synaptic transmissions?

Our interests are in deciphering the long-lasting mystery of inhalation anesthetic effects on synaptic transmissions, major mechanism in mammals that insures secure and painless surgical operations. We use electrophysiological preparations as well as newly developed spectroscopic techniques to identify their principles.

(2) Education

Department of neuroanatomy and cellular neurobiology takes charge of basic neuroscience education for medical undergraduate student (Lectures and Wet labs), especially from the morphological point of view.
For graduate school students, our group offers introductory courses on both optical and electron microscopy (Lectures and Wet labs), with close relation to molecular and cellular neurobiology.

(3) Publications

[Misc]

1. Keisuke Sato, Martin Lowe. Golgi Apparatus Molecular Life Sciences. 2014.06; 1-28

2. Takeharu Nagai, Kazuki Horikawa, Kenta Saito, Tomoki Matsuda. Genetically encoded Ca(2+) indicators; expanded affinity range, color hue and compatibility with optogenetics. Front Mol Neurosci. 2014.11; 7; 90

[Conference Activities & Talks]

1. M. Kawagishi, Y. Obara, T. Suzuki, M. Hayashi, K. Misawa, S. Terada. Measuring the distribution of taurine molecule inside biological tissue via intrinsic molecular vibrations using nonlinear Raman spectroscopy. 2014 ASCB/IFCB Meeting 2014.12.07 Philadelphia, Pennsylvania, USA

Systems Neurophysiology

Professor Izumi Sugihara
Associate Professor Yuriko Sugiuchi
Lecturer Yoshiko Izawa
Assistant Professor Mayu Takahashi
JSPS Postdoctoral Research Fellow Hermina Nedelescu
Students (dorcor) 3
Students (master) 1
Students (research) 1
JSPS Overseas Postdoctoral Fellow, Part-time lecturer Hirofumi Fujita

(1) Outline

Department of Systems Neurophysiology, formarly Department of Physiology #1 of the medical school, is one of the basic medicine departments and take charge of research and education in the field of neurophysiology and related neurosciences.

(2) Research

Our main interest lies in clarifying the structures that underlies function of the central nervous system and then understanding their function. We are focused on the part of the central nervous system that is involved in control of eye movements. The eye movement control system is located in the cerebrum, brainstem and cerebellum, has been studied in great detail and is important clinically. The cerebellum itself is another site of focus. Dysfunction of the cerebellum causes ataxia, a movement disorder associated with impaired control of movement. We use electrophysiological, morphological and cell-biological approaches.

1) Cerebellar function
Distinct regions in the cerebellum make specific connections with different areas of the brain and are involved in the control of various movements including eye movements. For example, the neuronal circuitry that connects the lateral cerebrum, pontine nuclei, cerebellar cortex (hemisphere), cerebellar nucleus (dentate nucl.), thalamus and cerebrum is important for initiation, execution and control of movements. To understand cerebellar function, it is important to understand the organization of the cerebellum into distinct anatomical regions, to characterize the specific neuronal circuitry of these regions, and to identify how the cerebellum is organized into regions and functions by way of the input and output systems. Our systematic approach to this question includes (developmental) anatomy, molecular biology, and electrophysiology. We have expertise in neuronal labeling with marker molecules and tracers, single-axonal reconstruction, three-dimensional mapping of neuronal projection patterns.

(3) Education

We participate in Introductory Neurophysiology, Neuroscience and Physiology Lab courses for medical students (2nd year) as well as in courses for graduate students. We mainly teach the neurophysiology sections in these

courses. Our goal is for students to understand normal function of nerve cells and the nervous system and, on this ground, to understand pathological states of the nervous system in disease. For this purpose, we give clinically-oriented lectures and laboratory courses linked with morphology and pharmacology.

(4) Lectures & Courses

Our lectures cover transport and electric potential of the cell membrane, excitation and synaptic transmission (Introductory Neurophysiology), sensory systems, motor systems, autonomic nervous systems, and higher brain function (Neuroscience), i.e. neurophysiology in general from the cellular through the organismic levels. For students to gain first-hand experience in basic matters such as generation and propagation of excitation in nerve cells, we have developed a computer simulation program for a part of the laboratory course. We have had a "project semester" student (4th year in the medical school).

(5) Publications

[Original Articles]

1. Hirofumi Fujita, Hanako Aoki, Itsuki Ajioka, Maya Yamazaki, Manabu Abe, Arata Oh-Nishi, Kenji Sakimura, Izumi Sugihara. Detailed expression pattern of aldolase C (Aldoc) in the cerebellum, retina and other areas of the CNS studied in Aldoc-Venus knock-in mice. PLoS ONE. 2014; 9(1); e86679

2. Takahashi M, Sugiuchi Y and Shinoda Y. Convergent synaptic inputs from the caudal fastigial nucleus and the superior colliculus onto pontine and pontomedullary reticulospinal neurons. Journal of Neurophysiology. 2014; 111; 849-867

3. Eric J Lang, Tianyu Tang, Colleen Y Suh, Jianqiang Xiao, Yuriy Kotsurovskyy, Timothy A Blenkinsop, Sarah P Marshall, Izumi Sugihara. Modulation of Purkinje cell complex spike waveform by synchrony levels in the olivocerebellar system. Front Syst Neurosci. 2014; 8; 210

4. Jianqiang Xiao, Nadia L Cerminara, Yuriy Kotsurovskyy, Hanako Aoki, Amelia Burroughs, Andrew K Wise, Yuanjun Luo, Sarah P Marshall, Izumi Sugihara, Richard Apps, Eric J Lang. Systematic regional variations in Purkinje cell spiking patterns. PLoS ONE. 2014; 9(8); e105633

5. Yuanjun Luo, Izumi Sugihara. Cerebellar afferents originating from the medullary reticular formation that are different from mossy, climbing or monoaminergic fibers in the rat. Brain Res.. 2014.05; 1566; 31-46

6. Yoshiko Izawa, Hisao Suzuki. Activity of fixation neurons in the monkey frontal eye field during smooth pursuit eye movements. J. Neurophysiol.. 2014.07; 112(2); 249-262

7. Salah Hamodeh, Joan Baizer, Izumi Sugihara, Fahad Sultan. Systematic analysis of neuronal wiring of the rodent deep cerebellar nuclei reveals differences reflecting adaptations at the neuronal circuit and internuclear levels. J. Comp. Neurol.. 2014.08; 522(11); 2481-2497

[Conference Activities & Talks]

1. Sugihara, I. Structure and function of the cerebellum. Annual Meeting of Cerebellum Research Association 2014.01.08 Tokyo, Toshi Center Hotel

2. Sugihara, I.. Molecular compartments and axonal projections in the cerebellum.. A course in Molecular Neuroanatomy MNA 2014 2014.01.31 Okinawa

3. Mayu Takahashi. Neural implementation of Listing' s law in the saccade system. Society for the Neural Control of Movement, 24th Annual conference 2014.04 Amsterdam, The Netherlands

4. Yuriko Sugiuchi. Neural mechanism for saccade generation. –Horizontal vs. Vertical system–. The 8th Meeting of the Japanese Society for Motor Control 2014.08.07 Tsukuba

5. Mayu Takahashi. Neural mechanism underlying Listing' s law in saccadic eye movements.. The 37th Annual Meeting of the Japan Neuroscience Society 2014.09.12 Yokohama

6. Yuriko Sugiuchi, Mayu Takahashi, Yoshikazu Shinoda. Pattern of reciprocal inhibition between upward and downward saccades systems in the interstitial nucleus of Cajal and difference from neurons in the neural integrator. . The 73th Annual Meeting of Japan Society For Equilibrium Research 2014.11.06 Yokohama

Pharmacology and Neurobiology

Professor:Tsutomu TANABE
Assistant professor:Hironao SAEGUSA
Assistant professor:Makoto FUJIKAWA
Assistant professor:Daisuke TANAKA

(1) Outline

Many intriguing mysteries left in the issue of brain function like (1) learning and memory, (2) cognition and behavior, (3) generation of consciousness, (4) personality and mentality. On the other hand, in the modern-day world with a complicated human relations and prolonged life span, necessity of deeper understanding and development of the means to cure the numerous neurological disorders and pain is enormously increased.

(2) Research

1. Regulation of Microglial function in Neuroinflammation/Neurodegenerative diseases
2. Regulation of Macrophage function in Inflammatory bowel disease and Rheumatoid arthritis
3. Energy metabolic imaging at single cell level of cancer stem cell/cancer cell using Bioluminescence and FRET and Imaging
4. Energy metabolic imaging at single cell level of neuron, microglia and astrocyte in the degenerative area of the mouse model of various neurodegenerative diseases
5. Neural mechanisms of pleasure and motivation in feeding
6. Molecular basis of Calcium channelopathy
7. Alteration of Neuron-Glia interaction in Neurological disorders

(3) Education

Undergraduate course: Pharmacology course provides the principle of pharmacological basis of therapeutics. Several representative therapeutic drugs in each disease will be picked up and systematic lectures -from basic pharmacology to mechanism of action, drug metabolism, clinical application and side effects- will be provided. Students are projected to acquire self-learning skills during the course and expected to be ready for handling clinical cases by pharmacological means.
We consider education through the pharmacology lab work is important. Students are given opportunity to dissect out several tissues (heart, skeletal muscle, ileum and vas deferens) from living animals by themselves and test the effect of a number of drugs including specific agonist, antagonist and non-selective drugs. Lab work course is divided into two parts. In the first part, students were given several known drugs for testing the known effect on these tissues. In the second part, students are given two unknown drugs and requested to identify the name and concentration of each drug using the tissues they prepare by themselves.

Graduate course: During the first couple of months, students are requested to acquire basic techniques of biochemistry, molecular biology, pharmacology and electrophysiology that are routinely used in our laboratory. Then students will be given a small project to do using the techniques they have learned during the initial

training. Students are also required to read relevant scientific papers and conduct seminar style lectures to other lab members monthly. After completion of the initial phase, students start their own project under the supervision of the faculties in the lab.

(4) Publications

[Original Articles]

1. Kurihara, T., Sakurai, E., Toyomoto, M., Kii, I., Kawamoto, D., Asada, T., Tanabe, T., Yoshimura, M., Hagiwara, M. and Miyata, A.. Alleviation of behavioral hypersensitivity in mouse models of inflammatory pain with two structurally different casein kinase 1 (CK1) inhibitors. Molecular Pain. 2014.03; 10; 17

2. Saegusa, H. and Tanabe, T.. N-type voltage-dependent Ca2+ channel in non-excitable microglial cells in mice is involved in the pathophysiology of neuropathic pain. Biochem. Biophys. Res. Commun.. 2014.06; 450; 142-147

Molecular Neuroscience

Professor Kohichi Tanaka
Associate Professor Hidenori Aizawa
Assistant Professor Tomomi Aida
Project Assistant Professor Miho Soma
Project Assistant Professor Yukiko Ito
Project Assistant Professor Michiko Yanagisawa
Graduate Student (doctor course)
Junya Sugimoto
Cui Wanpeng
Zhao Zhuyang
Graduate Student (master course)
Risa Imahashi
Takaya Katsurayama
Kaori Sugiyama
Technical Staff
Harumi Ishikubo
Masako Hidaka
Secretary Satomi Ohno

(1) Outline

The final goal of our research is to understand molecular, cellular, and neuronal ensemble mechanisms underlying higher order brain functions including learning and memory. For that purpose, we combine molecular genetics, physiological and behavioral methods. The laboratory also studies the mechanism that underlies neuronal cell death and regeneration.

(2) Research

A. Functions of glutamate transporters in the brain
Glutamate is a major excitatory neurotransmitter and plays an important role in neuronal plasticity and neurotoxicity in the central nervous system. Glutamate transport proteins provide the mechanism by which synaptically released glutamate is inactivated and kept below toxic levels in the extracellular space. By now, five subtypes of high-affinity glutamate transporters have been identified in the mammalian brain. Our lab studies the physiological and pathological roles of glutamate transporter subtypes using subtype-specific knockout mice.
We show that astrocyte-specific glutamate transporter GLT1 inducible knockout (iKO) mice exhibit pathological repetitive behaviors including excessive and injurious levels of self-grooming and tic-like head shakes. Electrophysiological studies reveal that excitatory transmission at corticostriatal synapse is normal in a basal state but is increased after repetitive stimulation. Furthermore, treatment with an N-methyl-D-aspartate receptor antagonist memantine ameliorated the pathological repetitive behaviors in iKO mice. These results suggest that astroglial GLT1 plays a critical role in controlling the synaptic efficacy at cortico-striatal synapses and its dysfunction causes pathological repetitive behaviors.
We found that arundic acid induces GLAST expression in vitro and in vivo. In addition, arundic acid treatment prevented RGC death by upregulating GLAST in heterozygous (GLAST+/-) mice. Furthermore, arundic acid

stimulates the human GLAST ortholog, EAAT1, expression in human neuroglioblastoma cells. Thus, discovering compounds that can enhance EAAT1 expression and activity may be a novel strategy for therapeutic treatment of glaucoma.

B. Glial dysfunction of the lateral habenula causes the depressive-like behaviors and sleep disturbance
Lateral habenula (LHb) has recently attracted a surge of interest in psychiatry because recent studies have reported the pathological activation of the habenula in patients with major depression and in animal models. However, how habenular neurons are activated to cause various depression symptoms, such as reduced motivation and sleep disturbance, remain unclear. Since astrocyte primarily regulates the extracellular level of excitatory neurotransmitter glutamate, we hypothesized that dysfunctional astrocytes may cause LHb hyperactivity due to the defective uptake activity of extracellular glutamate, which induces depressive-like behaviors. The habenula-specific inhibition of glial glutamate transporter GLT-1 increased the neuronal firing rate and the level of c-Fos expression in the LHb. Mice with reduced GLT-1 activity in the habenula exhibited a depressive-like phenotype in the tail suspension and novelty-suppressed feeding tests. These animals also displayed increased susceptibility to chronic stress, displaying more frequent avoidant behavior without affecting locomotor activity in the open-field test. Intriguingly, the mice showed disinhibition of rapid eye movement sleep, which is a characteristic sleep pattern in patients with depression. These results provide evidence that disrupting glutamate clearance in habenular astrocytes increases neuronal excitability and depressive-like phenotypes in behaviors and sleep.

C. Development of genome editing technologies
Knockout and knockin mice have drastically improved our understanding of the functions of genes in vivo. However, the generation of knockout and knockin mice relies on homologous recombination in ES cells, which is a time-consuming, laborious, and expensive process. Recent development of genome editing technologies has enabled direct manipulation of the genome in mouse zygotes (in vivo genome editing), thereby providing new avenues for simple, convenient, highly efficient, and ultra-rapid production of knockout and knockin mice. We developed highly efficient CRISPR/Cas (clustered regularly interspaced short palindromic repeat/CRISPR-associated)-mediated in vivo genome editing system. By harnessing these technologies, we can produce any kind of genetically modified mice including gene knockout, human mutation knockin, and gene cassette knockin with extreme high efficiencies. Taken together, our CRISPR/Cas system provides a fast, convenient, efficient, and cost-effective approach to the production of genetically modified mice and brings about drastic developments in the field of genome editing, leading to a boost in functional genomic research.

(3) Education

Goals/Outline:
Students should generate genetically modified animals to comprehensively understand the cognitive mechanisms at the level of molecule to behavior. Then, students should analyze cognitive deficits of mutant animals and those molecular mechanisms.

Available programs:
Participation in the ongoing research project; as needed
Training for cell biology: five times a year 13:00 – 16:00

Experiment:
1. Gene cloning and generation of targeting vector.
2. Generation of genetically modified mice
3. Behavioral analysis of the mice
4. Morphological analysis of central nervous systems.

(4) Lectures & Courses

The aim of this practice is to learn molecular biological, anatomical, electrophysiological and psychological approaches to elucidate the mechanism of cognition. Moreover, based on previous case reports of cognitive deficits, students should plan and discuss what kinds of the researches are possible and meaningful to elucidate the pathology of these diseases, leading to unveil the mechanism of cognition.

(5) Publications

[Original Articles]

1. Schreiner, AE., Durry, S., Aida, T., Stock, MC., Ruther, U., Tanaka, K., Rose, CR. Kafitz, KW.. Laminar and subcellular heterogeneity of GLAST and GLT-1 immunoreactivity in the developing postnatal mouse hippocampus. J Comp Neurol. 2014.01; 522(1); 204-224

2. Amo R, Fredes F, Kinoshita M, Aoki R, Aizawa H, Agetsuma M, Aoki T, Shiraki T, Kakinuma H, Matsuda M, Yamazaki M, Takahoko M, Tsuboi T, Higashijima S, Miyasaka N, Koide T, Yabuki Y, Yoshihara Y, Fukai T, Okamoto H. The habenulo-raphe serotonergic circuit encodes an aversive expectation value essential for adaptive active avoidance of danger. Neuron. 2014.12; 84; 1034-1048

3. Cui, W., Mizukami, H., Yanagisawa, M., Aida, T., Nomura, M., Isomura, Y., Takayanagi, R., Ozawa, K., Tanaka, K., Aizawa, H. . Glial dysfunction in the mouse habenula causes depressive-like behaviors and sleep disturbance. J Neurosci. 2014.12; 34(49); 16273-16285

[Misc]

1. Aida, T., Imahashi, R., Tanaka, K. . Translating human genetics into mouse: The impact of ultra-rapid in vivo genome editing. Dev Growth Differ. 2014; 56; 34-45

[Conference Activities & Talks]

1. Hidenori Aizawa. Ontogeny and phylogeny of the habenula regulating animal behaviors. . 2014.09

Neuropathology

Professor: Hitoshi Okazawa
Practical professor: Kazuhiko Tagawa
Project Lecturer/Part-time Lecturer
: Nobuyuki Nukina, Toshiki Uchihara, Masaki Sone
Assistant professor: Takuya Tamura
Project Assistant professor: Yuji Ogushi, Xigui Chen, Kazumi Motoki
Kyota Fujita, Hidenori Honma
Technical assistant: Akiko Otani, Tayoko Tajima
Office work assistant: Emiko Ueno, Shigemi Sato, Mikiyo Fujii
Secretary: Rumi Innami, Ayako Seki
Graduate Student(Master course): Kanoh Kondo, Shigenori Uchida, Juliana Bosso Taniguchi, Mao Ying, Eriko Hoshino
Graduate Student: Zhang Xuemei

(1) Outline

The goals of our research are to elucidate molecular mechanisms of neurodegenerative disorders as well as of mental retardation and to develop novel therapeutics for those intractable diseases. In neurodegeneration, we are now focusing on polyglutamine diseases including hereditary spinocerebellar degenerations and Huntington' s disease. Knowledge from transcriptome and proteome analyses of the pathologies will lead to new types of molecular therapeutics. In mental retardation, we are developing animal models and analyzing molecular pathologies of our original molecule PQBP1 whose mutations cause mental retardation with microcephaly. This line of research is also for developing new therapeutics of the common but intractable diseases.

(2) Research

Following studies have been intensively carried out in our laboratory with various techniques including molecular biology, cell biology, biochemistry, Drosophila models, and mouse models.

1) Investigation of molecular pathologies of neurodegenerative diseases.
2) Studies on impairment of DNA-repair in polyglutamine diseases.
3) Development of new seed drugs for neurdegeneration.
4) Development of new seed drug for mental retardation.
5) Investigation of molecular functions of Oct-3/4

This year's progress.
1) The research group elucidated molecular basis for the earliest synapse pathology in preclinical Alzheimer' s disease (AD) brain. In this study, the research group performed comprehensive phosphoprotein analysis with brain samples from AD patients and four mouse models by using high-end mass spectrometry, and analyzed the data by methods of systems biology using a super computer. They found that 17 phosphoproteins related to synapse functions are changed in the brains of mouse AD models and human AD patients. Especially, the change of MARCKS started at a preclinical stage even before histological A β deposition. Two-photon microscopic observation revealed recovery of abnormal spine formation in the AD model mice by targeting MARCKS

or by inhibiting itSCAndidate kinases. This study proposed a novel strategy of AD treatment which targets the earliest pathology.
2) The research group elucidated a molecular pathomechanism of microcephaly by mutations of PQBP1 (polyglutamine binding protein-1) gene, which is known as a major causative gene for microcephaly. In this study the research group made a conditional KO mouse which does not express PQBP1 in neural stem progenitor cells (NSPCs). The mouse model showed microcephaly without structural change (primary microcephaly) and a cell cycle time elongation in NSPCs, which is basically mediated by transcription/splicing abnormalities including a number of genes related to the cell cycle regulation such as APC2 and APC4. The mice did not showed accelerated production of neurons, increased cell death of NSPCs, or abnormal migration. They confirmed supplementation of APC4 recovered the cell cycle time elongation and NSPCs expansion. Moreover, the research group performed peritoneal injection of adeno-associated virus (AAV) vector into pregnant mice to express PQBP1 in embryos, and confirmed recovery of the microcephaly and behavioral abnormalities of offsprings. This study proposed a new mechanism of primary microcephaly and a treatment strategy.
3) The research group succeeded a gene therapy of a model mouse of spinocerebellar ataxia type 1 (SCA1). Previously, the research group found a candidate therapeutic molecule, HMGB1. This study extended the finding and applied HMGB1 for a SCA1 model mice therapy. We succeeded in remarkable elongation of lifespan and a rotarod test. Virus injection of AAV-HMGB1 also recovered the phenotypes of SCA1 model mice. This study proposed novel approach for therapy strategy of SCA1.

(3) Education

As educational tasks, we have lecture and experiment classes of neuropathology for medical/dental graduate school program and medical school program. We also have general pathology and neuropathology classes for graduate school for health sciences, and clinical anatomical and therapeutic pathology classes for research students.

(4) Lectures & Courses

We also guide practical research techniques on neuropathology especially nerurodegenerative diseases.

(5) Publications

[Original Articles]

1. Barclay, SS., Tamura, T., Ito, H., Fujita, K., Tagawa, K., Shimamura, T., Katsuta, A., Shiwaku, H., Sone, M., Imoto, S., Miyano, S., Okazawa, H.. Systems biology analysis of Drosophila in vivo screen data elucidates core networks for DNA damage repair in SCA1. Hum. Mol. Genet.. 2014.03; 23(5); 1345-1364

2. Mizuguchi, M., Obita, T., Serita, T., Kojima, R., Nabeshima, Y., Okazawa, H.. Mutations in the PQBP1 gene prevent its interaction with the spliceosomal protein U5-15 kD. Nature Communicaitions. 2014.04; 5; 3822

3. Ito, H., Shiwaku, H., Yoshida, C., Homma, H., Luo, H., Chen, X., Fujita, K., Musante, L., Fischer, U., Frints, S G M., Romano, C., Ikeuchi, Y., Shimamura, T., Imoto, S., Miyano, S., Muramatsu, S-I., Kawauchi, T., Hoshino, M., Sudol, M., Arumughan, A., Wanker, E E., Rich, T., Schwartz, C., Matsuzaki, F., Bonni, A., Kalscheuer, V M., Okazawa, H.. In utero gene therapy rescues microcephaly caused by Pqbp1-hypofunction in neural stem progenitor cells. Mol Psychiatry. 2014.07;

4. Tagawa, K., Homma, H., Saito, A., Fujita, K., Chen, X., Imoto, S., Oka, T., Ito, H., Motoki, K., Yoshida, C., Hatsuta, H., Murayama, S., Iwatsubo, T., Miyano, S., Okazawa, H.. Comprehensive phosphoproteome analysis unravels the core signaling network that initiates the earliest synapse pathology in preclinical Alzheimer's disease brain. Hum Mol Genet. 2014.09;

5. Ito, H., Fujita, K., Tagawa, K., Chen, X., Homma, H., Sasabe, T., Shimizu, J., Shimizu, S., Tamura, T., Muramatsu, S., Okazawa, H.. HMGB1 facilitates repair of mitochondrial DNA damage and extends the lifespan of mutant ataxin-1 knock-in mice. EMBO Mol Med. 2014.12;

6. Shiraishi, R., Tamura, T., Sone, M., Okazawa, H.. Systematic analysis of fly models with multiple drivers reveals different effects of ataxin-1 and huntingtin in neuron subtype-specific expression. PLoS ONE. 2014.12; 9(12); e116567

7. Nabeshima, Y., Mizuguchi, M., Kajiyama, A., Okazawa, H.. Segmental isotope-labeling of the intrinsically disordered protein PQBP1. FEBS Letters. 2014.12; 588(24); 4583-4589

[Misc]

1. Tamura, T., Okazawa, T.. Cell death in neuro-degenerative diseases and Hippo patthway Journal of Clinical and Experimental Medicine. 2014.11; 251(5); 449-454

[Conference Activities & Talks]

1. Tamura, T., Barclay, S, S., Fujita, K., Ito, H., Motoki, K., Shimamura, T., Tagawa, K., Katsuta, A., Shiwaku, H., Sone, M., Tagawa, K., Imoto, S., Miyano, S., Okazawa, H.. Systems biology analysis of Drosophila in vivo screen data elucidates core networks for DNA damage repair in SCA1. 55th Annual Meeting of the Japanese Society of Neurology 2014.05.23

2. Fujita, K., Nakamura, Y., Oka, T., Ito, H., Tamura,T., Tagawa, K., Sasabe, T., Katsuta, A., Motoki, K., Shiwaku, H., Yoshida, C., Sone, M., Okazawa, H.. A functional deficiency of TERA/VCP/p97 contributes to impaired DNA danage repair in multiple polyglutamine diseases. 55th Annual Meeting of the Japanese Society of Neurology 2014.05.23

3. Tamura, T., Barclay, S, S., Fujita, K., Ito, H., Motoki, K., Shimamura, T., Tagawa, K., Katsuta, A., Sone, M.,Imoto, S., Miyano, S., Okazawa, H.. Systems biology analysis of Drosophila in vivo screen data elucidates core networks for DNA damage repair in SCA1 . 55th Annual Meeting of the Japanese Society of Neurology 2014.06.06

4. Fujita, K., Nakamura, Y., Oka, T., Ito, H., Tamura, T., Tagawa, K., Sasabe, T., Katsuta, A., Motoki, K., Shiwaku, H., Yoshida, C., Sone, M., Okazawa, H.. Systems biology analysis of Drosophila in vivo screen data elucidates core networks for DNA damage repair in SCA1 . 55th Annual Meeting of the Japanese Society of Neurology 2014.06.06

5. Okazawa, H.. Neurodegenerative diseases and intellectual disability -RNA related molecule PQBP1 for Microcephaly. The 1st TMDU Core Seminar 2014.08.20 Tokyo Medical and Dental University

6. Tamura, T., Okazawa, H.. Systematic analysis of fly models with multiple drivers reveals different effects of ataxin-1 and huntingtin in neuron subtype-specific expression. 7th Japan Society for Molecular Science 2014.08.25 KKR Numazu

7. Okazawa, H.. Comprehensive Phosphoproteome Analysis Unravels the Core Signaling Network that Initiates the Earliest Synapse Pathology in Preclinical Alzheimer' s Disease Brain. ISP Symposium 2014 - Ageing and Metabolis 2014.08.28 Tokyo Medical and Dental University,

8. Fujita, K., Nakamura, Y., Oka, T., Ito, H., Tamura, T., Tagawa, K., Sasabe, T., Katsuta, A., Motoki, K., Shiwaku, H., Yoshida, C., Sone, M., Okazawa, H.. A functional deficiency of TERA/VCP/p97 contributes to impaired DNA repair in multiple polyglutamine diseases.. The 37th Annual Meeting of the Japan Neuroscience Society 2014.09.12

9. Fujita, K., Nakamura, Y., Oka, T., Ito, H., Tamura, T., Tagawa, K., Sasabe, T., Katsuta, A., Motoki, K., Shiwaku, H., Yoshida, C., Sone, M., Okazawa, H.. A functional deficiency of TERA/VCP/p97 contributes to impaired DNA danage repair in multiple polyglutamine diseases. The 37th Annual Meeting of the Japan Neuroscience Society 2014.09.12 Pacifico Yokohama

10. Tamura, T., Barclay, S, S., Fujita, K., Ito, H., Motoki, K., Shimamura, T., Tagawa, K., Katsuta, A., Shiwaku, H., Sone, M., Tagawa, K., Imoto, S., Miyano, S., Okazawa, H.. Systems biology analysis of Drosophila in vivo screen data elucidates core networks for DNA damage repair in SCA1. The 37th Annual Meeting of the Japan Neuroscience Society 2014.09.13 Yokohama

11. Tamura, T., Barclay, S, S., Fujita, K., Ito, H., Motoki, K., Shimamura, T., Tagawa, K., Katsuta, A., Shiwaku, H., Sone, M., Imoto, S., Miyano, S., Okazawa, H. . Systems biology analysis of Drosophila in vivo screen data elucidates core networks for DNA damage repair in SCA1 . The 37th Annual Meeting of the Japan Neuroscience Society 2014.09.13 Pacifico Yokohama

12. Yajima, T., Tamura, T., Okazawa,H., Sone, M.. Regulation of the intracellular trafficking of APP by the yata gene in the Drosophila model of Alzheimer's disease. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25 Pacifico Yokohama

13. Okazawa, H.. DNA damage repair and neurodegenerative diseases. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25 Pacifico Yokohama

14. Tamura, T., Barclay, S, S., Fujita, K., Ito, H., Motoki, K., Shimamura, T., Tagawa, K., Katsuta, A., Sone, M., Imoto, S., Miyano, S., Okazawa, H.. Systems biology analysis of Drosophila in vivo screen data elucidates core networks for DNA damage repair in SCA1 . The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.26 Pacifico Yokohama

15. Ito, H., Shiwaku, H., Yoshida, C., Honma, H., Chen, X., Fujita, K., Okazawa, H.. Mutations in the PQBP1 gene prevent its interaction with the spliceosomal protein U5-15 kD. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.27 Pacifico Yokohama

16. Okazawa, H.. Present and future of research on neurological and psychiatric diseases. Comprehensive Brain Science Network Winter Workshop 2014.12.11 Tokyo Medical and Dental University

17. Okazawa, H.. Synapse Pathology. Comprehensive Brain Science Network Winter Workshop 2014.12.13 Tokyo

Ophthalmology and Visual Science

Professor;Kyoko Ohno-Matsui
Specially-appointed professor;Makoto Aihara
Junior Assistant Professor;Hiroshi Takase, Koju Kamoi
Assistant Professor;Shintaro Horie, Hideki Murai, Takeshi Yoshida, Noriaki Shimada
Graduate student;Tomoka Ishida, Yuko Iwasaki, Kosei Shinohara,
Guo Zhaorong,Liu hongcling

(1) Outline

Our department was established in 1944. Prof. Jin Ohtsuka initiated research on myopia in 1946, and Emeritus Prof. Takashi Tokoro established high myopia clinic in 1974 as the world only clinic specific to pathologic myopia. To date, clinical practice as well as basic research on myopia have continuously been performed in our department. Uveitis clinic was established by Emeritus Prof. Manabu Mochizuki in 1988. Since Prof. Kyoko Ohno-Matsui was appointed to a professorship in our department, clinical practice and basic research on wide variety of fields such as glaucoma, cataract, diabetic retinopathy, vitreoretinal disorder, and macular diseases in addition to myopia and uveitis have been actively performed.

(2) Research

1. High myopia
1) Analysis of retinochoroidal complications in high myopia (choroidal neovascularization, myopic tractional retinopathy)
2) Evaluation of the molecular mechanism of choroidal angiogenesis using the cultured cells as well as experimental animals (collaboratory project with Department of Cellular Physiological Chemistry)
3) Gene analysis of highly myopic patients (collaborator project with Kyoto University)
4) Establishment of a novel therapy to prevent an axial elongation or the formation of posterior staphyloma

2. Ocular immunology and inflammation
1) Evaluation of the molecular mechanism of immunoregulartion in intraocular inflammation
2) Pathogenic mechanism of intraocular inflammatory diseases
3) Development of novel treatments of intraocular inflammation
4) Molecular diagnosis of virus-infected uveitis and intraocular lymphomas.

3. Neuro-ophthalmology
1) Evaluation of the change of the circulation as well as the glucose metabolism in the visual cortex using positron emission tomography (PET) in various ocular disorders
2) Mechanism of visual pathway in normal conditions as well as in the patients with amblyopia.

4. Vitreoretinal disorder
1) Development of a novel treatment for vitreoretinal disorders like retinal detachment, diabetic retinopathy, and macular holes.

5. Strabismus and amblyopia clinic
1) Effect of the visual background on binocular vision as well as the influence of strabismus on dynamic visual

acuity.

(3) Education

Undergraduate education of ophthalmology is composed of 1) classes on histology and physiology of the eye, and on diagnosis and treatment of ocular disorders, 2) combination block in which clinical examination is trained, and the diagnostic process is actively learned through group discussion using case series, 3) pre-clerkship and clerkship in which the medical students practically learn the major ocular disorders by seeing the patients and discussing in the conference.
After the initial residency of the first two years, the residency in ophthalmology in programmed for four years according to the educational program on diploma of ophthalmology by Japanese ophthalmological society.
The graduate students are expected to be academic doctors who develop and perform highly-qualified ophthalmologists, as well as become scientists who can perform basic research focusing on their clinical interest.

(4) Lectures & Courses

Main objective of ophthalmology and visual science in the graduate course is to obtain the highly-advanced knowledge in the diagnosis and the treatment of various ocular disorders and to perform the basic research based on clinical experience.

(5) Clinical Services & Other Works

Clinical practice is organized by the general ophthalmology clinic as well as the several subspecialty clinics. When the patients visited our department, they are screened in the general clinic, and then the final decision of the diagnosis and treatment is made in cooperation with each subspecialty clinic. Subspecialty clinics include high myopia clinic, uveitis clinic, glaucoma clinic, vitreoretinal disorder clinic, diabetic retinopathy clinic, neuro-ophthalmology clinic, and medical retina clinic. Approximately, 1,200 surgeries are performed per year (e.g., cataract surgery, vitreoretinal surgery, glaucoma surgery, strabismus surgery).

(6) Publications

[Original Articles]

1. Yoshihara Naoya, Yamashita Takehiro, Ohno-Matsui Kyoko, Sakamoto Taiji. Objective analyses of tessellated fundi and significant correlation between degree of tessellation and choroidal thickness in healthy eyes. PLoS One. 2014; 9(7); e103586

2. Toshikatsu Kaburaki, Kenichi Namba, Koh-hei Sonoda, Takeshi Kezuka, Hiroshi Keino, Takako Fukuhara, Koju Kamoi, Kei Nakai, Nobuhisa Mizuki, Nobuyuki Ohguro, . Behçet's disease ocular attack score 24: evaluation of ocular disease activity before and after initiation of infliximab. Jpn. J. Ophthalmol.. 2014.03; 58(2); 120-130

3. Kaneko Yuichiro, Moriyama Muka, Hirahara Shuichiro, Ogura Yuichiro, Ohno-Matsui Kyoko. Areas of nonperfusion in peripheral retina of eyes with pathologic myopia detected by ultra-widefield fluorescein angiography. Invest Ophthalmol Vis Sci. 2014.03; 55(3); 1432-1439

4. Wolf Sebastian, Balciuniene Vilma Jurate, Laganovska Guna, Menchini Ugo, Ohno-Matsui Kyoko, Sharma Tarun, Wong Tien Y, Silva Rufino, Pilz Stefan, Gekkieva Margarita, RADIANCE Study Group. RADIANCE: a randomized controlled study of ranibizumab in patients with choroidal neovascularization secondary to pathologic myopia. Ophthalmology. 2014.03; 121(3); 682-92.e2

5. Shinohara Kosei, Moriyama Muka, Shimada Noriaki, Tanaka Yuichiro, Ohno-Matsui Kyoko. Myopic stretch lines: linear lesions in fundus of eyes with pathologic myopia that differ from lacquer cracks. Retina. 2014.03; 34(3); 461-469

6. Yokoi T, Moriyama M, Hayashi K, Shimada N, Tomita M, Yamamoto N, Nishikawa T, Ohno-Matsui K. Predictive factors for comorbid psychiatric disorders and their impact on vision-related quality of life in patients with high myopia. Int Ophthalmol. 2014.04; 34(2); 171-183

7. Takahashi H, Takase H, Ishizuka A, Miyanaga M, Kawaguchi T, Ohno-Matsui K, Mochizuki M. Choroidal thickness at convalescent Vogt-Koyanagi-Harada disease RETINA. 2014.04; 34(4); 775-780

8. Ohno-Matsui Kyoko. Proposed classification of posterior staphylomas based on analyses of eye shape by three-dimensional magnetic resonance imaging and wide-field fundus imaging. Ophthalmology. 2014.09; 121(9); 1798-1809

9. Pichi Francesco, Romano Simona, Villani Edoardo, Lembo Andrea, Gilardoni Francesca, Morara Mariachiara, Ciardella Antonio P, Ohno-Matsui Kyoko, Nucci Paolo. Spectral-domain optical coherence tomography findings in pediatric tilted disc syndrome. Graefes Arch Clin Exp Ophthalmol. 2014.10; 252(10); 1661-1667

10. Hayashi Kengo, Katori Nobutada, Otsuki Yoshiro, Ohno-Matsui Kyoko. Clinicopathological study of three cases of infantile fibromatosis of the orbit. Int Ophthalmol. 2014.10; 34(5); 1097-1106

11. Koju Kamoi, Manabu Mochizuki. Pre-surround division technique: Precise cracks surrounding the posterior opacity prior to phacoemulsification in posterior polar cataract surgery. J Cataract Refract Surg. 2014.11; 40(11); 1764-1767

[Books etc]

1. Takeshi Yoshida and Kyoko Ohno-Matsui. Interaction between photoreceptors and RPEs. Springer, 2014

2. Richard F. Spaide, Kyoko Ohno-Matsui, Lawrence A. Yannuzzi(Editor). Pathologic Myopia. Springer, 2014 (ISBN : 978-1-4614-8338-0)

3. Kyoko Ohno-Matsui, Muka Moriyama. Stapyloma 2: Analyses of morphological features of posterior staphyloma in pathologic myopia analyzed by a combination of wide-view fundus observation and 3D MRI analyses. Springer, 2014

4. Kyoko Ohno-Matsui. Myopic chorioretinal atrophy. Pathologic Myopia. Springer, 2014

5. Kyoko Ohno-Matsui. Myopic macular retinoschisis. Pathologic Myopia. Springer , 2014

6. Kyoko Ohno-Matsui, Richard F. Spaide. Myopic optic neuropathy. Pathologic Myopia. Springer, 2014

7. Kyoko Ohno-Matsui. Sclera-Targeted Therapies for Pathologic Myopia. Pathologic Myopia . Springer, 2014

[Misc]

1. Wong Tien Y, Ohno-Matsui Kyoko, Leveziel Nicolas, Holz Frank G, Lai Timothy Y, Yu Hyeong Gon, Lanzetta Paolo, Chen Youxin, Tufail Adnan. Myopic choroidal neovascularisation: current concepts and update on clinical management Br J Ophthalmol. 2014.07;

2. Manabu Mochizuki, Koju Kamoi. F1000Prime Recommendation of [Gül A et al., Ann Rheum Dis 2012, 71(4):563-6] . F1000 Prime.

[Conference Activities & Talks]

1. Kyoko Ohno-Matsui. Analyses of Posterior staphyloma. Annual Meeting of Macula Society. Annual Meeting of Macula Society 2014.02.19 Key Largo, USA

2. Kyoko Ohno-Matsui. Surgical Management of Myopic Tractional Macular Schisis. World Ophthalmology Congress(WOC) 2014.04.02 Tokyo

3. Kyoko Ohno-Matsui. Imaging of the Highly Myopic Optic Nerve Head. World Ophthalmology Congress(WOC) 2014.04.02 Tokyo

4. Kyoko Ohno-Matsui. Latest perspectives in myopic CNV: reducing the burden of disease, restoring vision. World Ophthalmology Congress(WOC) 2014.04.03 Tokyo

5. Kyoko Ohno-Matsui. Observation of Optic Nerve and Sclera by 1 μ Swept-Source OCT. World Ophthalmology Congress(WOC) 2014.04.03 Tokyo

6. Kyoko Ohno-Matsui. Visual Acuity Outcomes and Ranibizumab Treatment Exposure in East-Asian and Caucasian Myopic CNV Patients: A Post Hoc Subgroup Analysis from the RADIANCE Study. World Ophthalmology Congress(WOC). 2014.04.04 Tokyo
7. Kyoko Ohno-Matsui. Anatomy of the Posterior Segment of High Myopic Eyes. World Ophthalmology Congress(WOC) 2014.04.04 Tokyo
8. Kyoko Ohno-Matsui. The Staphyloma Story. World Ophthalmology Congress(WOC) 2014.04.05 Tokyo
9. Kyoko Ohno-Matsui. Topography of High Myopia. World Ophthalmology Congress(WOC) 2014.04.05 Tokyo
10. Nikolle Tan, Kyoko Ohno-Matsui, Claudia Leteneux, Jennifer Petrillo, Neil Bressler. Impact of Ranibizumab on Patient-Reported Visual Functioning in Myopic Choroidal Neovascularization by Ethnicity: Asian and Caucasian Patients in the RADIANCE Trial. World Ophthalmology Congress(WOC) 2014.04.05 Tokyo
11. Lai T, Ohno-Matsui K, Tien WY, Lanzetta P, Stefan P, Nikol H. Comparison of visual acuity outcomes and ranibizumab treatment exposure in East-Asian and Caucasian patients with visual impairment due to myopic CNV: a RADIANCE study subgroup analysis. The Association for Research in Vision and Ophthalmology. ARVO 2014 Annual Meeting 2014.05.05 USA
12. Koju Kamoi, Yukiko Terada, Kazunori Miyata, Manabu Mochizuki, . Association of HTLV-1 uveitis with systemic inflammatory diseases and adult T cell leukemia. The Association for Research in Vision and Ophthalmology Annual Meeting 2014.05.07
13. Kyoko Ohno-Matsui. Posterior Staphyroma. International conference of pathologic myopia (iPM) 2014.07.19 Taipei, TAIWAN
14. Kyoko Ohno-Matsui.. Treatment of Myopic CNV. Treatment of Myopic CNV 2014.07.20 Taipei, TAIWAN
15. Tien Yin Wong, Paolo Lanzetta, Nikol Heinrichs, Stefan Pilz, Kyoko Ohno-Matsui. Ranibizumab in patients with visual impairment due to myopic choroidal neovascularization : A subgroup analysis of East Asian and Caucasian patients from the RADIANCE study. 14th EURETINA Congress 2014.09.11 London, UK
16. Kyoko Ohno-Matsui. Ranibizumab: compelling evidence and clear guidance in myopic CNV management. 14th EURETINA Congress 2014.09.11 London, UK
17. Paolo Nucci, Francesco Pichi, Antonio P Ciardella, Kyoko Ohno-Matsui . Spectral Domain OCT Findings in Pediatric Tilted Disc Syndrome. AAO(American Academy of Ophthalmology) 2014 2014.10.19 Chicago, USA
18. Sonya Liang, Noriaki Shimada, Natsuko Nagaoka, Kosei Shinohara, Kyoko Ohno-Matsui. Analyses of dome-shaped macula in a large population of the patients with pathologic myopia. AAO(American Academy of Ophthalmology) 2014 2014.10.19 Chicago, USA
19. Kyoko Ohno-Matsui. Prognostic Factors for Visual Outcomes in Choroidal Neovascularisation Secondary to Pathological Myopia (Myopic CNV). AAO(American Academy of Ophthalmology) 2014 2014.10.20 Chicago, USA

Otorhinolaryngology

Associate Professor: Atsunobu TSUNODA
Junior Associate Professor: Yoshihiro NOGUCHI
Assistant Professor: Yasuhiro SUZUKI, Yoshiyuki KAWASHIMA, Masatoki TAKAHASHI
Hospital Staff: Yuichiro INABA, Midori NAGAOKA, Akihisa TASAKI, Ryoichi YOSHIMOTO, Natsuko HATTORI, Ryosuke TAKAHASHI
Graduate Student: Yoshimi TAMEKUCHI, Katsura YAMAMOTO, Keiji HONDA

(1) Research

1) Deafness gene analysis
2) Neurophysiological study of hearing
3) Histoanatomical study of ear, nose, throat, head, and neck
4) Eye movement analysis in patients with dizziness
5) Clinical study of treatment and prognosis in patients with allergic rhinitis, acute and chronic sinusitis, and benign tumors
6) Treatment of tinnitus
7) Treatment using endoscope

(2) Lectures & Courses

Pre-graduate clinical education
Clinical systematic lecture covers anatomy, a general idea of diseases, their pathological conditions and treatments in the field of otorhinolaryngology. Clinical clerkship I (general diagnostic training) provides instruction in the diagnosis and testing techniques of the otorhinolaryngological field; clinical clerkship II (clinical training) provides detailed explanations of disease mechanisms, training in the performance of examinations, and clinical responsibilities involving both inpatient and outpatient care. Clinical clerkship III provides advanced training beyond the scope of clinical clerkship II. In particular, students develop an advanced understanding of otorhinolaryngological diseases by conducting outpatient procedures (including taking histories, visual inspection, and palpation), and gaining practical experience in assessment and diagnosis of patients' conditions. Furthermore, in the clinical clerkshipIII, students also attend a "micro-conference" on teaching. Finally, students are assigned to patients throughout their treatment, consistently dealing with the same individuals before, during, and after surgery; this allows the students to become familiar with the course of clinical care.

(3) Clinical Performances

Otorhinolaryngology clinic provides full examinations and treatment for diseases in ear, nose, throat, head, and neck, including dizziness, sudden deafness, facial palsy, infectious disease and benign as well as malignant disease in the otorhinolaryngeal area. We have performed the first implementation of bone anchored hearing aid implant in Japan and since then we have experienced many patients for this surgery. We also have performed surgery for patients with malignant disease as well as skull base lesions in collaboration with the Department of the Head and Neck Surgery. Our outpatient clinic includes general ear, nose and throat clinic as well as allergy, sinusitis, dizziness, otitis media, tumor, deafness, and tinnitus clinic.

(4) Publications

[Original Articles]

1. Suzuki M, Tsunoda A, Kudo T, Okada R, Toyoda M.. Successful management of hypoparathyroidism following total thyroidectomy with vitamin D(3) alone. Auris Nasus Larynx. 2014.02; 41; 53-55

2. Tsunoda K, Morita Y, Yabe T, Tsunoda A, Saito M. . Continuous involuntary tut-tutting: a case report. Ann Intern Med.. 2014.05; 160; 739

3. Kishikawa M, Tsunoda A, Tanaka Y, Kishimoto S.. Large nasopharyngeal inverted papilloma presenting with rustling tinnitus. Am J Otolaryngol. 2014.05; 35; 402-404

4. Keiji Honda, Yoshihiro Noguchi, Yoshiyuki Kawashima, Masatoki Takahashi, Ayako Nishio, Ken Kitamura. Ex Vivo Visualization of the Mouse Otoconial Layer Compared With Micro-Computed Tomography. Otol. Neurotol.. 2014.06;

5. Yamada M, Tsunoda A, Tokumaru T, Aoyagi M, Kawano Y, Yano T, Kishimoto S.. Surgery for juvenile nasopharyngeal angiofibroma with lateral extension to the infratemporal fossa. Auris Nasus Larynx. 2014.08; 41; 359-363

6. Kitazume Y, Ohashi I, Katayama T, Tsunoda A, Kishimoto S, Negi M.. Diffusion-weighted magnetic resonance neurography for parapharyngeal schwannomas: preoperative determination of the originating nerves. J Comput Assist Tomogr.. 2014.11; 38; 930-935

7. Ayako Maruyama, Atsunobu Tsunoda, Masatoki Takahashi, Seiji Kishimoto, Masami Suzuki. Nasopharyngeal pleomorphic adenoma presenting as otitis media with effusion: case report and literature review. Am J Otolaryngol. 35(1); 73-76

[Misc]

1. Hiroshi Nakanishi, Kiyoto Kurima, Yoshiyuki Kawashima, Andrew J Griffith. Mutations of TMC1 cause deafness by disrupting mechanoelectrical transduction. Auris Nasus Larynx. 2014.10; 41(5); 399-408

Neurology and Neurological Science

Professor Yokota Takanori Junior Associate Professor
SANJO Nobuo Assistant Professor
ISHIBASHI Satoru Assistant Professor
NISHIDA Yoichiro Assistant Professor
OHKUBO Takuya Project Junior Associate Professor
NAGATA Tetsuya Project Assistant Professor
NISHINA Kazutaka Project Assistant Professor
SATO Nozomu Project Assistant Professor
ISHIGURO Taro Project Assistant Professor
KUWAHARA Hiroya Graduate Student
HIGASHI Miwa Graduate Student
HIGUMA Maya Graduate Student
ITO Yoko Graduate Student
NUMASAWA Yoshiyuki Graduate Student
SOGA Kazumasa Graduate Student
YAGI Yohsuke Graduate Student
YOSHIOKA Kotaro Graduate Student
ZENIYA Satoshi Graduate Student
OZAKI Kokoro

(1) Research

1) Development of base technology on nucleic acid medicine and its application to neurological disorders
2) Discovery of biomarker in body fluid for neurological diseases

3) Pathogenesis of Alzheimer disease
4) Pathogenesis and therapies of amyotrophic lateral sclerosis (ALS)
5) Pathogenesis and therapies of cerebrovascular diseases
6) Genetical and pathomechanical studies of spinocerebellar ataxias
7) Regulation of blood-brain barrier
8) Electrophysiological studies
9) Leading-edge neuroradiological studies
10) Neuropathological studies of biopsied and autopsied samples

(2) Lectures & Courses

Neurology is a medical specialty concerned with the diagnosis and treatment of disorders of the nervous system including the brain, spinal cord, peripheral nerves, autonomic nerves and skeletal muscles. Since the nervous system extends to the whole body and regulate all the organs, neurologists have to examine and understand many symptoms of the whole brain and body.
The Department of Neurology and Neurological Science at Tokyo Medical and Dental University offers a unique "clinical neurological training for specialist" in a three-year residency program. This program is designed to provide the highest quality clinical training in the clinical practice of neurology, either in an academic or a practice career. To accomplish this, the program integrates extensive practical exposure to all aspects of current clinical neurology with a firm grounding in underlying scientific principles and methods of clinical investigations such as electrophysiology, neuromuscular pathology, stroke, dementia, neuroimaging, and neurogenetics. The faculty and staff are committed to facilitate resident education and training.
After completion of their training for three years, senior residents are equipped with a lot of clinical experience as attending doctors or teaching assistants in the university hospital and affiliated hospitals. They are eligible for the board certification by the Japanese Society of Neurology.

(3) Clinical Services & Other Works

We daily see about 100 out-patients and 36 in-patients, and offer in- and out-patient consultation services through the weekday and on weekends. We diagnose and treat patients with stroke, multiple sclerosis, Parkin- son's disease, spinocerebellar ataxia, ALS, myopathies, neuropathies, meningitis/encephalitis, and hundreds of other neurological issues. We also have the "out-patients clinic specialized to patients with amnesia." Our patients will be reliably evaluated and diagnosed with some skillful techniques, such as the electrophysiological, neuroradiological, and neuropsychological tests and pathological diagnosis of biopsied nerves and muscles.

(4) Publications

[Original Articles]

1. Temu Qina, Nobuo Sanjo, Masaki Hizume, Maya Higuma, Makoto Tomita, Ryuichiro Atarashi, Katsuya Satoh, Ichiro Nozaki, Tsuyoshi Hamaguchi, Yosikazu Nakamura, Atsushi Kobayashi, Tetsuyuki Kitamoto, Shigeo Murayama, Hiroyuki Murai, Masahito Yamada, Hidehiro Mizusawa. Clinical features of genetic Creutzfeldt-Jakob disease with V180I mutation in the prion protein gene. BMJ Open. 2014; 4(5); e004968

2. Kiyobumi Ota, Masato Obayashi, Kokoro Ozaki, Shizuko Ichinose, Akiyoshi Kakita, Mari Tada, Hitoshi Takahashi, Noboru Ando, Yoshinobu Eishi, Hidehiro Mizusawa, Kinya Ishikawa. Relocation of p25alpha/tubulin polymerization promoting protein from the nucleus to the perinuclear cytoplasm in the oligodendroglia of sporadic and COQ2 mutant multiple system atrophy. Acta Neuropathol Commun. 2014; 2; 136

3. Zen Kobayashi, Mayumi Watanabe, Yuri Karibe, Chika Nakazawa, Yoshiyuki Numasawa, Hiroyuki Tomimitsu, Shuzo Shintani. Right hand predominant constructional apraxia due to right hemisphere infarction without corpus callosum lesions. Intern. Med. 2014; 53(14); 1553-1558

4. Yu Mizuno, Yasuhisa Sakurai, Izumi Sugimoto, Keiko Ichinose, Shoichiro Ishihara, Nobuo Sanjo, Hidehiro Mizusawa, Toru Mannen. Delayed leukoencephalopathy after carbon monoxide poisoning presenting as subacute dementia. Intern. Med. 2014; 53(13); 1441-1445

5. Zen Kobayashi, Mihoko Iizuka, Hiroyuki Tomimitsu, Shuzo Shintani. Isolated medial longitudinal fasciculus syndrome due to small midbrain infarction. Neurol. Clin. Neurosci. 2014; 2(4); 112-113

6. Miho Akaza, Keiko Tanaka, Masami Tanaka, Teruhiko Sekiguchi, Tamako Misawa, Kazutaka Nishina, Izumi Kawachi, Masatoyo Nishizawa, Hidehiro Mizusawa, Takanori Yokota. Can anti-AQP4 antibody damage the blood-brain barrier? Eur. Neurol. 2014; 72(5-6); 273-277

7. Rintaro Iwata, Kazutaka Nishina, Takanori Yokota, Takeshi Wada. Synthesis and properties of double-stranded RNA-bindable oligodiaminogalactose derivatives conjugated with vitamin E. Bioorg. Med. Chem. 2014; 22(4); 1394-1403

8. Takashi Hirai, Mitsuhiro Enomoto, Hidetoshi Kaburagi, Shinichi Sotome, Kie Yoshida-Tanaka, Madoka Ukegawa, Hiroya Kuwahara, Mariko Yamamoto, Mio Tajiri, Haruka Miyata, Yukihiro Hirai, Makoto Tominaga, Kenichi Shinomiya, Hidehiro Mizusawa, Atsuchi Okawa, Takanoro Yokota. Intrathecal AAV Serotype 9-mediated Delivery of shRNA Against TRPV1 Attenuates Thermal Hyperalgesia in a Mouse Model of Peripheral Nerve Injury. Mol. Ther. 2014; 22(2); 409-419

9. Masahiko Ichijo, Satoru Ishibashi, Takuya Ohkubo, Shosaku Nomura, Nobuo Sanjo, Takanori Yokota, Hidehiro Mizusawa. Elevated platelet microparticle levels after acute ischemic stroke with concurrent idiopathic thrombocytopenic purpura. J. Stroke Cerebrovasc. Dis. 2014; 23(3); 587-589

10. Teruhiko Sekiguchi, Tadashi Kanouchi, Kazumoto Shibuya, Yu-ichi Noto, Yohsuke Yagi, Akira Inaba, Keisuke Abe, Sonoko Misawa, Satoshi Orimo, Takayoshi Kobayashi, Tomoyuki Kamata, Masanori Nakagawa, Satoshi Kuwabara, Hidehiro Mizusawa, Takanori Yokota. Spreading of amyotrophic lateral sclerosis lesions–multifocal hits and local propagation? J. Neurol. Neurosurg. Psychiatr. 2014; 85(1); 85-91

11. Hiroya Kuwahara, Kuniaki Tsuchiya, Zen Kobayashi, Akira Inaba, Haruhiko Akiyama, Hidehiro Mizusawa. Cryptococcal meningitis accompanying lymphocytic inflammation predominantly in cerebral deep white matter: a possible manifestation of immune reconstitution inflammatory syndrome. Neuropathology. 2014; 34(1); 45-48

12. Satoshi Zeniya, Akiko Yuno, Takayuki Watanabe, Takeshi Usui, Yurie Moriki, Yoshitaka Uno, Hirotomo Miake. A 22-year-old woman with hypocalcemia and clinical features of albright hereditary osteodystro- phy diagnosed with sporadic pseudohypoparathyroidism type Ib using a methylation-specific multiplex ligation-dependent probe amplification assay. Intern. Med. 2014; 53(9); 979-986

13. Fumiko Furukawa, Satoru Ishibashi, Nobuo Sanjo, Hiroshi Yamashita, Hidehiro Mizusawa. Serial magnetic resonance imaging changes in sporadic Creutzfeldt-Jakob disease with valine homozygosity at codon 129 of the prion protein gene. JAMA Neurol. 2014; 71(9); 1186-1187

14. Kazuo Iwasa, Keisuke Shima, Kiyonobu Komai, Yoichiro Nishida, Takanori Yokota, Masahito Yamada . Retinitis pigmentosa and macular degeneration in a patient with ataxia with isolated vitamin E deficiency with a novel c.717 del C mutation in the TTPA gene. J Neurol. Sci. 2014; 345(1-2); 228-230

[Conference Activities & Talks]

1. Sekiguchi T, Kanouchi T, Shibuya K, Noto YI, Yagi Y, Inaba A, Abe K, Misawa S, Orimo S, Kobayashi T, Kamata T, Nakagawa M, Kuwabara S, Mizusawa H, Yokota T. Spreading of amyotrophic lateral sclerosis lesions -multifocal hits & local propagation? 30th international congress of clinical neurophysiology of the IFCN 2014.03.21 Berlin

2. Machida A, Ohkubo T, Matsuo H, Tsunoda A, Kishimoto S, Maehara T, Kosaka N, Ochiya T, Mizusawa H, Yokota T. Profiling of miRNAs in cerebrospinal fluid from patients with amyotrophic lateral sclerosis. The 66th American Academy of Neurology Annual Meeting 2014.04.30 Philadelphia

3. Fumiko Furukawa, Nobuo Sanjo, Atsushi Kobayashi, Tetsuyuki Kitamoto, Atsushi Shiraishi, Kinya Ishikawa, Haruhisa Honda, Masahito Yamada, Hidehiro Mizusawa. Clinical features of Gerstmann-Sträussler- Scheinker syndrome with a P105L mutation and a valine-encoding polymorphic codon 129 in the prion protein gene. Prion 2014 2014.05.27 Trieste

4. Masaki Hizume, Nobuo Sanjo, Katsuya Satoh, Tsuyoshi Hamaguchi, Masahito Yamada, Yasushi Iwasaki, Atsushi Kobayashi, Tetsuyuki Kitamoto, Hidehiro Mizusawa. Immunohistochemical and neuropatholog- ical analyses of the prion protein in genetic Creutzfeldt-Jakob disease with V180I mutation. Prion 2014 2014.05.27 Trieste

5. Nobuo Sanjo, Maya Higuma, Masaki Hizume, Fumiko Furukawa, Yosikazu Nakamura, Tetsuyuki Kitamoto, Masahito Yamada, Kenji Sakai, Ichiro Nozaki, Moeko Noguchi-Shinohara, Tsuyoshi Hamaguchi, Fumio Moriwaka, Masashi Aoki, Fumiaki Tanaka, Masatoyo Nishizawa, Masatoshi Takeda, Takashi Inuzuka, Koji Abe, Hiroyuki Murai, Shigeo Murayama, Masaki Takao, Katsuya Satoh, Masafumi Harada, Nobuhito Saito, Ichirou Takumi, Hidehiro Mizusawa. Human prion diseases in Japan: a prospective surveillance from 1999. Prion 2014 2014.05.27 Trieste

6. Nobuo Sanjo, Maya Higuma, Masaki Hizume, Fumiko Furukawa, Yosikazu Nakamura, Tetsuyuki Kitamoto, Tsuyoshi Hamaguchi, Fumio Moriwaka, Masashi Aoki, Fumiaki Tanaka, Masatoyo Nishizawa, Masatoshi Takeda, Takashi Inuzuka, Koji Abe, Kota Sato, Hiroyuki Murai, Shigeo Murayama, Katsuya Satoh, Masafumi Harada, Naoto Uyama, Koji Fujita, Nobuhito Saito, Ichiro Takumi, Tadashi Tsukamoto, Masahito Yamada, Hidehiro Mizusawa. Human prion diseases in Japan: a prospective surveillance from 1999. Asian Pacific Prion Symposium 2014 2014.07.06 Cheju

7. Kazuo Kuwata, Hidehiro Mizusawa, Nobuo Sanjo, Noriyuki Nishida, Takayuki Fuse, Fumiko Ono, Hiroaki Shibata, Mayuko Fukuoka, Yoko Matsusaki. Toward the First in Human Clinical Trial of a Medical Chaperone for Prion Diseases. Asian Pacific Prion Symposium 2014 2014.07.06 Cheju

8. Fumiko Furukawa, Nobuo Sanjo, Atsushi Kobayashi, Atsushi Shiraishi, Masahito Yamada, Tetsuyuki Kitamoto, Yoshinobu Eishi, Hidehiro Mizusawa. Involvement of the dorsal root ganglion in GSS with P105L mutation. Asian Pacific Prion Symposium 2014 2014.07.06 Cheju

9. Tsuyoshi Hamaguchi, Kenji Sakai, Ichiro Nozaki, Moeko Noguchi-Shinohara, Nobuo Sanjo, Yosikazu Nakamura, Tetsuyuki Kitamoto, Shigeo Murayama, Katsuya Satoh, Masafumi Harada, Hidehiro Mizusawa, Masahito Yamada. Clinical features of MM2 type sporadic Creutzfeldt-Jakob disease. Asian Pacific Prion Symposium 2014 2014.07.06 Cheju

10. Kenji Sakai, Tsuyoshi Hamaguchi, Moeko Noguchi-Shinohara, Ichiro Nozaki, Ichiro Takumi, Nobuo Sanjo, Yosikazu Nakamura, Tetsuyuki Kitamoto, Nobuhito Saito, Hidehiro Mizusawa, Masahito Yamada. Graft-related disease progression in dura mater graft-associated Creutzfeldt–Jakob disease: a cross- sectional study. Asian Pacific Prion Symposium 2014 2014.07.06 Cheju

11. Maya Higuma, Nobuo Sanjo, Yoko Ito, Fumiko Furukawa, Hiroshi Mitoma, Hidehiro Mizusawa. Relationship between gait and cognitive function in patients with Alzheimer's disease. Alzheimer's Association International Conference 2014 2014.07.13 Copenhagen

12. Kotaro Yoshioka, Kie Tanaka, Wenying Piao, Kazutaka Nishina, Takanori Yokota. A new class of oligonucleotide drug; DNA/RNA heteroduplex oligonucleotide for highly efficient gene silencing. 6th TMDU International Summer Program (ISP2014). 2014.08.26 Tokyo

13. Takuya Ohkubo, Akira Machida, Kaoru Mogushi, Hidenori Matsuo, Atsushi Tsunoda, Taketoshi Maehara, Yuichi Noto, Toshio Shimizu, Satoshi Kuwabara, Takashi Kanda, Nobuyoshi Kosaka, Takahiro Ochiya, Takanori Yokota. Profiling of miRNAs in cerebrospinal fluid form patients with multifocal motor neuropathy and amyotrophic lateral sclerosis. The 37th Annual Meeting of the Japan Neuroscience Society 2014.09.11 Yokohama

14. Keisuke Abe, Taku Namatame, Mio Tajiri, Daishi Yui, Takuya Ohkubo, Takanori Yokota. Selective uptake of C-terminal fragments of TDP-43 into exosome. The 37th Annual Meeting of Japan Neuroscience Society 2014.09.12 Yokohama

15. Takanori Yokota. Oligonucleotide Gene Therapy for ALS. The 37th Annual Meeting of the Japan Neuroscience Society 2014.09.12 Yokohama

16. Hiroya Kuwahara, Takanori Yokota. Development of BBB-targeting nucleic acid medicine. The 37th Annual Meeting of the Japan Neuroscience Society 2014.09.13 Yokohama

17. Kotaro Yoshioka, Yumiko Sujino, Kie Tanaka, Wenying Piao, Tomoko Nishina, Hiroya Kuwahara, Kazutaka Nishina, Takanori Yokota. Hetero-chimera-duplex oligonucleotide (HCDO): A new class of oligonucleotide for enhancement of efficacy of microRNA inhibitor. 10th annual meeting of the Oligonucleotide Therapeutics Society 2014.10.12 San Diego

18. Yumiko Sujino, Kazutaka Nishina, Kie Tanaka, Wenying Piao, Tomoko Nishina, Hiroya Kuwahara, Takanori Yokota. DNA/RNA heteroduplex oligonucleotide; a new class drug for gene silencing. 10th annual meeting of the Oligonucleotide Therapeutics Society 2014.10.13 San Diego

19. Taro Ishiguro, Nobuhiro Fujikake, Nozomu Sato, Morio Ueyama, Hidehiro Mizusawa, Kkeiji Wada, Yoshitaka Nagai, Kinya Ishikawa. Expanded UGGAA repeat RNA associated with SCA31 causes progressive neurodegeneration in Drosophila. Cold Spring Horbor Laboratory Meeting 2014.12.03 NewYork

Psychiatry and Behavioral Sciences

Professor Toru NISHIKAWA
Associate Professor Akeo KURUMAJI
Junior Associate Professor
Naoki YAMAMOTO,Takashi TAKEUCHI(2014.4 〜),
Assistant Professor
Takashi TAKEUCHI(〜 2014.3),Mitsuhiro TAKEDA(〜 2014.3),
Daisuke JITOKU,Akihito UEZATO,Hiroo MITSUSADA,
Yuichiro ABE(2014.4 〜),Kohei HINO(2014.4 〜),
Mizue HOBO(Department of Sleep Modulatory Medicine)
Technical Specialist Asami UMINO
Medical Staff
Yuya TERASAWA,Kohei HINO(〜 2014.3),Yu TOMIOKA,
Hitoshi MUTO(2014.4 〜),Takehiro TAMURA(2014.10 〜),
Medical Fellow
Sayuri ISHIWATA(2014.4 〜),Michio ITASAKA(〜 2014.3)
Technical Assistant
Yasuhiro OKA, Miyuki SAITO,Sayuri HASHIGUCHI(〜 2014.6),
Sayuri ISHIWATA(〜 2014.3)
Research Assistant
Michio ITASAKA(2014.4 〜),Meri SASAKI,Ayano SOMEYA,
Graduate Students
Syunsuke TAKAGI,Masakazu UMINO,Kazuo TAKIGUCHI,Takuya YOSHIIKE,
Ayako KANIE,Megumi GOTO,Ko FURUTA,Momoko KOBAYASHI,
Tomoya SHIRAISHI,Keiko ONO, Misa NONAKA

(1) Outline

Our laboratory is committed to comprehensive research on endogenous psychosis, neurosis, and epilepsy through biological, psychological and social approaches. In collaboration with external research facilities, we are also involved in social psychiatry. child and adolescent psychiatry, and brain imaging studies.

(2) Research

1)Studies in neurochemistry
(i)Molecular genetic studies to clarify the causes and conditions of neuropsychiatric diseases:
Using animal models with psychotic symptom-causing agents, we are involved in a study to isolate new candidate gene clusters associated with the pathogenesis and pathophysiology of neuropsychiatric disorders from the viewpoint of developmental pharmacology. We are examining the effects of candidate gene clusters in patients with neuropsychiatric disorders.
(ii)Studies in biochemical pharmacology to develop new therapeutic methods for neuropsychiatric disorders.
(ii)Studies in biochemical pharmacology to develop new therapeutic methods for neuropsychiatric disorders.
2) Neurophysiological and psychophysiological studies
(ii)Studies of neurotransmitter receptor binding in neuropsychiatric disorders with PET:
We are working together with the National Institute of Radiological Sciences to investigate the binding activities of dopamine receptors in various brain areas of the patients with schizophrenia and mood disorders.
(iii)A study of sleep stages and behavior in neuropsychiatric diseases:
A study is being carried out to examine sleep stages and behavior using an originally developed automatic

analysis device (polysomnography) in patients with various psychiatric disorders.
A study on brain functioning in psychiatric disorders by using the near-infrared spectroscopy (NIRS): To obtain an insight into biological markers of psychiatric disorders, changes in regional brain functions during psychological tasks are examined by measuring the relative concentrations of oxyhemoglobin using NIRS in combination with MRI in the brain areas of the patients with schizophrenia and mood disorders.
3) Psychopathological studies
We are conducting psychological studies of neuropsychiatric diseases from the aspects of phenomenology, anthropology, and linguistics, while employing a psychotherapeutic approach. Other research activities include a review of basic psychiatric concepts and a basic study for the c1assification and diagnosis of psychiatric disorders, which are important recent issues. In addition to endogenous psychosis including schizophrenia and manic depressive disorder. we are also involved in psychoanalytic studies of neurosis and borderline personality disorder, which are attracting increasing attention, and psychotherapies for them, as well as pathological research on pathography and art therapy in terms of creativity.

(3) Education

Following the two-year period of mandatory clinical training, basic professional training in psychiatry will be provided for 6-9 months mainly in the university. In the second term of training, they will acquire knowledge and clinical experience necessary for neuropsychiatrists, and undergo practical training at affiliated medical facilities to become qualified psychiatrists. Undergraduate education, which places emphasis on clinical clerkship training after a systematic series of lecture course and seminar-based classes, is designed to develop students' problem-solving skills, and increase their motivation to learn neuropsychiatry, with support from external facilities

(4) Lectures & Courses

In the first term (two years) of postgraduate training, residents will learn basic laboratory procedures and diagnostictechniques,psychotherapy and drug treatment and laws and regulations related to clinical practice, and acquire other general knowledge, all being essential for biologic , la psychological, social, and ethical approaches to neuropsychiatric diseases.

(5) Clinical Services & Other Works

Clinical practice
Approximately eighty new outpatients visit our department every month, about 30% of which are classified as having "mood disorders" (F3) by ICO-10, followed by "neurotic, stress-related, and somatoform disorders" (F4) and "schizophrenia, schizophrenic and paranoid disorders" (F2). We are also actively involved in consultation and liaison psychiatry for inpatients in other departments. Patients with snile dementia, child and adolescent psychiatric disorders, substance, dependence, and neurosis requiring intensive psychotherapy are often referred to related and advanced facilities for specialized treatment. Since this facility, the psychiatric department of a general hospital, is used for university education and training, most inpatients are c1assified as F2, followed by F4 and F3 (ICD-10). We also provide care and treatment for patients with sleep rhythm disorders and neurological disorders, including epilepsy and senile dementia. In addition to drug treatment, we have introduced and provided mECT (modified electroconvulsive therapy) for inpatients, and individual and group psychotherapy for the patients in our psychiatric ward and clinic and day care center in close collaboration with rehabilitation facilities in the community. The day care team consists of a doctor, two nurses. And a psycho-social-worker or a clinical psychologist. Day care (partial hospitalization) is the transitional element between inpatient and outpatient care and its indications have a wide range of psychiatric disorders as follows: schizophrenia, depression, bipolar disorder, adjustment disorder and personality disorders. Each member has the own aim and the team gives care with different types of framework. Our day care team regards the potentiality of group very important and the group process could contribute to therapeutic effect. With this kind of experience, patients could develop their ability to communicate with other people and readapt to social situations.
(i)A study of biological indicators in schizophrenia with eye cameras:
We are not only involved in studies of monozygotic twins, early-onset patients, and children at a high risk in Japan, but also in an international joint research project of the WHO as a center in charge of operations.

(6) Clinical Performances

Since the 2011 fiscal year, we have been conducting the clinical trial of D-cycloserine for negative symptoms such as avolition, flattening of affect, and poverty of thought and cognitive dysfunction of schizophrenia. We also have been treating patients with schizophrenia with clozapine, which has been approved for refractory schizophrenia. We have started getting systematically involved in the treatment of patients complaining of pain or dysesthesia in oral regions in liaison with the Dental Hospital, which is the unique characteristics of our university. In the 2014 fiscal year, we started the psychoeducational program for patients with bipolar disorder, which focuses on the prevention of relapse. In addition, there is an increasing number of liaison activities for the prevention of delirium especially in the surgical wards, the intervention to patients with suicide attempts in the emergency room, and the mental support for peripartum patients in cooperation with the staffs.

(7) Publications

[Original Articles]

1. Takebayashi H, Yamamoto N, Umino A, Nishikawa T.. Identification of developmentally regulated PCP-responsive non-coding RNA, prt6, in the rat thalamus. PLoS ONE. 2014; 9(6); e97955

2. Jitoku D, Yamamoto N, Iwayama Y, Toyota T, Miyagi M, Enokida T, Tasaka Y, Umino M, Umino A, Uezato A, Iwata Y, Suzuki K, Kikuchi M, Hashimoto T, Kanahara N, Kurumaji A, Yoshikawa T, Nishikawa T.. Association study of H2AFZ with schizophrenia in a Japanese case-control sample. J Neural Transm. 2014;

3. Kanie A , Hagiya K, Ashida S, Shenghong Pu Ph, Kaneko K, Mogami T, Oshima S, Motoya M, Niwa S, Inagaki A, Ikebuchi E, Kikuchi A, Yamasaki S, Iwata K, David L Roberts , Nakagome K. . A new instrument for measuring multiple domains of social cognition: Construct validity of the Social Cognition Screening Questionnaire (Japanese version). Psychiatry CloniNeurosci. 2014; 68(9); 701-711

4. Kurumaji A, Narushima K, Takeda M, Jitoku D, Kyono H, Hobo M, Mitsusada H, Nishida M, Atsuta H, Tamai S, Takagi D, Fujita M, , Kawamata K, Okuzumi S, Hino K, Tsutsui K, Nishikawa T.. A Comparison of Pharmacotherapy of Inpatients with Major Depressive Disorders between Single Episode and Recurrent One. Clinical Neuropsychophramacology and Therapeutics.. 2014.03; (5); 5-10

5. Yokoi T, Moriyama M, Hayashi K, Shimada N, Tomita M, Yamamoto N, Nishikawa T, Ohno-Matsui K. Predictive factors for comorbid psychiatric disorders and their impact on vision-related quality of life in patients with high myopia. Int Ophthalmol. 2014.04; 34(2); 171-183

6. Yoshiike T, Kuriyama K, Honma M, Ikeda H, Kim Y.. Neuroticism relates to daytime wakefulness and sleep devaluation via high neurophysiological efficiency in the bilateral prefrontal cortex: a preliminary study. Psychophysiology. 2014.04; 51(4); 396-406

7. Balu Darrick T, Takagi S, Puhl Matthew D, Benneyworth Michael A, Coyle Joseph T. D-serine and serine racemase are localized to neurons in the adult mouse and human forebrain. Cell Mol Neurobiol. 2014.04; 34(3); 419-435

8. Nishida M, Nakashima Y, Nishikawa T.. Topographical distribution of fast and slow sleep spindles in medicated depressive patients. J Clin Neurophysiol. 2014.10; 31(5); 402-408

9. Yamamoto N, Muraoka S, Kajii Y, Umino A, Nishikawa T.. Identification of a developmentally-regulated and psychostimulant-inducible novel rat gene mrt3 in the neocortex. Eur Neuropsychopharmacol. 2014.10; 24(10); 1687-1697

10. Kurumaji A, Narushima K, Ooshima K, Yukizane T, Takeda M, Nishikawa T.. Clinical course of the bipolar II disorder in a Japanese sample. J Affect Disord. 2014.10; 168; 363-366

11. Uezato A, Toyofuku A, Umezaki Y, Watanabe M, Torihara A, Tomita M, Yamamoto N, Kurumaji A, Nishikawa T. Oral Dysesthesia Rating Scale: a tool for assessing psychosomatic symptoms in oral regions. BMC Psychiatry. 2014.12;14(1);359

[Conference Activities & Talks]

1. Nishikawa T. . “Neuron-glia regulation of D-serine signaling. Implication in schizophrenia” 29th CINP world congress of neuropsychopharmacology 2014.06.23 Canada

2. Jitoku D, Yamamoto N, Iwayama Y, Umino M, Umino A, Uezato A, Kurumaji A, Yoshikawa T, Nishikawa T.. Association study of H2AFZ with schizophrenia in a Japanese case-control sample. 29th CINP world congress of neuropsychopharmacology. 2014.06.23 Canada

3. Ishiwata S, Umino A, Balu D, Coyle J.T, Nishikawa T.. Changes in extracellular contents of D-serine and D-serine-NMDA receptor-associated amino acids by selective suppression of serine racemase expression in forebrain glutamatergic neurons.. 29th CINP world congress of neuropsychopharmacology 2014.06.23 Canada

4. Umino M, Umino A, Yamamoto N, Nishikawa T.. Postnatal development of patterns of basal and schizophrenomimetic phencyclidine-induced gene expression in the rat neocortex.. 29th CINP world congress of neuropsychopharmacology 2014.06.24

5. Yamamoto N, Takebayashi H, Umino A, Nishikawa T.. Identification of developmentally regulated NMDA receptor antagonist phencyclidine-responsive transcripts in the rat brain.. 29th CINP world congress of neuropsychopharmacology 2014.06.24 Canada

6. Uezato A, Shimazu D, Jitoku D, Iwayama Y, Toyota T, Yamada K, Yoshikawa T, Yamamoto N, Nishikawa T. . Genetic association and postmortem analyses of papst1, a D-serine modulator in schizophrenia and bipolar disorder.. The 2nd International Conference of D-Amino Acid Research 2014.09.03 Tochigi

7. Umino A, Iwama H, Ishiwata S, Itasaka M, Nishikawa T.. Neuronal regulation of tissue and extracellular D-serine concentrations in the rat brain.. The 2nd International Conference of D-Amino Acid Research 2014.09.03 Tochigi

8. Ishiwata S, Umino A, Iwama H, Nishikawa T.. Glutamatergic and gabaergic regulation of the extracellular D-serine concentrations in the medial frontal cortex.. The 2nd International Conference of D-Amino Acid Research 2014.09.04 Tochigi

9. Nishikawa T. . Possible implication of disturbed brain D-serine signaling in the pathophysiology of schizophrenia.. The 2nd International Conference of D-Amino Acid Research 2014.09.04 Tochigi

10. Yoshiike T, Kuriyama K, Honma M, Ikeda H, Kim Y.. Neuroticism facilitates daytime wakefulness and sleep devaluation via higher neural efficiency in the bilateral prefrontal cortex.. 17th World Congress of Psychophysiology. 2014.09.26 Hiroshima

11. Nishikawa T. . Neural mechanisms underlying psychiatric symptoms of dementia with Lewy bodies and Parkinson’s disease: Implications for rational pharmacotherapy.. 14th ICGP & 19th JSNP Joint Congress. 2014.10.03 Ibaragi.

12. Nishikawa T.. Dysregulation of the NMDA type glutamate receptor and schizophrenia.. Medical Research Institute 40th Anniversary 13th Surugadai International Symposium 2014.11.28 Tokyo.

[Awards & Honors]

1. JSNP Excellent Presentation Award for CINP2014.(Ishiwata Sayuri), 29th CINP World Congress, 2014.06

Neurosurgery

Professor: Taketoshi Maehara
Associate Professor: Tadashi Nariai
Assistant Professors: Yoji Tanaka and Motoki Inaji
Hospital stuffs:
Takashi Sugawara, Yoshihisa Kawano, Kaoru Tamura,Kazutaka Sumita, Maki Mukawa, Motoshige Yamashina, Shihori Hayashi, Juri Kiyokawa, Kazuhide Shimizu, Yusuke Ebiko, Asumi Orihara, Satoru Takahashi and Naoki Taira
Graduate Students: Shin Hirota, Tomoyuki Kino, Maki Mukawa, Masahumi Sasaki, Yoshiteru Obata, Yousuke Ishii, Sakyo Hirai, Yasuhiro Ueda, Jun Karakama, Takahiro Ogishima, Shihori Hayashi, Kazuhide Shimizu and Dong Xlao Shu

(1) Outline

There are various attracting subjects in the field of clinical or basic research. It is essential to acquire the sufficient knowledge and insight into the pathological conditions as well as normal functions of the central nervous system and spinal cord, which will directly benefit for the improvement of clinical results. Main educational purpose of neurosurgery in the graduate course is to provide students opportunity to acquire the proper technique as well as the broad knowledge, and to nurture the mind of exploration.
In the clinical practice, it is important to attach priority to the patients, considering their background. Also in surgery, it is important to preserve the normal brain functions by employing the cutting edge technique. In the research field, it is essential to introduce and develop the latest knowledge and technology by establishing the reciprocal relationship with the other laboratory institutions.

(2) Research

Brain tumors
1. Analysis of the mechanism of tumor proliferation and infiltration, and its application to treatment
2. Analysis of both proliferative and inhibitory cancer genes in cerebral and spinal tumors
3. Studies of photodynamic therapy, irradiation therapy, agents of chemotherapy, immunotherapy, and inhibition of angiogenesis
4. Development of the multi-modal navigation system integrated with anatomical, hemodynamic, and functional information for brain tumor surgery and evaluate its efficacy.

Vascular diseases in the central nervous system and spinal cord
1. Analysis of pathogenesis of vasospasm after subarachnoid hemorrhage and its application to treatment
2. Studies of circulatory disturbance in ischemic and hemorrhagic diseases, and reversibility of the brain tissue
3. Investigations of pathology of Moyamoya disease and the effects of indirect surgical anastomosis on this entity
4. Solutions of problems in the development of endovascular surgery

Neurotrauma
1. Analysis of cell damage and its reversibility, dynamic simulation in cerebrospinal injury
2. Animal experiments concerning treatment of cerebrospinal injury

Functional neurosurgery
1. Pathological analysis and treatment of temporal lobe epilepsy
2. Analysis of intracellular signal transductions

Others
1. Studies of human cerebral circulation, metabolism, and functions using PET, MRI/S, and MEG
2. Studies of receptors in the central nervous system using PET
3. Experiments of brain diseases using animal model MRI and PET

(3) Clinical Services & Other Works

Neurosurgery is a clinical department dealing with various diseases of central nervous system and spinal cord including tumors, vascular diseases, trauma, congenital malformation, functional disorders, and infection.

(4) Publications

[Original Articles]

1. Ishii Y, Nariai T, Tanaka Y, Mukawa M, inaji M, Maehara T, Ohno K.. Practical clinical use of dynamic susceptibility contrast magnetic resonance imaging for the surgical treatment of moyamoya disease. Neurosurgery. 2014; 74(3); 302-309

2. Hiura M, Nariai T, Ishii K, Sakata M, Oda K, Toyohara J, Ishiwata K.. Changes in cerebral blood flow during steady-state cycling exercise: a study using oxygen-15-labeled water with PET. J Cereb Blood Flow Metab. 2014; 34(3); 389-396

3. Choi SH*, Tamura K*, Khajuria RK, Bhere D, Nesterenko I, Lawler J, Shah K. Antiangiogenic Variant of TSP-1 Targets Tumor Cells in Glioblastomas. Mol Ther. 2014; 42308;

4. Duebgen M, Martinez-Quintanilla J, Tamura K, Hingtgen S, Redjal N, Wakimoto H, Shah K. Stem cells loaded with multimechanistic oncolytic herpes simplex virus variants for brain tumor therapy. J Natl Cancer Inst. 2014; 106; dju090

5. Hayashi S, Maehara T, Mukawa M, Aoyagi M, Yoshino Y, Nemoto S, Ono T, Ohno K. Successful coil embolization of a ruptured basilar artery aneurysm in a child with leukemia: a case report. Neurol Med Chir (Tokyo). 2014; 54; 150-154

6. Hirose Y, Hara K, Miyajima M, Matsuda A, Maehara T, Hara M, Matsushima E, Ohta K, Matsuura M. Changes in the duration and frequency of deviant stimuli engender different mismatch negativity patterns in temporal lobe epilepsy. Epilepsy Behav. 2014; 31; 136-142

7. Hiura M, Nariai T, Ishii K, Sakata M, Oda K, Toyohara J, Ishiwata K. Changes in cerebral blood flow during steady-state cycling exercise: a study using oxygen-15-labeled water with PET. J Cereb Blood Flow Metab. 2014; 34; 389-396

8. Ishii Y, Nariai T, Tanaka Y, Mukawa M, Inaji M, Maehara T, Ohno K. Practical clinical use of dynamic susceptibility contrast magnetic resonance imaging for the surgical treatment of moyamoya disease. Neurosurgery. 2014; 74; 302-309

9. Kawano Y, Maehara T, Ohno K. Validation and evaluation of the volumetric measurement of cerebellopontine angle cistern as a prognostic factor of microvascular decompression for primary trigeminal neuralgia. Acta Neurochir (Wien). 2014; 156; 1173-1179

10. Kishikawa M, Tsunoda A, Tanaka Y, Kishimoto S. Large nasopharyngeal inverted papilloma presenting with rustling tinnitus Am J Otolaryngol. 2014; 35; 402-404

11. Kiyokawa J, Yamaguchi K, Okada R, Maehara T, Akita K. Origin, course and distribution of the nerves to the posterosuperior wall of the external acoustic meatus. Anat Sci Int. 2014; 89; 238-245

12. Majd.N, Sumita K, Yoshino H, Chen D, Terakawa J, Daikoku T, Kofuji S, Curry R, Wise-Draper T, Warnick R, Guarnascheli J, Sasaki A. A review of the Potential Utility of Mycophenolate Mofetil as a Cancer Therapeutic. Journal of Cancer Resarch. 2014; 423401;

13. Momose T, Nariai T, Kawabe T, Inaji M, Tanaka Y, Watanabe S, Maehara T, Oda K, Ishii K, Ishiwata K, Yamamoto M. Clinical benefit of 11C methionine PET imaging as a planning modality for radiosurgery of previously irradiated recurrent brain metastases. Clin Nucl Med. 2014; 39; 939-943

14. Sugawara T, Maehara T, Tadashi N, Aoyagi M, Ohno K. Independent predictors of shunt-dependent normal pressure hydrocephalus after aneurysmal subarachnoid hemorrhage. J Neurosurg Sci. 2014; 42214;

15. Sugawara T, Aoyagi M, Ogishima T, Kawano Y, Tamaki M, Yano T, Tsunoda A, Ohno K, Maehara T, Kishimoto S. Extended Orbital Exenteration for Sinonasal Malignancy with Orbital Apex Extension-Surgical Technique and Clinical Analysis-. J Neurosurg Accepted. 2014; 42272;

16. Tamura K, Aoyagi M. CD133-positive stem cells. Response. J Neurosurg. 2014; 120; 1012

17. Tamura K, Aoyagi M. Stem cells and the origin of different glioma subtypes. Response. J Neurosurg. 2014; 120; 1010-1011

18. Yamada M, Tsunoda A, Tokumaru T, Aoyagi M, Kawano Y, Yano T, Kishimoto S. Surgery for juvenile nasopharyngeal angiofibroma with lateral extension to the infratemporal fossa Auris Nasus Larynx. 2014; 41; 359-363

19. Yamamoto M, Kawabe T, Higuchi Y, Sato Y, Nariai T, Watanabe S, Barfod BE, Kasuya H. Validity of Prognostic Grading Indices for Brain Metastasis Patients Undergoing Repeat Radiosurgery. World Neurosurg. 2014; 82; 1242-1249

20. Yamamoto M, Kawabe T, Sato Y, Higuchi Y, Nariai T, Watanabe S, Kasuya H. Stereotactic radiosurgery for patients with multiple brain metastases: a case-matched study comparing treatment results for patients with 2-9 versus 10 or more tumors. J Neurosurg. 2014; 121 Suppl; 16-25

21. Zhang X, Tong F, Li CX, Yan Y, Nair G, Nagaoka T, Tanaka Y, Zola S, Howell L. A fast multiparameter MRI approach for acute stroke assessment on a 3T clinical scanner: preliminary results in a non-human primate model with transient ischemic occlusion. Quant Imaging Med Surg. 2014; 4; 112-122

22. Momose T, Nariai T, et al.. Clinical Benefit of 11C Methionine PET Imaging as a Planning Modality for Radiosurgery of Previously Irradiated Recurrent Brain Metastases Clinical Nuclear Medicine. 2014.08;

23. Yamamoto, M. Kawabe, T. Higuchi, Y. Sato, Y. Nariai, T. et al.. Validity of Prognostic Grading Indices for Brain Metastasis Patients Undergoing Repeat Radiosurgery World Neurosurgery. 2014.08;

[Books etc]

1. Nariai t, Inaji M, Sakata M, toyohara J. Use of (11)C-4DST-PET for Imaging Human Brain Tumors. In Hayat MA ed. Tumors of the central nervous system. Vol 11. p41-48.. Springer, Amsterdam., 2014

2. Nariai T, Inaji M, Sakata M, Toyohara J. Use of (11)C-4DST-PET for Imaging Human Brain Tumors., in Hayat M (ed). Springer, 2014

[Conference Activities & Talks]

1. Ichimura K, Fukushima S, Totoki Y, Matsushita Y, Otsuka A, Tomiyama A, Niwa T, Sakai R, Ushijima T, Nakamura T, Suzuki T, Fukuoka K, Yanagisawa T, Mishima K, Nakazato Y, Hosoda F, Narita Y, Shibui S, Yoshida A, Takami H, Mukasa A, Aihara K, Saito N, Kumabe T, Kanamori M, Tominaga T, Kobayashi K, Shimizu S, Nagane M, Iuchi T, Mizoguchi M, Yoshimoto K, Tamura K, Maehara T, Sugiyama K, Nakada M, Sakai K, Kanemura Y, Nonaka M, Yokogami K, Takeshima H, Kawahara N, Takayama T, Yao M, Nakamura H, Hama N, Matsutani M, Shibata T, Nishikawa R. Whole exome and targeted sequencing identify the MAPK and PI3K pathways as the main targets for mutations in intracranial and testicular germ cell tumors.. The 105th Annual Meeting of the American Association for Cancer Research, April 5-9 2014 San Diego, CA, USA.

2. Nariai T, Yamamoto M, Momose T, Inaji M, Tanaka Y, Kawabe T, Nagatomo Y, Barfod B, Ishiwata K, Ishii K. Roles of Methionine PET in Gamma Knife Radiosurgery for Malignant Glioma.. 17th Leksell GK Society Meeting, May 11-15 2014 New York, NY, USA.

3. Hayashi S, Inaji M, Nariai T, Sakata M, Ishii K, Hara K, Maehara T. Significance of PET Adenosine A1 receptor imaging with MPDX PET to investigate on the mechanism to protect the secondary brain dysfunction in temporal lobe epilepsy.. 8th Asian Epilepsy Surgery Congress, October 4-6 2014 Tokyo, Japan.

4. Inaji M, Maehara T, Nariai T, Hayashi S, Hara K, Sakata M, Ishiwata K, Ishii K. Postoperative psychiatric condition in intractable epilepsy patients.. 8th Asian Epilepsy Surgery Congress, October 4-6 2014 Tokyo, Japan.

5. Maehara T, Inaji M, Hayashi S, Orihara A, Tabata A, Hara K, Matsuura M. Our experiences of hippocampal transection for various types of TLE. 8th Asian Epilepsy Surgery Congress, October 4-6 2014 Tokyo, Japan.

6. Maehara T, Inaji M, Hayashi S, Orihara A, Tabata A, Hara K. Usefulness of ictal HFO analysis and hippocampal transection for patients with MRI-negative neocortical epilepsy.. 8th Asian Epilepsy Surgery Congress, October 4-6 2014 Tokyo, Japan.

7. Orihara A, Inaji M, Hara K, Matsuura M, Maehara T. Surgical outcome for temporal lobe epilepsy due to vascular malformation.. 8th Asian Epilepsy Surgery Congress, October 4-6 2014 Tokyo, Japan.

8. Nariai T, Inaji M, Hayashi S, Ishii Y, Mukawa M, Tanaka Y, Maehara T, Ishiwata K, Ishii K. Treatment of Adult patients with Moyamoya Disease Based On Hemodynamic Measurement with perfusion MRI and PET and indirect bypass procedures.. 9th World Stroke Congress, October 22-25 2014 Istanbuhl, Turkey.

9. Nariai T, Tanaka Y, Ishii Y, Hara S-M, Ueda Y, Mukawa M, Inaji M, Maehara T. Treatment of juvenile patients with moyamoya disease based on non-invasive measurement of cerebral perfusion with MRI.. 9th World Stroke Congress, October 22-25 2014 Istanbuhl, Turkey.

10. Sumita K, Davis M, Pragani R, Terakawa J, Daikoku T, Yoshino H, Majd N, Kofuji S, Sasaki M, Shen M, Li Z, Hu X, Goyama S, Kano G, Takeuchi K, Yu-Hua L, Senda M, Senda T, Wakimoto H, Ohno K, Maehara T, Cantley L, Boxer M, Simeonov A, Sasaki A. Discovery of a p53-independent, p21WAF1/CIP1-dependent suppressor of Senescence and Tumorigenesis of Glioblastoma Multiforme Cells.. Society for NeuroOncology, November 13-16 2014 Miami, FL, USA.

11. Tamura K, Inaji M, Nariai T, Tamaki M, Hirai S, Saigusa K, Tanaka Y, Maehara T. Monitoring of biological response to bevacizumab in malignant glioma patients based on L-[methyl-11C] methionine-positron emission tomography.. 19th Annual Scientific Meeting of the Society for Neuro-Oncology, November 13-16 2014 Miami, FL, USA.

12. Hiura M, Nariai T, Ishii K, Sakata M, Oda K, Toyohara J, Ishiwata K. Exercise-induced positive activated affect is dependent on work intensity and modulated by opioid receptor system distributed in the mesolimbic pathway. A positron emission tomography study.. Society for Neuroscience 2014, November 15-19 2014 Washington, D.C., USA.

13. Hara K, Tanaka S, Hirose Y, Tohma S, Tabata S, Matsuura M, Ohta K, Inaji M, Hara M, Maehara T, Sumi Y. The effects of reports of car accidents caused by persons with epilepsy on its stigma in Japan.. 68th annual meeting of American Epilepsy Society, December 5-9 2014 Seattle, WA, USA.

14. Tabata A, Hara K, Tohma S, Tanaka S, Hara M, Matsuura M, Ohta K, Inaji M, Maehara T, Sumi Y. What affect the self-stigma and self-esteem in persons with epilepsy?. 68th annual meeting of American Epilepsy Society, December 5-9 2014 Seattle, WA, USA.

15. Tohma S, Hara K, Tabata A, Tanaka S, Hara M, Matsuura M, Ohta K, Inaji,M, Maehara T, Sumi Y. Implicit attitudes toward epilepsy in Japan. 68th annual meeting of American Epilepsy Society, December 5-9 2014 Seattle, WA, USA.

16. Naria T.. Clinical use of various techniques to measure cerebral hemodynamics for surgical treatment of moyamoya disease.. The Fourth International Conference on Moyamoya Disease. June 28 2014 Beijing, China.

Endovascular Surgery

Professor Shigeru Nemoto
Associate Professor Yoshikazu Yoshino
Assistant Professor Kazunori Miki
Clinical Fellow Jun Karakama
Secretary Yoko Yanagida, Hitomi Kuwahara

(1) Outline

There are various attracting subjects in the field of clinical or basic research. It is essential to acquire the sufficient knowledge and insight into the pathological conditions as well as normal functions of the vascular system, which will directly benefit for the improvement of clinical results. Main educational purpose of Endovascular Surgery in the graduate course is to provide physicians/students opportunity to acquire the proper technique as well as the broad knowledge, and to nurture the mind of exploration.

(2) Research

Our experimental research program is objected to elucidate unsolved questions derived from daily clinical experience. To treat vascular diseases of central nervous system, facial and head-neck legions, we need to understand detailed vascular anatomy, accurate function of these organs and exact pathophysiology of each disease. Our essential research target is the hemodynamics in the vascular diseases of these lesions. Especially we are interested in the integration of the fluid engineering technology into the endovascular field in an effort to open a new frontier of surgical treatment.

(3) Education

Course objects of Endovascular Surgery in the graduate course is to acquire the proper technique as well as the basic knowledge of neuroendovascular surgery.

(4) Lectures & Courses

Main educational purpose of Endovascular Surgery in the graduate course is to provide students the proper technique as well as the basic knowledge of neuroendovascular surgery.

(5) Clinical Services & Other Works

Our major clinical and extracurricular activities are as follows. 1. Endovascular surgery for diseases of central nervous system, facial and head-neck legions. 2. Analysis of cerebrovascular diseases using computational fluid dynamics (CFD). 3. Development of integrated training system for the endovascular surgery.

(6) Clinical Performances

Endovascular Surgery is a clinical department dealing with various vascular diseases of central nervous system, spinal cord, facial and head-neck lesions including tumors, congenital malformation, and functional disorders.

(7) Publications

[Original Articles]

1. Hayashi S, Maehara T, Mukawa M, Aoyagi M, Yoshino Y, Nemoto S, Ono T, Ohno K.. Successful coil embolization of a ruptured basilar artery aneurysm in a child with leukemia: a case report. Neurol Med Chir (Tokyo) . 54(2); 150-154

[Conference Activities & Talks]

1. Shigeru Nemoto. Can Enterprise stent work as a flow diverter ?. ABCWIN Seminar 2014 Anatomy-Biology-Clinical Correlations (ABC) / Working Group of Interventional Neuroradiology (WIN) 2014.01.22
2. The clinical profile and outcome of subarachnoid hemorrhage in a highly specialized hospital.. 2014.03.13
3. Shigeru Nemoto. Endovascular revascularization of chronic total occlusion of the internal carotid artery.. Siemens Neuro Advisory Board Meeting 2014.07.11 Seoul, Korea
4. A long rough road to neurointervention.. 2014.08.21
5. Shigeru Nemoto. 3D vascular model is valuable in neurointervention.. XX Symposium Neuroradiologicum 2014.09.12 Istanbul, Turkey
6. The role of endovascular therapy in the treatment of skull base vascular lesions.. 2014.10.09
7. The clinical profile and outcome of subarachnoid hemorrhage in a highly specialized hospital.. 2014.12.04
8. Four adult laryngeal venous malformation cases treated effectively with sclerotherapy.. 2014.12.04

NCNP Brain Physiology and Pathology

Collaborative Professor Mikio HOSHINO
Collaborative Professor Yu-ichi GOTO
Collaborative Professor Hiroshi KUNUGI
Collaborative Professor Manabu HONDA
Collaborative Professor Noritaka ICHINOHE
Collaborative Associate Professor Yoshitaka NAGAI

(1) Research

1) Investigation of the molecular machinery underlying brain development.

(Mikio Hoshino; Department of Biochemistry and Cellular Biology, National Institute of Neuroscience, NCNP)

We are investigating molecular machinery underlying nervous system development, especially focusing on neuron-subtype specification, nervous system regionalization and neuronal migration. We are also interested in human diseases/disorders caused by disorganized development of the nervous system.

The AUTS2 (Autism susceptibility candidate 2) gene has been related to various psychiatric disorders, such as ASD (autism spectrum disorders), schizophrenia, ADHD, and epilepsy, but its molecular function remains elusive. We clarified its function in cytoskeletal regulation as well as neural network formation (Hori et al., Cell Reports 2014), which would give an insight into the understanding the pathology of psychiatric diseases caused by mutations in this gene.

2) Molecular genetic and genomic study for intellectual disability in Japan.

(Yu-ichi Goto, Department of Mental Retardation and Birth Defect Research, National Institute of Neuroscience, NCNP)

One of the major causes of intellectual disability (ID) is based on mutations in the related genes, which are timely and locally expressed in concert with one another in central nervous system. ID is a phenotype derived from the inappropriate expression of these genes. Recent advances in molecular genetics and genome medicine have pushed us on with systematic analysis of ID patients, especially on X-linked MR. In 2013, we investigated the genetic causes and pathophysiology of mitochondrial disease, Rett syndrome, and disease with cortical and white matter dysplasia. We found a novel causative gene, ECHS1 for Leigh syndrome by next-generation sequencing (Sakai C, et al. Hum Mutat 2015) and we studied astrocyoe-receptors in cortical dysplasia (Sukigara S, et al. J Neuropayhol Exp Neurol 2014)

3) Clinical research on mood disorders and schizophrenia

(Hiroshi Kunugi, Department of Mental Disorder Research, National Institute of Neuroscience, NCNP)

The pathogenesis and physiology of mood disorders and schizophrenia remain elusive, and their biomarkers have not yet been established. Our department, which is in collaboration with the National Center of Neurology and Psychiatry Hospital, is trying to develop objective diagnostic markers for these diseases, employing omics approach, brain imaging, and physiological studies. We also aim to develop new treatment on the basis of key molecules. In this year, we characterized phenotypes of a genetic polymorphismof FKBP5, a molecule regulating the hippothalamic-pituitary-adrenal axis (Psychoneuroendocrinology, 2014; Sci Rep 2014; J Psychiatr Res, 2014). We obtained evidence suggesting that plasma tryptophan and ethanolamie concentraions are useful biomarkers subtyping depression (J Clin Psychiatry, 2014; Sci Rep, 2015). We established a MRI-based method to measure regional cerebral blood flow in depression and schizophrenia (J Affect Disord, 2014; Schizophr Res, 2014).

4) Noninvasive study on pathophysiology of human higher brain function.

(Manabu Honda, Department of Functional Brain Research, National Institute of Neuroscience, NCNP)

We try to reveal various human higher brain functions including sensory, motor, thought, emotion and

KANSEI functions and pathophysiology underlying higher brain function disorders by integrating multiple noninvasive brain imaging techniques. We also pursue researches for developing a new non-pharmacological therapy by means of the hypersonic effect, that is, sounds containing rich high-frequency component of air vibration above the human audible range activate the deep-lying brain structures including midbrain and diencephalon.

5) Primate Social brains: their development, anatomy, physiology and patho-physiology.

(Noritaka Ichinohe, Department of Ultrastructural Research, National Institute of Neuroscience, NCNP)

We are aiming to elucidate the neural circuit mechanisms of primate social brain using Common Marmoset, new primate model animal. Emphases are on their development, anatomy, physiology and patho-physiology.

This year, we studied the molecular mechanisms of dendritic spines during developmental in emotion related-mid-frontal cortex (Sasaki et al., Brain, Structure, and Function, 2015)

6) Molecular pathogenesis and therapies of neurodegenerative diseases

(Yoshitaka Nagai, Department of Degenerative Neurological Diseases, National Institute of Neuroscience, NCNP)

As we face global aging of the population, a challenging theme has emerged, namely, to overcome late-onset incurable neurodegenerative diseases including Alzheimer's disease, Parkinson's disease, amyotrophic lateral sclerosis, and polyglutamine diseases. Recent great progress of molecular genetics and biomedical research revealed that these diseases share a common molecular pathogenesis; protein misfolding and aggregation plays a central role in neurodegeneration. In our department, researchers with various backgrounds such as medicine, pharmacy, biology, and chemistry, are taking advantage of a variety of techniques including molecular genetics, molecular & structural biology, chemical biology, and various animal models (flies, mice, marmosets), to understand the molecular pathogenesis of and to develop therapies for these neurodegenerative diseases.

In this year, we revealed a protective role of the p62-mediated autophagy in degrading polyglutamine protein oligomers (Saitoh Y et al, J Biol Chem, 2015), and further, roles of Vps35 in Parkinson's disease (Miura et al, Neurobiol Dis, 2014) and VCP in amyotrophic lateral sclerosis (Azuma et al, Hum Mol Genet, 2014).

(2) Education

The nervous system is a very fine and complex organ to elicit the higher brain function and its malfunction causes a variety of neurological and psychiatric disorders in humans. In this course, students learn the structure, development and function of the normal nervous and muscle systems as well as pathology of developmental disorders, psychiatric disorders, neurological diseases and muscle diseases. Students also study the latest progress of advanced remedy for neuromuscular diseases.

(3) Publications

[Original Articles]

1) Wright MC, Reed-Geaghan EG, Bolock AM, Fujiyama T, Hoshino M, Maricich SM: Unipotent, Atoh1^{+} progenitors maintain the Merkel cell population in embryonic and adult mice. J Cell Biol, 2;208(3):367-79, 2015
2) Hori K, Nagai T, Shan W, Sakamoto A, Taya S, Hashimoto R, Hayashi T, Abe M, Yamazaki M, Nakao K, Nishioka T, Sakimura K, Yamada K, Kaibuchi K, Hoshino M: Cytoskeletal regulation by AUTS2 in Neuronal migration and neuritogenesis. Cell Rep, 9 (6): 2166-2179, 2014
3) Ito H, Shiwaku H, Yoshida C, Homma H, Luo H, Chen X, Fujita K, Musante L, Fischer U, Frints S G M, Romano C, Ikeuchi Y, Shimamura T, Imoto S, Miyano S, Muramatsu S-I, Kawauchi T, Hoshino M, Sudol M, Arumughan A, Wanker E E, Rich T, Schwartz C, Matsuzaki F, Bonni A, Kalscheuer V M, Okazawa H: In utero gene therapy rescues microcephaly caused by Pqbp1-hypofunction in neural stem progenitor cells. Molecular psychiatry, doi:10.1038/mp.2014.69, 2014 [Epub ahead of print]
4) Nishimura YV, Shikanai M, Hoshino M, Ohshima T, Nabeshima Y, Mizutani K, Nagata K, Nakajima K, Kawauchi T: Cdk5 and its substrates, Dcx and p27kip1, regulate cytoplasmic dilation formation and nuclear elongation in migrating neurons. Development, 141 (18): 3540-3550, 2014
5) Yamada M, Seto Y, Taya S, Owa T, Inoue YU, Inoue T, Kawaguchi Y, Nabeshima Y, Hoshino M: Specification of spatial identities of cerebellar neuron progenitors by ptf1a and atoh1 for proper production of GABAergic and glutamatergic neurons. J Neurosci, 34 (14): 4786-4800, 2014

6) Sakai C, Yamaguchi S, Sasaki M, Miyamoto Y, Matsushima Y, Goto Y: ECHS1 mutations cause combined respiratory chain deficiency resulting Leigh syndrome. Hum Mutat 36(2): 232-239, 2015
7) Sukigara S, Dai H, Nabatame S, Otsuki T, Hanai S, Honda R, Saito T, Nakagaw E, Kaido T, Sato N, Kaneko Y, Takahashi A, Sugai K, Saito Y, Sasaki M, Goto Y, Koizumi S, Itoh M: Expression of astrocyte-related receptors in cortical dysplasia with intractable epilepsy. J Neuropathol Exp Neurol 73(8): 798-806, 2014
8) Akamatsu T, Dai H, Mizuguchi M, Goto Y, Oka A, Itoh M: LOX-1 is a novel therapeutic target in neonatal hypoxic-ischemic encephalopathy. Am J Pathol 184(6): 1843-1852, 2014
9) Ogawa S, Hattori K, Sasayama D, Yokota Y, Matsumura R, Matsuo J, Ota M, Hori H, Teraishi T, Yoshida S, Noda T, Ohashi Y, Sato H, Higuchi T, Motohashi N, Kunugi H: Reduced cerebrospinal fluid ethanolamine concentration in major depressive disorder. Sci Rep. 2015 Jan 15;5:7796. doi: 10.1038/srep07796
10) Numakawa T, Nakajima S, Yamamoto N, Ooshima Y, Odaka H, Hashido K, Adachi N, Kunugi H: Basic fibroblast growth factor induces miR-134 upregulation in astrocyte for cell maturation. Biochem Biophys Res Commun. 2015 Jan 2;456(1):465-70
11) Takei R, Matsuo J, Takahashi H, Uchiyama T, Kunugi H, Kamio Y: Verification of the utility of the social responsiveness scale for adults in non-clinical and clinical adult populations in Japan. BMC Psychiatry. 2014 Nov 18;14:302
12) Ota M, Noda T, Sato N, Hattori K, Hori H, Sasayama D, Teraishi T, Nagashima A, Obu S, Higuchi T, Kunugi H: White matter abnormalities in major depressive disorder with melancholic and atypical features: A diffusion tensor imaging study. Psychiatry Clin Neurosci. 2014 Nov 11. doi: 10.1111/pcn.12255
13) Fujii T, Ota M, Hori H, Hattori K, Teraishi T, Matsuo J, Kinoshita Y, Ishida I, Nagashima A, Kunugi H: The common functional FKBP5 variant rs1360780 is associated with altered cognitive function in aged individuals. Sci Rep. 2014 Oct 21;4:6696
14) Ogawa S, Fujii T, Koga N, Hori H, Teraishi T, Hattori K, Noda T, Higuchi T, Motohashi N, Kunugi H: Plasma L-tryptophan concentration in major depressive disorder: new data and meta-analysis. J Clin Psychiatry. 2014 Sep;75(9):e906-15
15) Yoon HS, Adachi N, Kunugi H: Microinjection of cocaine- and amphetamine-regulated transcript 55-102 peptide into the nucleus accumbens could modulate anxiety-related behavior in rats. Neuropeptides. 2014 Dec;48(6):319-25
16) Teraishi T, Hori H, Sasayama D, Matsuo J, Ogawa S, Ishida I, Nagashima A, Kinoshita Y, Ota M, Hattori K, Kunugi H: Relationship between lifetime suicide attempts and schizotypal traits in patients with schizophrenia. PLoS One. 2014 Sep 16;9(9):e107739
17) Ota M, Sato N, Sakai K, Okazaki M, Maikusa N, Hattori K, Hori H, Teraishi T, Shimoji K, Yamada K, Kunugi H: Altered coupling of regional cerebral blood flow and brain temperature in schizophrenia compared with bipolar disorder and healthy subjects. J Cereb Blood Flow Metab. 2014 Dec;34(12):1868-72
18) Fujii T, Ota M, Hori H, Hattori K, Teraishi T, Sasayama D, Higuchi T, Kunugi H: Association between the common functional FKBP5 variant (rs1360780) and brain structure in a non-clinical population. J Psychiatr Res. 2014 Nov;58:96-101
19) Teraishi T, Hori H, Sasayama D, Matsuo J, Ogawa S, Ishida I, Nagashima A, Kinoshita Y, Ota M, Hattori K, Higuchi T, Kunugi H: Personality in remitted major depressive disorder with single and recurrent episodes assessed with the Temperament and Character Inventory. Psychiatry Clin Neurosci. 2015 Jan;69(1):3-11
20) Sasayama D, Hori H, Nakamura S, Yamamoto N, Hattori K, Teraishi T, Ota M, Kunugi H: Increased Protein and mRNA Expression of Resistin After Dexamethasone Administration. Horm Metab Res. 2014 Jul 10. [Epub ahead of print]
21) Odaka H, Numakawa T, Adachi N, Ooshima Y, Nakajima S, Katanuma Y, Inoue T, Kunugi H: Cabergoline, dopamine D2 receptor agonist, prevents neuronal cell death under oxidative stress via reducing excitotoxicity. PLoS One. 2014 Jun 10;9(6):e99271
22) Hori H, Fujii T, Yamamoto N, Teraishi T, Ota M, Matsuo J, Kinoshita Y, Ishida I, Hattori K, Okazaki M, Arima K, Kunugi H: Temperament and character in remitted and symptomatic patients with schizophrenia: modulation by the COMT Val158Met genotype. J Psychiatr Res. 2014 Sep;56:82-9
23) Ota M, Noda T, Sato N, Hattori K, Teraishi T, Hori H, Nagashima A, Shimoji K, Higuchi T, Kunugi H: Characteristic distributions of regional cerebral blood flow changes in major depressive disorder patients: a pseudo-continuous arterial spin labeling (pCASL) study. J Affect Disord. 2014 Aug;165:59-

63
24) Hori H, Yamamoto N, Teraishi T, Ota M, Fujii T, Sasayama D, Matsuo J, Kinoshita Y, Hattori K, Nagashima A, Ishida I, Koga N, Higuchi T, Kunugi H: Cognitive effects of the ANK3 risk variants in patients with bipolar disorder and healthy individuals. J Affect Disord. 2014 Apr;158:90-6
25) Fujii T, Hori H, Ota M, Hattori K, Teraishi T, Sasayama D, Yamamoto N, Higuchi T, Kunugi H: Effect of the common functional FKBP5 variant (rs1360780) on the hypothalamic-pituitary-adrenal axis and peripheral blood gene expression. Psychoneuroendocrinology. 2014 Apr;42:89-97
26) Katanuma Y, Numakawa T, Adachi N, Yamamoto N, Ooshima Y, Odaka H, Inoue T, Kunugi H: Phencyclidine rapidly decreases neuronal mRNA of brain-derived neurotrophic factor. Synapse. 2014 Jun;68(6):257-65
27) Numakawa T, Matsumoto T, Ooshima Y, Chiba S, Furuta M, Izumi A, Ninomiya-Baba M, Odaka H, Hashido K, Adachi N, Kunugi H: Impairments in brain-derived neurotrophic factor-induced glutamate release in cultured cortical neurons derived from rats with intrauterine growth retardation: possible involvement of suppression of TrkB/phospholipase C-γ activation. Neurochem Res. 2014 Apr;39(4):785-92
28)) Ota M, Ishikawa M, Sato N, Okazaki M, Maikusa N, Hori H, Hattori K, Teraishi T, Ito K, Kunugi H: Pseudo-continuous arterial spin labeling MRI study of schizophrenic patients. Schizophr Res. 2014 Apr;154(1-3):113-8
29) Fukushima A, Yagi R, Kawai N, Honda M, Nishina E, et al.: Frequencies of Inaudible High-Frequency sounds Differentially Affect Brain Activity. Positive and Negative Hypersonic Effects. PloS One, 9: e95464, doi 10.1371/journal.pone.0095464, 2014
30) Kawai N, Yasue M, Banno T, Ichinohe N: Marmoset monkeys evaluate third-party reciprocity. Biol Lett, 10 (5): 20140058, 2014
31) Watakabe A, Ohsawa S, Ichinohe N, Rockland KS, Yamamori T: Characterization of claustral neurons by comparative gene expression profiling and dye-injection analyses. Front Syst Neurosci, 8 (98), 2014
32) Saitoh Y, Fujikake N, Okamoto Y, Popiel HA, Hatanaka Y, Ueyama M, Suzuki M, Gaumer S, Murata M, Wada K, Nagai Y: p62 plays a protective role in the autophagic degradation of polyglutamine protein oligomers in polyglutamine disease model flies. J Biol Chem 290(3): 1442-1453, 2015
33) Miura E, Hasegawa T, Konno M, Suzuki M, Sugeno N, Fujikake N, Geisler S, Tabuchi M, Oshima R, Kikuchi A, Baba T, Wada K, Nagai Y, Takeda A, Aoki M: VPS35 dysfunction impairs lysosomal degradation of α-synuclein and exacerbates neurotoxicity in a *Drosophila* model of Parkinson's disease. Neurobiol Dis 71: 1-13, 2014
34) Azuma Y, Tokuda T, Shimamura M, Kyotani A, Sasayama H, Yoshida T, Mizuta I, Mizuno T, Nakagawa M, Fujikake N, Ueyama M, Nagai Y, Yamaguchi M: Identification of *ter94, Drosophila VCP,* as a strong modulator of motor neuron degeneration induced by knockdown of *Caz, Drosophila FUS*. Hum Mol Genet 23(13): 3467-3480, 2014

Immune Regulation

Professor Hajime Karasuyama, M.D., Ph.D.
Junior Associate Professor Yoshinori Yamanishi, M.D., Ph.D.
Assistant Professor Shingo Sato, Ph.D.
Assistant Professor Soichiro Yoshikawa, Ph.D.

(1) Research

1) Role of basophils in immune disorders such as allergy
2) Role of basophils in protective immunity against infections
3) In vivo imaging of basophil-mediated immune responses

(2) Education

Main objective of the immunology course for undergraduate students is to provide them the basic ideas how the immune system works and is regulated in various physiological and pathological settings including infections, cancer, autoimmune and allergic disorders, and organ transplantation. In the immunology course for graduate students, they study molecular mechanisms underlying the development of immune diseases including allergy and parasitic infection, by employing advanced technology in molecular biology, biochemistry, cellular biology and developmental engineering.

(3) Publications

[Original Articles]

1. Kumi Izawa, Masamichi Isobe, Toshihiro Matsukawa, Shinichi Ito, Akie Maehara, Mariko Takahashi, Yoshinori Yamanishi, Ayako Kaitani, Toshihiko Oki, Ko Okumura, Toshio Kitamura, Jiro Kitaura. Sphingomyelin and ceramide are physiological ligands for human LMIR3/CD300f, inhibiting Fc ε RI-mediated mast cell activation. J. Allergy Clin. Immunol.. 2014.01; 133(1); 270-3.e1

2. Nadja Bakocevic, Carla Claser, Soichiro Yoshikawa, Leigh Ann Jones, Samantha Chew, Chi Ching Goh, Benoit Malleret, Anis Larbi, Florent Ginhoux, Maria Curotto de Lafaille, Hajime Karasuyama, Laurent Renia, Lai Guan Ng. CD41 is a reliable identification and activation marker for murine basophils in the steady state and during helminth and malarial infections. Eur. J. Immunol.. 2014.06; 44(6); 1823-1834

3. Mahbubul Morshed, Ruslan Hlushchuk, Dagmar Simon, Andrew F Walls, Kazushige Obata-Ninomiya, Hajime Karasuyama, Valentin Djonov, Alexander Eggel, Thomas Kaufmann, Hans-Uwe Simon, Shida Yousefi. NADPH oxidase-independent formation of extracellular DNA traps by basophils. J. Immunol.. 2014.06; 192(11); 5314-5323

4. Gernot Kleinberger, Yoshinori Yamanishi, Marc SuaÅLrez-Calvet, Eva Czirr, Ebba Lohmann, Elise Cuyvers, Hanne Struyfs, Nadine Pettkus, Andrea Wenninger-Weinzierl, Fargol Mazaheri, Sabina Tahirovic, Alberto LleoÅL, Daniel Alcolea, Juan Fortea, Michael Willem, Sven Lammich, JoseÅL L Molinuevo, Raquel SaÅLnchez-Valle, Anna Antonell, Alfredo Ramirez, Michael T Heneka, Kristel Sleegers, Julie van der Zee, Jean-Jacques Martin, Sebastiaan Engelborghs, Asli Demirtas-Tatlidede, Henrik Zetterberg, Christine Van Broeckhoven, Hakan Gurvit, Tony Wyss-Coray, John Hardy, Marco Colonna, Christian Haass. TREM2 mutations implicated in neurodegeneration impair cell surface transport and phagocytosis. Sci Transl Med. 2014.07; 6(243); 243ra86

5. Laurent L Reber, Thomas Marichal, Jeremy Sokolove, Philipp Starkl, Nicolas Gaudenzio, Yoichiro Iwakura, Hajime Karasuyama, Lawrence B Schwartz, William H Robinson, Mindy Tsai, Stephen J Galli. Contribution of mast cell-derived interleukin-1 ß to uric acid crystal-induced acute arthritis in mice. Arthritis and Rheumatology (Hoboken, N.J.). 2014.10; 66(10); 2881-2891

[Misc]

1. Hajime Karasuyama, Yoshinori Yamanishi. Basophils have emerged as a key player in immunity. Curr. Opin. Immunol.. 2014.12; 31; 1-7

2. Karasuyama H.. Basophils. Global Atlas of Allergy. 2014; 56-57

3. Egawa, M., Mukai, K., and Karasuyama, H.. Basophil-derived IL-4 induces the differentiation of inflammatory monocytes into M2-type macrophages to dampen allergic inflammation. Allergic diseases: from mechanisms to cures.. 2014; 59-62

[Conference Activities & Talks]

1. Hajime Karasuyama. Emerging roles for basophils in immunity: a neglected minority gains new respect. NIF Winter School on Advanced Immunology 2014.01.19 Awaji

2. Hajime Karasuyama. Emerging roles for basophils in health and disease.. The 3rd Bizan Immunology Symposium 2014.02.14 Tokushima

3. Hajime Karasuyama. Role of basophils in allergic inflammation and protective immunity.. 12th ERS Lung Science Conference 2014.03.22 Estoril, Portugal

4. Hajime Karasuyama. Non-redundant roles of basophils in immunity-a neglected minority gains new respect. The 24th Congress of Interasma Japan/North Asia 2014.07.19 Nagoya

5. Hajime Karasuyama. Basophils have emerged as a key player in immunity.. Cold Spring Harbor Asia Conference “Frontiers of Immunology in Health and Diseases” 2014.09.04 Suzhou, China

6. Hajime Karasuyama. Basophils have emerged as a key player in immunity.. The 24th Hot Spring Harbor International Symposium 2014.11.08 Fukuoka

7. Hajime Karasuyama. Emerging roles of basophils in allergy and protective immunity.. Medical Research Institute 40th Anniversary Symposium. 2014.11.28 Tokyo

8. Hajime Karasuyama. Non-redundant roles for basophils in allergy and protective immunity.. British Society for Immunology Congress 2014 2014.12.02 Brighton, UK

9. Soichiro Yoshikawa, Masatsugu Ho-hora, Minoru Wakamori, Kensuke Miyake, Lihua Li, Kayo Horiguchi, Takuya Ohta, Takahiro Adachi, Yoshinori Yamanishi, and Hajime Karasuyama.. Molecular mechanism underlying Ca2+ influx due to IgE/antigen stimulation in basophils.. The 43th JSI Symposium 2014.12.10 Kyoto

10. Hajime Karasuyama. Non-redundant roles of basophils in Th2-type protective immunity and allergy.. Cell Symposium "The multifaceted roles of type 2 immunity" 2014.12.11 Bruges, Belgium

[Awards & Honors]

1. The Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology, Prizes for Science and Technology (Research Category) (Hajime Karasuyama), Ministry of Education, Culture, Sports, Science and Technology, 2014.04

2. Tokyo Medical and Dental University President Award (Hajime Karasuyama), Tokyo Medical and Dental University, 2014.10

Molecular Virology

Professor : Shoji YAMAOKA
Project Professor : Eiji IDO
Assistant Professor : Yasunori SAITOH
Hiroaki TAKEUCHI
Takanori HORI
Medical Technologist : Yoshio INAGAKI
Secretary : Kumiko THORPE-MATSUI
Research Assitant : Akiko HAMANO, Kanako MOCHIDA

-Students-
Ph.D. course: Miho OHSAKO
Ensho CHO
Sayaka SUKEGAWA
Hideki SAITO
Hirona ICHIKAWA
Master course: Eri TSURUYAMA
Haruka YAMAGUCHI
Naoto SUZUKI
Ryota OCHI
Yurika KOMATSUDA
Takuma NATSUI
Yuta IYODA
Kenjiro MAEDA

(1) Outline

Microbiology covers several aspects of bacteriology, immunology and virology. Through the studies on various microbes it is expected to understand host-parasite relationship and mechanisms of pathogenicity. Unlike the past, microbiology has rapidly been drawn to the center of the biological stage.
Our laboratory mainly deals with viral oncogenesis and immunodeficiency in humans. Several projects are carried out with particular emphasis on investigation into the mechanisms of viral replication and pathogenesis induced by human retroviruses (HIV-1 and HTLV-I) and human herpes viruses. The purpose of many of the studies being undertaken is to identify critical events and molecules responsible for the efficient replication of these viruses, and in case of human retroviruses, those for transformation or destruction of normal lymphocytes. Virological, immunological and molecular approaches are being applied for this purpose.

(2) Research

The following studies have been extensively carried out in out laboratory with various biological and molecular biological techniques:
- Pathogenesis of HIV and HTLV (mutation, virulence,
apoptosis, polymorphism).
- Studies on signal transduction pathways targeted by

viral proteins.
- Molecular cloning by genetic approaches of components
essential for virus replication in mammalian cells.

(3) Education

We are engaged in the lectures and practices on the basic aspects of infections for the 2nd year medical students and in the pre-clinical clerkship for the 4th year medical students. Students are also accepted in the Project Semester Program. Graduate course students carry out research on virology and oncology in the laboratory and join seminars and progress meetings.

(4) Lectures & Courses

Students can learn the structure, replication, function and genetics of micro-organisms as well as the host-pathogen interactions based on the front-line molecular and microbiological sciences.

(5) Publications

[Original Articles]

1. Uno M, Saitoh Y, Mochida K, Tsuruyama E, Kiyono T, Imoto I, Inazawa J, Yuasa Y, Kubota T, Yamaoka S. NF-κ B Inducing Kinase, a Central Signaling Component of the Non-Canonical Pathway of NF-κ B, Contributes to Ovarian Cancer Progression. PLoS ONE. 2014; 9(2); e88347

2. Sukegawa Sayaka, Sakuma Ryuta, Ohmine Seiga, Takeuchi Hiroaki, Ikeda Yasuhiro, Yamaoka Shoji. Suppressor of cytokine signaling 1 counteracts rhesus macaque TRIM5alpha-induced inhibition of human immunodeficiency virus type-1 production. PLoS One. 2014; 9(10); e109640

3. Tung Nguyen Huu, Suzuki Mitsuko, Uto Takuhiro, Morinaga Osamu, Kwofie Kofi D, Ammah Naa, Koram Kwadwo A, Aboagye Frederic, Edoh Dominic, Yamashita Taizo, Yamaguchi Yasuchika, Setsu Takao, Yamaoka Shoji, Ohta Nobuo, Shoyama Yukihiro. Anti-trypanosomal activity of diarylheptanoids isolated from the bark of Alnus japonica. Am J Chin Med. 2014; 42(5); 1245-1260

4. Yoshimori M, Imadome K, Komatsu H, Wang L, Saitoh Y, Yamaoka S, Fukuda T, Kurata M, Koyama T, Shimizu N, Fujiwara S, Miura O, Arai A.. CD137 expression is induced by Epstein-Barr virus infection through LMP1 in T or NK cells and mediates survival promoting signals. PLoS One . 2014.11; 9; e112564

[Misc]

1. Ido E, Suzuki T, Ampofo WK, Ayi I, Yamaoka S, Koram KA, Ohta N.. Joint research project on infectious diseases in West-African subregion. Journal Disaster Research. 2014.10; 9(5); 813-817

[Conference Activities & Talks]

1. Ishmael Aziati, Esinam Agbosu, Jacob Barnor, James Brandful, William Ampofo, Samson Ofori, Emmanuel Amoah, George Danquah-Damptey, Samuel Morton, Shoji Yamaoka, Eiji Ido. . Evaluation of the current first-line ART by a longitudinal study (2009-2013) at Koforidua Regional Hospital, Ghana. . Asia-African Research Forum of Emerging and Reemerging Infections (AARF2014) 2014.01.20 Ghana

2. Eiji Ido, Jacob Barnor, Ishmael Aziati, Esinam Agbosu, James Brandful, William Ampofo, Samson Ofori, Emmanuel Amoah, George Danquah-Damptey, Samuel Morton, Shoji Yamaoka.. Current status of HIV-2 infection in Ghana.. Asia-African Research Forum of Emerging and Reemerging Infections (AARF2014) 2014.01.20 Ghana

3. Ochiai T, Shioya A, Honma H, Saitoh T, Matsumura S, Ban D, Irie T, Kudo A, Nakamura N, Fujikawa T, Itai A, Tanaka S, Arii S, Yamaoka S, Tanabe M . Combination Treatment of I κ B Kinase β Inhibitor IMD-0354 and Gemcitabine Suppresses Oncogenic Proliferation of Pancreatic Cancer Cells. 9th Annual Academic Surgical Congress 2014.02.04 San Diego, USA

4. Takeuchi H, Saito H, Miyamoto T, Yoshinaga T, Ishii H and Yamaoka S.. AMPK-RPK is a host essential factor for optimal capsid disassembly to promote viral cDNA synthesis during the early stage of HIV-1 infection.. Cold Spring Harbor Laboratory Meeting on Retroviruses 2014.05.19 Cold Spring Harbor,USA

5. Raphael Taty-Taty, Miyuki Yasunaga, Aya Umehara, Jacob Barnor, Henri-Joseph Parra, Shoji Yamaoka, Eiji Ido. . Long-term longitudinal evaluation of the first-line ART in a cohort at Pointe-Noire, Republic of Congo.. XVIth International Congress of Virology (IUMS2014) 2014.07.27 Canada

6. Ishmael Aziati, Esinam Agbosu, Jacob Barnor, James Brandful, William Ampofo, Samson Ofori, George Danquah-Damptey, Samuel Morton, Shoji Yamaoka, Eiji Ido. . The recent trend of HIV-1/HIV-2 dual infection among PLWHA in Koforidua, Eastern Region. . 7th Ghana Biomedical Convention 2014.07.30 Ghana

7. Shoji YAMAOKA. Reactivation of latent HIV-1 provirus by a compound obtained from a Ghanaian medicinal plant and its molecular mechanism.. The 2nd Medicinal Plant International Workshop 2014.09.18 Ghana

8. Takanori HORI et al.. Overview of SATREPS Medicinal Plant Project.. The 2nd Medicinal Plant International Workshop 2014.09.18 Ghana

Immunotherapeutics

Professor: Mari KANNAGI
Associate Professor: Takao MASUDA
Assistant Professor: Atsuhiko HASEGAWA (Lecturer)
Assistant Professor: Yoshiko NAGANO
Postdoctoral Fellow: Shuichi KINPARA, Sayaka ITO, Natsuko TAKATSUKA
Graduate Student: Yoko SATO, Satomi ANDO, Tatsuro TAKAHATA, Yuji MURAKAMI, Leila SAWADA, Kazuki MIURA

(1) Outline

Our research area is in between clinical and basic science, involving immunology, microbiology, and oncology. Persistent viral infection causes various diseases by inducing immunodeficiency, malignancy, autoimmunity, and inflammation. Human immunodeficiency virus (HIV) causes acquired immunodeficiency syndrome (AIDS), and Human T-cell leukemia virus type-I (HTLV-I) causes adult T-cell leukemia (ATL) and various chronic inflammatory autoimmune-like diseases. To understand mechanisms of these diseases, investigation on host immunity is indispensable. Immune responses are usually protective but sometimes harmful for the host, and are important determinants for disease manifestation. The goal of our research is elucidation of the role of host immunity in the diseases in order to develop effective immunotherapy. We also investigate intracellular mechanisms of viral replication to target direct molecules for therapy.

Research Subjects
1. Analysis of immunological risks for ATL development in HTLV-I-carriers.
2. Development of anti-tumor vaccine against ATL.
3. Immunological and molecular mechanism of HTLV-1-induced leukemogenesis.
4. Molecular mechanism of HIV replication especially related to HIV-1 integrase.
5. Experiments based on gene therapy to suppress HIV-1 replication.

(2) Research

① Development and clinical study of anti-ATL vaccine therapy with Tax peptide-pulsed autologous dendritic cells.
Adult T-cell leukemia/lymphoma (ATL) is a human T-cell leukemia virus type-I (HTLV-I)-infected T-cell malignancy with poor prognosis. We developed a novel therapeutic vaccine designed to augment an HTLV-I Tax-specific cytotoxic T lymphocyte (CTL) response that has been implicated in anti-ATL effects, and conducted a pilot study to investigate its safety and efficacy in collaboration of Tokyo Medical and Dental University, National Kyushu Cancer Center, and Kyushu University. The vaccine consists of autologous dendritic cells pulsed with Tax peptides corresponding to the CTL epitopes. Two of three patients administered with the vaccine achieved partial and complete remission without severe side effects. The clinical outcomes of this pilot study indicate that the Tax peptide-pulsed DC vaccine is a safe and promising immunotherapy for ATL (Suehiro, Y., Hasegawa, A., et al. Brit J Haematol. 169: 356-367, 2015. doi: 10.1111/bjh.13302) .

② Involvement of innate immune response in HTLV-1 pathogenesis.
The constitutive activation of NF κ B plays an important role in leukemogenesis of adult T-cell leukemia/lymphoma

(ATL) caused by human T-cell leukemia virus type-1 (HTLV-1). Although HTLV-1 Tax is known to activate NF κ B, ATL cells exhibit NF κ B activities even in the absence of Tax expression, the mechanism of which has been a long-puzzling question. We demonstrate that both double-stranded RNA-dependent protein kinase (PKR) and anti-sense HTLV-1 transcripts are involved in the constitutive NF κ B activation in Tax-negative ATL cells. Our findings elucidate a novel Tax-independent mechanism of NF κ B activation underlying HTLV-1 leukemogenesis in which host antiviral responses are involved (Kinpara, S., et al. Leukemia, 29:1425-1444, 2015. doi: 10.1038/leu.2015.1).

(3) Education

① For under graduate students of the medical school, we participate in education of basic immunology I, and II, the project semester, and the preclinical clarkship.

② Graduate students are trained for basic skills in the field of immunology and virology to handle biohazard materials. We provide the opportunity to research for mechanisms of the retro-virus-mediated diseases and development of immunological therapeutics. All the stuffs and students participate in maintenance of the laboratory and periodical seminars to discuss about their own studies and keep up with the latest knowledge and information in the area.

(4) Lectures & Courses

We always think of the clinical significance of the results of basic research. We try to find an effective therapy by approaching from basic research to understand the disease mechanisms and solve the problem. The disease mechanisms that we study include leukemogenesis, inflammation, immunosuppression, and autoimmunity in persistent virus infection. Through these studies, we contribute to clinical therapies as well as medical sciences.

(5) Clinical Services & Other Works

We developed an anti-ATL immunotherapy (Tax peptide-pulsed dendritic cell vaccine), which is under clinical studies in collaboration with National Kyushu Cancer Center and Kyushu University. We evaluate anti-tumor and anti-virus T-cell responses in HTLV-1-infected patients with or without various therapies including the immunotherapy and hematopoietic stem cell transplantation, in response to requests from clinical doctors.

(6) Publications

[Original Articles]

1. S Kinpara, S Ito, T Takahata, Y Saitoh, A Hasegawa, M Kijiyama, A Utsunomiya, M Masuda, Y Miyazaki, M Matsuoka, M Nakamura, S Yamaoka, T Masuda, M Kannagi. Involvement of double-stranded RNA-dependent protein kinase and antisense viral RNA in the constitutive NF κ B activation in adult T-cell leukemia/lymphoma cells. Leukemia. 2014.01;

2. Masako Nomaguchi, Ariko Miyake, Naoya Doi, Sachi Fujiwara, Yasuyuki Miyazaki, Yasuko Tsunetsugu-Yokota, Masaru Yokoyama, Hironori Sato, Takao Masuda, Akio Adachi. Natural single-nucleotide polymorphisms in the 3' region of the HIV-1 pol gene modulate viral replication ability. J. Virol.. 2014.04; 88(8); 4145-4160

3. Yuetsu Tanaka, Yoshiaki Takahashi, Reiko Tanaka, Akira Kodama, Hideki Fujii, Atsuhiko Hasegawa, Mari Kannagi, Aftab A Ansari, Mineki Saito. Elimination of human T cell leukemia virus type-1-infected cells by neutralizing and antibody-dependent cellular cytotoxicity-inducing antibodies against human t cell leukemia virus type-1 envelope gp46. AIDS Res. Hum. Retroviruses. 2014.06; 30(6); 542-552

4. Natsumi Araya, Tomoo Sato, Hitoshi Ando, Utano Tomaru, Mari Yoshida, Ariella Coler-Reilly, Naoko Yagishita, Junji Yamauchi, Atsuhiko Hasegawa, Mari Kannagi, Yasuhiro Hasegawa, Katsunori Takahashi,

Yasuo Kunitomo, Yuetsu Tanaka, Toshihiro Nakajima, Kusuki Nishioka, Atae Utsunomiya, Steven Jacobson, Yoshihisa Yamano. HTLV-1 induces a Th1-like state in CD4+CCR4+ T cells. J. Clin. Invest.. 2014.08; 124(8); 3431-3442

[Misc]

1. Atsuhiko Hasegawa, Ayako Takamori, Mari Kannagi. Impaired $CD8^+$ T cell responses against human T-cell leukaemia virus type 1 in patients with adult T-cell leukaemia/lymphoma Clinical Immunology & Allergology. 2014.09; 62(3); 250-257

[Conference Activities & Talks]

1. Mari Kannagi, Shuichi Kinpara, Atsuhiko Hasegawa. Impact of interferon response in HTLV-1 infection: a molecular mechanism of AZT/IFN-a therapy for ATL. IVth Carcinogenic Spiral International Meeting 2014.02

2. Mari Kannagi, Shuichi Kinpara, Atsuhiko Hasegawa. Impact of interferon response in HTLV-1 infection: a molecular mechanism of AZT/IFN-a therapy for ATL. IVth Carcinogenic Spiral International Meeting 2014.02.11

3. Shuichi Kinpara, Yasunori Saitoh, Atsuhiko Hasegawa, Atae Utsunomiya, Masato Masuda, Yasushi Miyazaki, Masao Matsuoka, Masataka Nakamura, Shoji Yamaoka, Takao Masuda, Mari Kannagi. Involvement of PKR and anti-sense HTLV-1 transcripts in the constitutive activation of NF κ B in ATL cells. The 73rd Annual Meeting of the Japanese Cancer Association 2014.09

4. Yuji Murakami, Satomi Ando, Yuetsu Tanaka, Reiko Tanaka, Takao Masuda, Mari Kannagi, Atsuhiko Hasegawa. The effect of anti-HTLV-1 gp46 neutralizing monoclonal antibody vaccine on primary HTLV-1 infection in a rat model. The 73rd Annual Meeting of the Japanese Cancer Association 2014.09

5. Satomi Ando, Atsuhiko Hasegawa, Yuji Murakami, Yasuhiro Maeda, Takao Masuda, Mari Kannagi. Peptide-pulsed DC vaccine has the potential to reduce HTLV-1 proviral load via restoration of specific CTL responses. The 73rd Annual Meeting of the Japanese Cancer Association 2014.09

6. Kannagi M. Immune control of the retrovirus-induced adult T-cell leukemia: fighting with invisible enemy.. 2014.09.27

7. Mari Kannagi, Atsuhiko Hasegawa, Shuichi Kinpara, Youko Suehiro. The roles of acquired and innate immunity in HTLV1-infection: Implication for therapy and pathogenesis. . 2014.11.11

8. Satomi Ando, Atsuhiko Hasegawa, Yuji Murakami, Natsuko Takatsuka, Yasuhiro Maeda, Takao Masuda, Mari Kannagi. CTL epitope peptide-pulsed dendritic cell vaccine has the potential to restore HTLV-1-specific CTLs to eliminate infected cells. 2014.12

9. Yuji Murakami, Satomi Ando, Yuetsu Tanaka, Reiko Tanaka, Takao Masuda, Mari Kannagi, Atsuhiko Hasegawa. Evaluation of anti-gp46 neutralizing monoclonal antibody vaccine against primary HTLV-1 infection to rats. 2014.12

10. Shuichi Kinpara, Yasunori Saitoh, Atsuhiko Hasegawa, Masataka Nakamura, Shoji Yamaoka, Masao Matsuoka, Takao Masuda, Mari Kannagi. A link between HTLV-1 leukemogenesis and innate immunity; involvement of PKR in the constitutive NF κ B activation in adult T-cell leukemia cells. 2014.12

Cellular and Environmental Biology

Associate Professor Masayuki HARA
Graduate Student Satoru MIYAKURA

(1) Research

Research Subjects
1) Reaction mechanisms of cellular protection systems against environmental oxidation stresses.
2) Modifying mechanisms in higher order structure of chromatin in cellular differentiation.
3) Shifting mechanisms in proteome profiles of cell organelle between pre and post conditions in environment, cell differentiation, disease, or drug exposure.

(2) Education

Living organisms were influenced their life by environment and adapted themselves to it, however, they formed environment and affected it. In other words, the species that cannot fit the changing environment were fallen and replaced by the new species which could adapt itself to. The organisms are as a part of the global environment, so it is thought that the individual structure and working of them are necessary environmental measures for their survival. It may be said that it is excessive suddenness of the change that human activity is environmentally-impacted now.
Main objective of cellular and environmental biology in the graduate course is to provide students opportunity to study the reaction and adaptation of the organisms for the environmental change at cellular level, to consider hazardous property, toxicity, or physiological activity of environmental (or man-made) factor, and to mention the biotechnical action to the environmental problems.

(3) Publications

[Original Articles]

1. Miyazaki A, Sagae N, Usami Y, Sato M, Kameda T, Yoshimoto A, Ishimine N, Matsuda K, Sugano M, Hara M, Honda T, Tozuka M. N-homocysteinylation of apolipoprotein A-I impairs the protein's antioxidant ability but not its cholesterol efflux capacity. Biol Chem. 2014.01; 395(6); 641-648

Biodefense Research

Professor Toshiaki Ohteki
Junior Associate Professor Nobuyuki Onai
Assistant Professor Hiroyuki Tezuka
Associate Professor Yusuke Nakanishi
Adjunct Lecturer Taku Sato
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Graduate Student Shunsuke Kawamura
Graduate Student Minako Inazawa
Graduate Student Kana Minamide
Research Technician Shoko Kuroda
Research Technician Kisho Shiseki
Research Technician Rumiko Nakamura
Secretarial Assistant Hisako Kamioka

(1) Education

Our research projects focus on maintenance and failure of immunological homeostasis. Our goal is to define the mechanism of immune cell and tissue stem cell behavior under conditions of health and disease. To accomplish this goal, we are trying to clarify the molecular basis of induction and failure of immunological tolerance by focusing on immune cells and tissue stem cells in the bone marrow, skin, and intestine including its associated lymphoid tissues. On the basis of our findings, we will further pursue our research in the hope of developing new rational therapies for prevention and treatment of disease.

(2) Publications

[Original Articles]

1. Y Nakanishi, T Sato, T Ohteki. Commensal Gram-positive bacteria initiates colitis by inducing monocyte/macrophage mobilization. Mucosal Immunol. 2014.06;

2. A Yokota-Nakatsuma, H Takeuchi, Y Ohoka, C Kato, S-Y Song, T Hoshino, H Yagita, T Ohteki, M Iwata. Retinoic acid prevents mesenteric lymph node dendritic cells from inducing IL-13-producing inflammatory Th2 cells. Mucosal Immunol. 2014.07; 7(4); 786-801

3. Guilliams M, Ginhoux F, Jakubzick C, Naik S. H, Onai N, Schraml B. U, Segura E, Tussiwand R and Yona S.. Dendritic cells, monocytes and macrophages: a unified nomenclature based on ontogeny Nature Reviews Immunology. 2014.08; 14; 571-578

[Misc]

1. Nobuyuki Onai, Toshiaki Ohteki. Bipotent or Oligopotent? A Macrophage and DC Progenitor Revisited. Immunity. 2014.07; 41(1); 5-7

[Conference Activities & Talks]

1. Ohteki T.. A novel source of dendritic cells, the control tower of the immune system.. The 2nd International Symposium of Research Center for Cellular Homeostasis 2014. 2014.06.02 Seoul
2. Ohteki T. . A. 13th International Symposium on Dendritic Cells 2014.09.14
3. Ohteki T. . Novel Source of Dendritic Cells, the Control Tower of the Immune System. . Novo Nordisk Innavation Summit Tokyo 2014 2014.10.01
4. Ohteki T. A. 2014 Agricultural Biotechnology Symposium, Biomaterials and Immune Modulation 2014.11.05 Seoul
5. Ohteki T. . Dendritic cell and immune regulation. . The 2014 Fall Conference of the KAI 2014.11.06 Seoul
6. Ohteki T. A Novel Source of Dendritic Cells, the Control Tower of the Immune System.. Medical Research Institute 40th Anniversary International Symposium 2014.11.28 Tokyo

Pathological Cell Biology

Professor:Shigeomi SHIMIZU
Associate Professor:Norio SHIMIZU
Tokunin Junior Associate Professor:Masatsune TSUJIOKA, Satoshi TORII
Assistant Professor:Satoko ARAKAWA, Shinya HONDA
Tokunin Assistant Professor:Michiko MUROHASHI, Hirofumi YAMAGUCHI,Minkyon SHIN, Yasuyuki SUGIMURA
Secretary:Mimi SAKAGUCHI, Sachiko OTSUKA
Research Assistant:Ikuyo YOSHINO, Kyoko TSUJIMURA, Mariko SUNADA, Hajime SAKURAI
Graduate Student:Yuna SUGIMOTO, Toyokazu SEKI, Megumi YAMASHITA, Yuta GOTO, Ayumi NAKAJIMA, Hiromichi YAMAMOTO,Miyuki NAKAI, Natsuki ODA, Hatuki ENDO, Masahiro KAWATA

(1) Outline

1) Analysis of apoptosis mechanism
2) Analysis of non-apoptotic cell death (autophagic cell death)
3) Physiological and pathological roles of cell death in mammals
4) Analysis of alternative macroautophagy mechanism
5) Physiological and pathological roles of autophagy in mammals
6) Development of novel EBV infection animal models using the hNOG mice
7) Development of an exhaustive pathogenic microbe screening system

(2) Research

Main objective in the graduate course is to provide students opportunity to study the molecular mechanisms of cell death and autophagy, the cell death-related diseases, the physiological and pathological roles of autophagy, and the development mechanism of Epstein-Barr virus (EBV) infection, the employment of immunodeficiency animals for the creation of virus research models and development of an exhaustive pathogenic microbial screening system.

(3) Education

Main objective in the graduate course is to provide students opportunity to study the molecular mechanisms of cell death and autophagy, the cell death-related diseases, the physiological and pathological roles of autophagy, and the development mechanism of Epstein-Barr virus (EBV) infection, the employment of immunodeficiency animals for the creation of virus research models and development of an exhaustive pathogenic microbial screening system.

(4) Publications

[Original Articles]

1. Shinya Honda, Satoko Arakawa, Yuya Nishida, Hirofumi Yamaguchi, Eiichi Ishii, Shigeomi Shimizu. . Ulk1-mediated Atg5-independent macroautophagy mediates elimination of mitochondria from embryonic reticulocytes. Nature Communications. 2014.06; 5; 4004

2. Tsujimoto Y, Nakagawa T, Shimizu S. Mitochondrial membrane permeability transition and cell death. Biochim Biophys Acta. 1757(9-10); 1297-1300

3. Tsujimoto Y, Shimizu S. The voltage-dependent anion channel: an essential player in apoptosis. Biochimie. 84(2-3); 187-193

4. Shimizu S, Kamiike W, Hatanaka N, Yoshida Y, Tagawa K, Miyata M, Matsuda H. New method for measuring ICG Rmax with a clearance meter. World J Surg. 19(1); 113-8; discussion 118

5. Kamiike W, Miyata M, Izukura M, Itoh T, Nezu R, Nakamuro M, Hatanaka N, Shimizu S, Takahashi T, Shimazaki Y. Simultaneous surgery for coronary artery disease and gastric cancer. World J Surg. 18(6); 879-81; discussion 882

[Books etc]

1. Shimizu S. Autophagic Cell Death and Cancer Chemotherapeutics. . Springer,

[Misc]

1. S. Shimizu, T. Yoshida, M. Tsujioka, S. Arakawa.. Autophagic Cell Death and Cancer. Int J Mol Sci.. 2014.02; 15; 3145-3153

2. S. Shimizu, S. Honda, S. Arakawa, H. Yamaguchi,. Alternative Macroautophagy and Mitophagy Int. J. Biochem. Cell Biol. . 2014.03; 50; 64-66

[Conference Activities & Talks]

1. Shimizu S. Molecular Mechanisms of Alternative Macroautophagy (Shimizu S). Gordon research Conference 2014.03.17 Barga Italy

2. Shimizu S. Development of Molecularly Targeted Anticancer Agents Based on the Regulation of Autophagic Cell Death (Shimizu S). The Uehara Memorial Foundation Symposium 2014 2014.06.15 Tokyo Japan

3. Shimizu S. Physiological Role of Atg5-independent macroautophagy (Shimizu S). The 16th Northeastern Asian Symposium. 2014.12.19 Busan Korea

Immunology

Professor : Takeshi TSUBATA, M.D., Ph.D.
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Assistant Professor : Mitsuhiro SUZUKI, Ph.D.
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Lecturer : Ji-Yang WANG
Researcher : Zhihong LIU

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Mayo YOSHIOKA
Yang-Yang FENG

(1) Research

The nature of immune responses depends on whether they respond to protein or non-protein antigens because T lymphocytes recognize only protein antigens. Normal immune system removes pathogens and cancer cells but does not respond to non-microbial foreign substances or self-antigens. Immune responses to non-microbial foreign substances and self-antigens cause allergy and autoimmune diseases, respectively. How the immune system distinguishes pathogens from non-microbial antigens and self-antigens is already clarified for protein antigens. However, little is know about such distinction for non-protein antigens. Immune responses to non-protein antigens play crucial roles in host defense against pathogens such as tuberculosis bacilli and meningococci, and autoimmune diseases such as lupus and immuno-neurological disorders. Thus, immune responses to non-protein antigens constitute a remaining frontier in immunology research. Followings are our research subjects.
1) Elucidation of the mechanisms for humoral immune responses to glycans, glyco-lipids and nucleic acids-related antigens.
2) Elucidation of the role of glycan signals in the regulation of humoral immune responses, and application of glycan signals to therapy.
3) Analysis of pathogenesis of lupus and immuno-neurological disorders.

(2) Education

Lecture course on immunology at the master course aims at giving the students the basic ideas how immune system recognize and respond to the antigens, and how immune system efficiently remove pathogens without responding to self-antigens and environmental antigens. In the lecture course in bioscience at the doctor course, lectures on immune responses are given so that the students are introduced with the current topics in the field of humoral immune responses. Research projects in both master and doctor courses aims at training the students to acquire basic research techniques on immunology, molecular biology and biochemistry, and abilities to conduct cutting-edge research in the field of immunology by themselves under supervision.

(3) Publications

[Original Articles]

1. Naito-Matsui, Y., Takada, S., Kano, Y., Iyoda, T., Sugai, M, Shimizu, A., Inaba, K., Nitschke, L., Tsubata, T., Oka, S., Kozutsumi, Y. and Takematsu, H. . Functional evaluation of activation-dependent alterations in the sialogylcan composition of T cells. J. Biol. Chem. . 2014; 289; 1564-1579

2. Aslam, M., Kishi, Y. and Tsubata, T. . Excess CD40L does not rescue anti-DNA B cells from clonal anergy. F1000Res. 2014.01; 2; 218

3. Tsubata, T. . Siglecs and B cell regulation. In: Taniguchi N., Endo T., Hart G., Seeberger P., Wong C. (Ed.) Glycoscience: Biology and Medicine SpringerReference (www.springerreference.com). Springer-Verlag Berlin Heidelberg. . 2014.04;

4. Kawai, Y., Ouchida, R., Yamasaki, S., Dragone, L., Tsubata, T. and Wang, J.-Y.. LAPTM5 promotes lysosomal degradation of intracellular CD3zeta but not of cell surface CD3 ζ. Immunol. Cell Biol. . 2014.07; 92; 527-534

5. Ouchida. R., Lu. Q., Liu. J., Li. Y., Chu. Y., Tsubata. T. and Wang, J.Y.. Fc μ R interacts and cooperates with the B cell receptor to promote B cell survival. J. Immunol. . 2014.12; 194; 3096-3101

6. Muro R, Nitta T, Okada T, Ideta H, Tsubata T, Suzuki H.. The Ras GTPase-Activating Protein Rasal3 Supports Survival of Naive T Cells. PLoS One.. 2014.12; 10; e0119898.

[Conference Activities & Talks]

1. Mohammad, A., Kishi Y., Weigert, M. G. and Tsubata, T.. Distinct tolerance mechanisms for anti-DNA and anti-Sm B cells.. The 29th Autoimmune Conference 2014.07.12

2. Matsubara, N., Ishida, H. and Tsubata, T.. Synthetic sialosides that regulate CD22/Siglec-2, a B lymphocyte membrane molecule activating SH2-containing phosphatases.. 11th International Conference on Protein Phosphatase. 2014.11.12 Sendai

3. Matsubara, N., Takematsu, H., Ishida, H., Tsubata, T.. Role of CD22/Siglec2 and its ligand in B lymphocyte activation. . Joint annual meeting of SFG &JSCR, Integrating Glycoscience from Biology and Chemistry to Medicine. 2014.11.16 Honolulu, Hawaii (USA)

4. Adachi. T., Yoshikawa. S., Onodera. T., Takahashi. Y. and Karasuyma. H.. In vivo imaging of calcium signaling in B cells of mice expressing the genetically encoded YC3.60 calcium indicator. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.26 Yokohama

5. Matsubara, N., Ishida, H. and Tsubata, T.. CD22-binding synthetic sialosides as a tool to elucidate the role of CD22 cis-ligand and as a novel immunostimulan. Medical Research Institute 40th Anniversary, 13th Surugadai International Symposium & Joint Usage/Research Program of Medical Research Institute International Symposium. 2014.11.28 Tokyo

6. Adachi. T., Yoshikawa. S., Onodera. T., Takahashi. Y. and Karasuyama. H.. In vivo imaging of calcium signaling in B cells of mice expressing the genetically encoded YC3.60 calcium indicator. The 43rd Annual Meeting of the Japanese Society for Immunology 2014.12.08 Kyoto

Pediatrics and Developmental Biology

Professor: Tomohiro MORIO
Associate Professor: Hirokazu KANEGANE
Assistant Professor: Masatoshi TAKAGI, Kenichi KASHIMADA
Project Assistant Professor:
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Risa NOMURA, Yusuke KAJIKAWA, Akifumi ENDO, Atsumi TSUJI,
Toshiaki ONO, Motoi YAMASHITA, Rina NISHII, Rie KUMAKI,
Miko SHIGENO, Mai NANYA, Keisuke TANAKA, Yuri UCHIDA, Eri ENDO,
Yoshino NEMOTO, Lin LIN, Ouwen YOU

Department of Pediatrics, Neonatal and Maternal Medicine
Professor: Shozaburo DOI
Associate Professor: Kohsuke IMAI
Junior Associate Professor: Yu MATSUMURA

(1) Outline

Our department provides general care for common pediatric diseases. On the other hand, we also provides advanced therapeutic intervention for hematology-Oncology, immunology, cardiology, neurology, endocrinology, nephrology, neonatology and allergy. Our mission is not only providing clinical care for children, to save the children who suffered an intractable diseases through development of novel therapeutic approach based on basic research for global life sciences.

(2) Research

The final goal of our research is to elucidate the molecular mechanisms of intractable diseases in children and to develop novel measures to cure the diseases. We are interested in a broad spectrum of subjects in life science field as shown below.

1. Identification of responsible genes for primary immunodeficiency (PID) development.
2. Systematic search for responsible gene for a subset of common variable immunodeficiency
3. Gene hunting for radiosensitive-hyperIgM syndrome
4. Development of therapeutic approach for PID
5. Novel roles of ATM in cellular differentiation
6. Research in autoimmune lymphoproliferative syndrome (ALPS) and Ras associated ALPS like syndrome
7. Quality assessment of iPS cells for clinical application
8. Negative regulation of granulocyte activation and apoptosis by Tec family protein
9. Development of innovative techniques for cell therapy and gene therapy

10. Development of innovative techniques for immune therapy after hematopoietic stem cell transplantation.
11. Glycobiologic approach for molecular pathogenesis of IgA nephropathy developed in WASP deficiency
12. Involvement of Notch signaling pathway in the process of glomerular sclerosis
13 Molecular mechanisms of primary pulmonary hypertension
14. Lung injury induced by cytokines/monocytes/granulocytes
15. Pathogenesis of periventricular leukomalacia (PVL) and broncho-pulmonary dysplasia (BPD); Development of novel therapy using mesenchymal stem cells for PVL and BPD.
16. Sox family protein in sex differentiation
17. Intrauterine stem cell transplantation for congenital disorders
18. Coagulopathy in hematopoietic cell transplantation and alteration in membrane protein expression in red blood cells
19. Investigation of molecule affect prognosis in infant leukemia, Stem cells and hierarchy of infantile leukemic cells
19. Development therapeutic approach targeting homologous recombination repair

We have been collaborating with Institute of Cancer Research in London (Prof Mel Greaves), Istitute Nazionale Tumori (Dr. D. Delia), University of Queensland (Prof. Peter Koopman), Erasmus University (Prof. Jacques van Dongen), Yonsei University (Profs. H. Kim, and SK Lee), Sony Life Science Laboratories, Medical Research Institute at TMDU, National Institute for Longevity Sciences, National Research Institute for Child Health and Development, RIKEN Research Center for Allergy and Immunology, Kazusa DNA Research Insititute, National Institute of Advanced Industry and Technology, Metropolitan Institute for Neuroscience, Juntendo University, and many other laboratories.

● Hematology/Oncology/Immunology Group (Basic Research)
Our research focuses on the dissection of molecular basis of immune regulation, cancer development, DNA damage response.
Our aim in research focusing on elucidation of molecular pathogenesis and development of therapeutic approach for pediatric catastrophic disease, especially in immunological disorder. Our research area is also located in the field of tumor development, DNA damage response and primary immunodeficiencies. Some of these research is tightly linked each other. The directions; from bench to clinic and clinic to bench is favorably utilized for research style. Nationwide survey for common variable immunodeficiency (CVID) is executing under the leader ship of Dr. Morio. Through the analysis of patient samples using next generation sequencing technology, we have identified several rare disease causing gene mutations from a CVID patients, and pursuing characterization. Research focusing on X linked lymphoproliferative disease has been conducted by Dr. Kanegane. iPS cell directed innovative drug discovery has been performed by Dr. Takagi collaborated with Dr. Ohtsu in Tokyo University. In terms with ataxia telangiectasia, research group was organized by Dr. Takagi to improve patient outcome. Cellular differentiation has been investigated using patient derived iPS cells. To maintain quality of life in PID, web based interaction between patient side and hospital side has been established under leadership by Dr. Imai.
In the clinical setting, viral infection is one of a critical factor that affect the outcome of hematopoietic stem cell transplantation. To overcome this disadvantage, we have been starting the generation of multi virus specific cytotoxic T cell. This year our group revealed how chromosomal integrated HHV6 is activated in severe combined immunodeficiency patient. This findings is notable discovery in field of infection and immunodeficiency.
In regenerative medicine field, Dr. Morio organized research group to evaluate the quality of clinical use iPS cell. Comprehensive microbe monitoring system has been developing collaborate with Dr. Shimizu at TMDU Medical research institute, and non-invasive genomic alteration detection system has been developing collaborate with Dr. Inazawa at TMDU Medical research institute and Dr. Ohara at Kazusa genome institute.
In the oncology field, we have focusing on that how DNA damage response prevent oncogenic transformation. Hierarchy of leukemic stem cell from infantile leukemia mice has been analyzing using NOG SCID mice collaborated with RIKEN. In addition to leukemic stem cell research, comprehensive genome research has been conducted. These research will be lead to identification of novel therapeutic approach for pediatric leukemia.

● Cardiology Group
The basic research consecutively focused on the analysis of mechanism by which pulmonary hypertension (PH) advances, and the development of treatment on PH. We have been recently interested in the inflammation, as well as lots of investigators all over the world, associated with vascular remodeling in PH. We studied the role of dipeptidyl peptidase-4(DPP-4) in PH. DPP-4 inhibitors (Algoliptin), which are new drugs for type 2 diabetes mellitus, have an important role for cardiovascular protection by its anti-inflammation effect. In vivo study,

Alogliptin markedly improved the survival and pulmonary artery pressure of monocrotaline (MCT)-induced PH rats by improving medial hypertrophy. In vitro experiments, Alogliptin dependently inhibited proliferation of PASMCs stimulated with TGF-beta and also suppressed p-Erk 1/2 protein levels induced by TGF-beta. Therefore, DPP-4 inhibitor has potential as a new therapeutic tool for PH because DPP-4 is associated with the progression of PH by causing TGF-beta-induced inflammation. On the other hand, omega-3 fatty acids (FA) such as eicosapentaenoic acid (EPA) were reported to exert potent anti-inflammatory effects through G protein-coupled receptor 120 (GPR120). We investigated the role of EPA in PH. In vivo study, EPA markedly improved survival, PH and medial hypertrophy of small pulmonary arteries. In vitro study, EPA inhibited dose-dependently pulmonary arterial smooth muscle cells (PASMCs) proliferation stimulated with TGF-beta or FGF2. EPA also suppressed nuclear factor-kappa B p65 translocation into the nucleus in PASMCs. We elucidated that EPA had anti-inflammatory effects through GPR120 in PH. EPA has also potential as a new therapeutic tool for PH. Both results were presented in The 78th Annual Scientific Meeting of Japanese Circulation Society and American Heart Association 2014.
As the clinical research, we were engaged in four multi-center-associated clinical studies. All of them were related to The Japanese Society of Pediatric Cardiology and Cardiac Surgery. These themes were "Clinical backgrounds of Eisenmenger syndrome", "Research of screening and management strategy for Long QT syndrome", "Efficacy of school-based heart examination in early detection of idiopathic pulmonary arterial hypertension" and "Research for protection of RSV infection in patients with congenital heart disease by palivizumab (Genetical Recombination) in Japan". We were also engaged in "Research for social background of heart transplantation in children" in Grants-in Aid for Scientific Research of Ministry of Health, Labour and Welfare

● Neurology Group
1) Genetic background of epileptic encephalopathy and intractable epilepsy
2) Efficacy and safety of very-low-dose betamethasone therapy in ataxia telangiectasia

● Endocrinology Group
Currently, our research is focused on elucidating the molecular mechanisms of congenital diseases of endocrine organs, especially adrenal glands and gonads. We are looking at developing the radical treatment systems for the congenital endocrine diseases by using regenerative medicine as a final target.
Our ongoing projects are bellows
#1: Molecular mechanisms of gonadal development
We are trying to elucidate molecular mechanisms of gonadal development. Especially, we are focusing on elucidating epigenetic network of gonadal development and gonadal cell differentiation. We also trying to clarify the precise function of transcription factors, such as Sf1, Foxl2 and Sox9.
In collaborating with M. Kanai (Department of Experimental Animal Model for Human Disease), Syuji Takada (Department of Systems BioMedicine, National Center for Child Health and Development), P. Koopman (IMB. The university of Queensland, Brisbane, Australia), we use in vitro and in vivo approach, including making genetic modified mice.
#2: Molecular pathological mechanisms in congenital adrenal hyperplasia.
Congenital adrenal hyperplasia is one of the disorder of sex development (DSD), and now we are treating more than 40 patients.
Including the relationships between genotype and phenotype, the molecular mechanisms of the disease has not been clarified yet. Including functional analysis of novel mutations of the steroidogenic enzymes, we are trying to elucidate the pathology of the disease.
#3: Elucidating the mechanisms of congenital disorder of endocrine organs
We also try to elucidate the molecular mechanisms of congenital disorder of endocrine organs. Understanding the molecular pathology of the diseases will be beneficial to develop innovative treatment of the diseases.
Current ongoing projects will be integrated systematically further, and will be applicable to develop innovative treatment of congenital endocrine disorder, including regenerative medicine.

● Nephrology group
We are conducting research to elucidate the mechanism of renal tubular injury progression of pediatric nephrotic patients. Oxidative stress is analysed utilizing urine from patients and cultured proximal tubular cells after protein overload.
We treated siblings with Galloway Mowat syndrome which develops congenital nephrotic syndrome. Genetic analysis of the siblings and their father is ongoing.

● Neonatology group
We are investigating a novel therapy with umbilical cord blood derived mesenchymal stem cells for treating periventricular leukomalacia and chronic lung disease using intrauterine infection model in cooperation with division of Cellular Physiological Chemistry and Nanomedicine (DNP) in TMDU.

● Allergy Group
To elucidate molecular mechanisms for food allergy such as against milk and egg is one of the main projects of our group. In the light of recent progress of immunology, we analyze the function of regulatory T cells which inhibit Th2 type immune response. We also define the roles of innate immune responses in host defense against foreign antigens entering skin and mucosal tissues. Clinical and epidemiological study on food allergy is another major field in our study. We conduct clinical studies of specific oral tolerance induction in food allergy in which the offending food is administered orally in order to achieve tolerance. In collaboration with the Japanese Society of Pediatric Allergy and Clinical Immunology, we conduct several clinical studies to refine pharmacologic therapy listed in the Japanese pediatric guideline for the treatment and management of asthma.

(3) Education

Education for the 3rd and the first half of the 4th graders of Medical students was proposed lectures on the basis of two big standpoints, child developments and pediatric diseases, by the staffs of Department of Pediatrics and Developmental Biology, Department of Pediatrics, Perinatal and Maternal Medicine, Department of Research for Regional Pediatrics, and the part-time lecturers. The field is widely covered, for example, Hematology, Oncology, Immunology, Cardiology, Neurology, Endocrinology, Neonatology, Nephrology, Allergy, Pulmonology, Infection, and Social Medicine and so on. The 5th graders were divided into the small groups, and started and continued for three months to learn the introduction of Clinical Clerkship, so-called Pre-clerkship, classified by organs. We were engaged in the organs of Blood, Chest (Heart) and Neuron shared with the another Departments. Then one month practice in pediatric clinical trainings was provided for the 5th to 6th graders, where every student belonged to one of the professional clinical teams (Hematology/Oncology/Immunology, Cardiology, Neurology, Endocrinology, Neonatology and Nephrology) in the University Hospital or some affiliated hospitals (Tsuchiura Kyodo General Hospital, Kawaguchi municipal Medical Center or North Tokyo Social Insurance Hospital), and studied clinical practice as one of the team members. Another mission of this Department was to provide lecture courses on general pediatrics for the students of Dental and School of Health Science.
Junior clinical fellows who are in the training course of pediatric practice under the supervision of senior staffs were also expected to supervise these medical students. The style of clinical training was maintained and the 1st year trainee as well as the 2nd year trainee could choose the training in the pediatric ward for two months. On the other hand, the 2nd year trainee was in general engaged in the basic training for one month in the pediatric ward in some affiliated hospitals (Musashino Red Cross Hospital, Soka Municipal Hospital or North Tokyo Social Insurance Hospital). Depending on the individuals, they could select the advanced training at the pediatric ward in The University Hospital for two to eight months.

(4) Lectures & Courses

It is a goal of education for the 3rd and 4th graders (first half) of medical students to learn the whole picture of general pediatric diseases, and for the 4th graders (latter half, so-called project semester) to touch the basic research, get the fundamental way of thinking and skills of experiments. On the other hand, it is a goal for the 5th and 6th graders (so-called pre-Clerkship and Clinical Clerkship), to be in charge of each patient with pediatric staffs and experience the general steps under the clinical medicine, for example, the following steps how to interview the medical history, get the physical findings, plan the laboratory examinations, differentially diagnose by analyzing the personal data, describe the clinical records, and discuss about the treatment planning. Moreover, we educate the students of dentistry and health care sciences, who learn not only general pediatric diseases but the importance of pediatrics as playing roles of total coordination and mutual cooperation beyond specialty for children' s care.
Junior clinical trainees, previously started to train the pediatrics from the 2nd year, became to be able to elect the pediatric training for two months from the 1st year, actually however, the fellows who desired to optionally choose the pediatric training did not necessarily perform it because of too many applicants. The 2nd year junior clinical trainees were divided two groups. Those only required pediatric training for one month were generally planned to experience the common pediatric diseases in the affiliated hospitals. On the other hand, those electively selected pediatrics were basically planned to train almost in university hospitals

together with at the affiliated hospitals for one month. Senior clinical trainees were rotated among in the university hospitals and chief affiliated hospitals, planned to experience all kinds of pediatric diseases related to oncology, cardiology, neurology, infections and immunology, endocrinology and metabolic diseases, neonatology, nephrology, pulmonology, digestive diseases, and genomics.

(5) Clinical Services & Other Works

Hematology/Oncology/Immunology Group treats children with primary immunodeficiency, hematological malignancies, hematological disorders, and malignant solid tumors. Our team consists of 4 staffs, including 4 senior with diplomate of board of pediatrics, hematology, and/or pediatric hematology/oncology and 2 junior staffs. We offer a team-based high-quality and evidence-based clinical care for both inpatients and outpatients. Additionally, we have a cooperative system for medical liaison with other professional facilities including St. Luke' s International Hospital and Juntendo University Hospital; joint clinical conference and trainee exchange program has been ongoing..
1. Participation in multi-center cooperative clinical research group: In collaboration with national co-operative clinical research group, such as the Japanese Pediatric Leukemia/Lymphoma Study Group (JPLSG), we offer our patients opportunities to participate in the latest clinical trials and contribute to establish both standard and novel therapies for childhood cancers and other non-malignant diseases.
2. Hematopoietic stem cell transplantation (HSCT): In 2014, we performed HSCT for 8 cases; related bone marrow transplantation (BMT) (n=4) (including 3 haploid identical or non sibling donor source), unrelated BMT (n=2), unrelated cord blood transplantation (n=2). Six of them were performed for PID patients. Our experience of HSCT exceeds 150 cases including more than 50 cases with primary immunodeficiency diseases, so far. We are also working on novel HSCT methods, such as transplantation with haplo-identical donor and killer inhibitory receptor (KIR) ligand mismatched donor, and use of reduced-intensity conditioning aiming for reduction of late effects in HSCT recipients.
3. Two Investigator oriented clinical trials were performed. Efficacy and safety of zoledoronate for RALD. Efficacy of betamethasone for ataxia telangiectasia (A-T).
4. long-term follow-up for childhood cancer survivors (CSS): In cooperation with pediatric endocrionologists, CLS (child life specialist) and psychotherapists, we are taking care of cancer survivors and supporting their quality of life.

● Cardiology Group

The University Hospital has been certified as a training institute to produce the expert in pediatric cardiology by Japanese Society of Pediatric Cardiology and Cardiac Surgery. There are pediatric cardiology experts (Doi S, et al), one general pediatric cardiologist and one senior resident in The University Hospital who were mainly engaged in the diagnosis and treatment for every kinds of heart disease patients both in the pediatric ward and the field for pediatric outpatients. On cardiac catheterization performed in every Friday.
In-patients were more than 100 and chiefly introduced from the affiliated hospitals and out-patients field in The University Hospital. The diseases we dealt with were congenital heart diseases, acquired heart diseases such as Kawasaki disease, pulmonary hypertension and cardiomyopathies, and cardiac arrhythmias. In cardiac catheterizations per year were performed including catheter ablation for cardiac arrhythmias. All the patients who needed surgical operation have been transferred to The Sakakibara Heart Institute until the last year. However, on January 2013, surgical operation in children was restarted in The University Hospital after about 30 years blank. One ASD and one VSD patients were radically operated in this year.
The treatment strategy for Kawasaki Diseases (KD) was severity-dependent and active usage of glucocorticoids, urinastatin, infliximab and cyclosporine to protect the complications of coronary aneurysms. PH patients were admitted for diagnosis, evaluation of treatments or decision of treatment strategy. The most important thing is early diagnosis and early initiation of treatment for PH, which is nominated for difficult-cured and progressive disease. Therefore, we decide to positively treat by receiving up-front combination therapy (uCT) with three kinds of disease targeted drugs and inducing continuous venous infusion of epoprostenol. Four patients were treated with uCT and one patient was induced epoprostenol. As the result, we succeeded in decreasing pulmonary arterial pressure as well as increase in cardiac output and decrease in pulmonary vascular resistance. Among patients with cardiac arrhythmia, prolonged QT elongation (PQT) was examined to be diagnosed, on drug provocation test, exercise-tolerated ECG, face drop in cold water examination or gene mutation evaluation. Out-patients for pediatric cardiology were up to 1,800 patients with the 1,500 examinations of echocardiogram. Moreover, Holter 24-hours ECG monitoring examination was performed, and Treadmill exercise tolerance examination were also performed. We have participated in the school heart screening program of Tokyo Metropolitan

Institute for Preventive Medicine and Tokyo Medical Association, and checked 9,000 students ECG records in elementary, junior high and senior high schools. The students who were needed the third stage checkup visited The University Hospital, examined at out- or in-patients fields and finally decided the exercise restriction level in school life.

● Neurology Group

Child neurology group provides highly specialized diagnostic approach and medical care for neurological disorders such as epilepsy, neuromuscular disorders, infection of nervous system, neurodegenerative diseases and genetic syndromes. In particular, in cooperation with the department of neurosurgery, we evaluate the indication for surgical treatment and then perfome surgical operation such as focal brain resection to the patient of intractable epilepsy.

● Endocrinology Group

We provide highly specific diagnostic approach and therapy for pediatric endocrine disorders, such as growth retardation, hypogonadism, thyroid diseases, disorder of sex development (DSD), disorder of Ca-P-PTH metabolism, type1 diabetes mellitus. In collaborating with the satellite hospitals, we are following more than a thousand patients, and the annual number of inpatients with endocrine disorder of our university is more than 100.
Senior physician of our group is an adviser of Tokyo Health Service Association, and supervising the newborn screening of congenital adrenal hyperplasia in Tokyo.
Among many pediatric endocrine disorders, we are directing our effort at the disorders of adrenal gland and sex development, and looking at establishing the clinical center for those patients with pediatric-urologist and other co-medical staffs.

● Nephrology Group
Nephrology Group provides diagnosis and treatment for patients with acute and chronic glomerular diseases, nephrotic syndrome, and congenital abnormality of kidney and urinary tract. We performed kidney biopsy, renogram, MRU, ultrasonography etc. for above patients. We also participated actively in urinary analysis screening for school children.
In Medical Hospital of Tokyo Medical and Dental University, renal biopsy was performed to more than 40 patients. Congenital nephrotic syndrome, refractory nephrotic syndrome and treatment resistant IgA nephropathy was the main diseases we treated. We also started peritoneal dialysis for low body weight patients. We presented case reports of our patients at the meeting of Japanese society of nephrology, The Japanese society for pediatric nephrology, and Japanese society of pediatric renal failure.
We participate in multi-institutional joint research of refractory nephrotic syndrome operated by Japanese Study Group of Kidney Disease in Children. We take part in analysis of efficacy of methyl predonisolone pulse therapy in treatment of steroid resistant nephrotic syndrome patients.
Group conference was held on 4th Thursday every month to discuss the rare cases and for presentation of research progress by graduate students. We also held conference with pediatric nephrologists in other institutions regularly and discussed about better treatment for serious kidney diseases. Some members of our group received training at National Research Institute for Child Health and Development to improve their skills.

● Neonatology group
1) Our NICU (Neonatal Intensive Care Unit) was established on April 2012 with 6 beds, and provide intensive care for preterm infants ($>$ 28 weeks of gestation and/or $>$ 1000g of birth weights). We also take care of critically ill newborns, those with congenital heart disease, hematological disorder, etc., in cooperation with other pediatric subspecialty groups.
2) As a designated Perinatal Cooperation Hospital in Tokyo, we accept newborn patients from various areas in Tokyo.

● Allergy Group
Allergy Group provides diagnostic and medical care for infants and children with various kinds of allergic diseases. In particular, we focus on clinical care of severe and complicated allergic diseases such as food allergy inducing anaphylaxis, food-dependent exercise-induced anaphylaxis, food protein-induced enterocolitis syndrome and oral allergy syndrome induced by cross-reactivity among food, inhalant and contact allergens. We extensively perform food challenge tests not only for correct diagnosis of food allergy but for preparation of oral immunotherapy in cooperation with affiliated hospitals.

(6) Clinical Performances

< Hematology-Oncology/ Immunology Group >
Hematology-Oncology/ Immunology Group provides diagnosis, treatment and pathological analysis of hematological malignancies and primary immunodeficiency diseases. We perform hematopoietic stem cell transplantation for refractory diseases. Especially, we treat the largest number of primary immunodeficiency disease patients in Japan. We participate in multi-center cooperative clinical research to establish both standard and novel therapies for childhood cancers, and also participate in industry-based clinical trials for drug, such as anticancer drug, approval.

< Cardiology Group >
Cardiology group perform diagnosis, evaluation of treatment or decision of treatment strategy for PH patients. We positively treat by up-front combination therapy (uCT) with three kinds of disease targeted drugs and continuous venous infusion of epoprostenol. Worthy of special mention, surgical operation in children with congenital heart diseases was restarted after about 30 years blank.

< Neurology Group >
Neurology group provide highly specialized diagnostic approach and medical care for neurological disorders such as epilepsy, neuromuscular disorders, nervous system infections, neurodegenerative diseases and genetic syndromes.

< Endocrinology Group >
Senior physician of Endocrinology group is an adviser of Tokyo Health Service Association, and directing the newborn screening of congenital adrenal hyperplasia in Tokyo. Long-term follow-up for childhood cancer survivors (CSS) is emphasized. Furthermore, we manage the Type 1 DM patients' association (Wakamatsu-kai) and organize the summer camp every year.

< Nephrology Group >
Congenital nephrotic syndrome, refractory nephrotic syndrome and treatment resistant IgA nephropathy are the main diseases Nephrology group treat. Renal biopsy is performed to more than 40 patients. We also provide acute hemodialysis treatment and peritoneal dialysis for low body weight patients (under 10kg) in cooperation with department of blood purification.

< Neonatology Group >
Our NICU (Neonatal Intensive Care Unit) provides intensive care for preterm infants and critically ill newborns. As a designated Perinatal Cooperation Hospital in Tokyo, we accept newborn patients from various areas in Tokyo by collaborating with comprehensive reproductive medicine.

(7) Publications

[Original Articles]

1. U Koura, H Sakaki-Nakatsubo, K Otsubo, K Nomura, K Oshima, O Ohara, T Wada, A Yachie, K Imai, T Morio, T Miyawaki, H Kanegane. Successful treatment of systemic cytomegalovirus infection in severe combined immunodeficiency using allogeneic bone marrow transplantation followed by adoptive immunotherapy. J Investig Allergol Clin Immunol. 2014; 24(3); 200-202

2. Yohei Matsubara, Tomoki Chiba, Kenichi Kashimada, Tomohiro Morio, Shuji Takada, Shuki Mizutani, Hiroshi Asahara. Transcription activator-like effector nuclease-mediated transduction of exogenous gene into IL2RG locus. Sci Rep. 2014; 4; 5043

3. Akihiro Hoshino, Keiko Nomura, Hirokazu Kanegane. Graft versus tumor effect against neuroblastoma: a case report with long-term survival and a review of the literature Journal of Hematopoietic Cell Transplantation. 2014; 3(3); 97-101

4. Tomohiro Udagawa, Yaeko Motoyoshi, Yu Matsumura, Akira Takei, Shohei Ariji, Eisaku Ito, Motoko Chiga, Masayuki Nagasawa, Tomohiro Morio, Shuki Mizutani. Effect of eculizumab and recombinant human soluble thrombomodulin combination therapy in a 7-year-old girl with atypical hemolytic uremic syndrome due to anti-factor H autoantibodies. CEN Case Report. 2014; 3; 110-117

5. Yaeko Motoyoshi, Akifumi Endo, Masatoshi Takagi, Tomohiro Morio, Eisaku Ito, Michio Nagata, Shuki Mizutani. Graft versus host disease-dependent renal dysfunction after hematopoietic stem cell transplantation CEN Case Report. 2014; 3(2); 202-205

6. Keiko Yamagami, Tomoko Miyashita, Tomoyuki Nakamura, Michinori Shirano, Tadahiro Nakamura, Kazuaki Kameda, Masayoshi Nishijima, Masahiro Imanishi, Xi Yang, Hirokazu Kanegane. Campylobacter fetus bacteremia with purulent pleurisy in a young adult with primary hypogammaglobulinemia. Intern. Med.. 2014; 53(11); 1221-1225

7. Tanaka Eriko, Asanuma Katsuhiko, Kim Eunhee, Sasaki Yu, Oliva Trejo Juan Alejandro, Seki Takuto, Nonaka Kanae, Asao Rin, Nagai-Hosoe Yoshiko, Akiba-Takagi Miyuki, Hidaka Teruo, Takagi Masatoshi, Koyanagi Akemi, Mizutani Shuki, Yagita Hideo, Tomino Yasuhiko. Notch2 activation ameliorates nephrosis. Nat Commun. 2014; 5; 3296

8. Tanuma Naoyuki, Miyata Rie, Nakajima Keisuke, Okumura Akihisa, Kubota Masaya, Hamano Shinichiro, Hayashi Masaharu. Changes in cerebrospinal fluid biomarkers in human herpesvirus-6-associated acute encephalopathy/febrile seizures. Mediators Inflamm. 2014; 2014; 564091

9. Yasushi Ishida, Miho Maeda, Kevin Y Urayama, Chikako Kiyotani, Yuki Aoki, Yoko Kato, Shoko Goto, Sachi Sakaguchi, Kenichi Sugita, Mika Tokuyama, Naoya Nakadate, Eizaburo Ishii, Masahiro Tsuchida, Akira Ohara, . Secondary cancers among children with acute lymphoblastic leukaemia treated by the Tokyo Children's Cancer Study Group protocols: a retrospective cohort study. Br. J. Haematol. 2014.01; 164(1); 101-112

10. Akihiro Hoshino, Masaki Shimizu, Hiroyoshi Matsukura, Hisano Sakaki-Nakatsubo, Keiko Nomura, Toshio Miyawaki, Hirokazu Kanegane. Allogeneic bone marrow transplantation appears to ameliorate IgA nephropathy in a patient with X-linked thrombocytopenia. J. Clin. Immunol.. 2014.01; 34(1); 53-57

11. Taizo Wada, Hirokazu Kanegane, Kazuhide Ohta, Fumiyo Katoh, Toshihiko Imamura, Yozo Nakazawa, Ritsuko Miyashita, Junichi Hara, Kazuko Hamamoto, Xi Yang, Alexandra H Filipovich, Rebecca A Marsh, Akihiro Yachie. Sustained elevation of serum interleukin-18 and its association with hemophagocytic lymphohistiocytosis in XIAP deficiency. Cytokine. 2014.01; 65(1); 74-78

12. Kengo Iwasaki, Motohiro Komaki, Naoki Yokoyama, Yuichi Tanaka, Atsuko Taki, Izumi Honda, Yasuyuki Kimura, Masaki Takeda, Keiko Akazawa, Shigeru Oda, Yuichi Izumi, Ikuo Morita. Periodontal regeneration using periodontal ligament stem cell-transferred amnion. Tissue Eng Part A. 2014.02; 20(3-4); 693-704

13. Hirokazu Kanegane, Kohsuke Imai, Masafumi Yamada, Hidetoshi Takada, Tadashi Ariga, Martin Bexon, Mikhail Rojavin, Wilson Hu, Midori Kobayashi, John-Philip Lawo, Shigeaki Nonoyama, Toshiro Hara, Toshio Miyawaki. Efficacy and safety of IgPro20, a subcutaneous immunoglobulin, in Japanese patients with primary immunodeficiency diseases. J. Clin. Immunol.. 2014.02; 34(2); 204-211

14. Satoshi Horino, Yoji Sasahara, Miki Sato, Hidetaka Niizuma, Satoru Kumaki, Daiki Abukawa, Atsushi Sato, Masue Imaizumi, Hirokazu Kanegane, Yoshiro Kamachi, Shinya Sasaki, Kiminori Terui, Etsuro Ito, Ichiro Kobayashi, Tadashi Ariga, Shigeru Tsuchiya, Shigeo Kure. Selective expansion of donor-derived regulatory T cells after allogeneic bone marrow transplantation in a patient with IPEX syndrome. Pediatr Transplant. 2014.02; 18(1); E25-E30

15. Masaki Shimizu, Mondo Kuroda, Natsumi Inoue, Michio Konishi, Noboru Igarashi, Hiromichi Taneichi, Hirokazu Kanegane, Mika Ito, Shigeru Saito, Akihiro Yachie. Extensive serum biomarker analysis in patients with enterohemorrhagic Escherichia coli O111-induced hemolytic-uremic syndrome. Cytokine. 2014.03; 66(1); 1-6

16. Beatriz E Marciano, Chiung-Yu Huang, Gyan Joshi, Nima Rezaei, Beatriz Costa Carvalho, Zoe Allwood, Aydan Ikinciogullari, Shereen M Reda, Andrew Gennery, Vojtech Thon, Francisco Espinosa-Rosales, Waleed Al-Herz, Oscar Porras, Anna Shcherbina, Anna Szaflarska, Şebnem Kiliç, Jose L Franco, Andrea C Gómez Raccio, Persio Roxo, Isabel Esteves, Nermeen Galal, Anete Sevciovic Grumach, Salem Al-Tamemi, Alisan Yildiran, Julio C Orellana, Masafumi Yamada, Tomohiro Morio, Diana Liberatore, Yoshitoshi Ohtsuka, Yu-Lung Lau, Ryuta Nishikomori, Carlos Torres-Lozano, Juliana T L Mazzucchelli, Maria M S Vilela, Fabiola S Tavares, Luciana Cunha, Jorge A Pinto, Sara E Espinosa-Padilla, Leticia Hernandez-Nieto, Reem A Elfeky, Tadashi Ariga, Heike Toshio, Figen Dogu, Funda Cipe, Renata Formankova, M Enriqueta Nuñez-Nuñez, Liliana Bezrodnik, Jose Gonçalo Marques, María I Pereira, Viviana

Listello, Mary A Slatter, Zohreh Nademi, Danuta Kowalczyk, Thomas A Fleisher, Graham Davies, Bénédicte Neven, Sergio D Rosenzweig. BCG vaccination in patients with severe combined immunodeficiency: complications, risks, and vaccination policies. J. Allergy Clin. Immunol.. 2014.04; 133(4); 1134-1141

17. Yoko Mizoguchi, Miyuki Tsumura, Satoshi Okada, Osamu Hirata, Shizuko Minegishi, Kohsuke Imai, Nobuyuki Hyakuna, Hideki Muramatsu, Seiji Kojima, Yusuke Ozaki, Takehide Imai, Sachiyo Takeda, Tetsuya Okazaki, Tsuyoshi Ito, Shin'ichiro Yasunaga, Yoshihiro Takihara, Vanessa L Bryant, Xiao-Fei Kong, Sophie Cypowyj, Stéphanie Boisson-Dupuis, Anne Puel, Jean-Laurent Casanova, Tomohiro Morio, Masao Kobayashi. Simple diagnosis of STAT1 gain-of-function alleles in patients with chronic mucocutaneous candidiasis. J. Leukoc. Biol.. 2014.04; 95(4); 667-676

18. Satoru Kobayashi, Tomohiko Taki, Hisao Nagoshi, Yoshiaki Chinen, Yuichi Yokokawa, Hirokazu Kanegane, Yosuke Matsumoto, Junya Kuroda, Shigeo Horiike, Kazuhiro Nishida, Masafumi Taniwaki. Identification of novel fusion genes with 28S ribosomal DNA in hematologic malignancies. Int. J. Oncol.. 2014.04; 44(4); 1193-1198

19. Alexander Quinn, Kenichi Kashimada, Tara-Lynne Davidson, Ee Ting Ng, Kallayanee Chawengsaksophak, Josephine Bowles, Peter Koopman. A site-specific, single-copy transgenesis strategy to identify 5' regulatory sequences of the mouse testis-determining gene Sry. PLoS ONE. 2014.04; 9(4); e94813

20. Setsuko Hasegawa, Kohsuke Imai, Kenichi Yoshida, Yusuke Okuno, Hideki Muramatsu, Yuichi Shiraishi, Kenichi Chiba, Hiroko Tanaka, Satoru Miyano, Seiji Kojima, Seishi Ogawa, Tomohiro Morio, Shuki Mizutani, Masatoshi Takagi. Whole-exome sequence analysis of ataxia telangiectasia-like phenotype. J. Neurol. Sci.. 2014.05; 340(1-2); 86-90

21. Kei Takasawa, Kenichi Kashimada, Emanuele Pelosi, Masatoshi Takagi, Tomohiro Morio, Hiroshi Asahara, David Schlessinger, Shuki Mizutani, Peter Koopman. FOXL2 transcriptionally represses Sf1 expression by antagonizing WT1 during ovarian development in mice. FASEB J.. 2014.05; 28(5); 2020-2028

22. Shin Fukuda, Toshihiro Nanki, Tomohiro Morio, Hisanori Hasegawa, Ryuji Koike, Nobuyuki Miyasaka. Recurrent mitral valve regurgitation with neutrophil infiltration in a patient with multiple aseptic abscesses. Mod Rheumatol. 2014.05; 24(3); 537-539

23. Kojima Katsuaki, Tanaka Ryuma, Nakajima Keisuke, Kurihara Nobuyoshi, Oba Mari Saito, Yamashita Yukio, Ishihara Jun, Yahagi Naohisa. Predicting outcomes of neonates born to GBS-positive women who received inadequate intrapartum antimicrobial prophylaxis. Turk J Pediatr. 2014.05; 56(3); 238-242

24. Kei Takasawa, Makoto Ono, Atsushi Hijikata, Yohei Matsubara, Noriyuki Katsumata, Masatoshi Takagi, Tomohiro Morio, Osamu Ohara, Kenichi Kashimada, Shuki Mizutani. Two novel HSD3B2 missense mutations with diverse residual enzymatic activities for Δ 5-steroids. Clin. Endocrinol. (Oxf). 2014.06; 80(6); 782-789

25. Monica Yabal, Nicole Müller, Heiko Adler, Nathalie Knies, Christina J Groß, Rune Busk Damgaard, Hirokazu Kanegane, Marc Ringelhan, Thomas Kaufmann, Mathias Heikenwälder, Andreas Strasser, Olaf Groß, Jürgen Ruland, Christian Peschel, Mads Gyrd-Hansen, Philipp J Jost. XIAP restricts TNF- and RIP3-dependent cell death and inflammasome activation. Cell Rep. 2014.06; 7(6); 1796-1808

26. Kato Yoko, Maeda Miho, Aoki Yuki, Ishii Eizaburo, Ishida Ysushi, Kiyotani Chikako, Goto Shoko, Sakaguchi Sachi, Sugita Kenichi, Tokuyama Mika, Nakadate Hisaya, Kikuchi Akira, Tsuchida Masahiro, Ohara Akira. Pain management during bone marrow aspiration and biopsy in pediatric cancer patients. Pediatr Int. 2014.06; 56(3); 354-359

27. Menno C van Zelm, Sophinus J W Bartol, Gertjan J Driessen, Françoise Mascart, Ismail Reisli, Jose L Franco, Beata Wolska-Kusnierz, Hirokazu Kanegane, Louis Boon, Jacques J M van Dongen, Mirjam van der Burg. Human CD19 and CD40L deficiencies impair antibody selection and differentially affect somatic hypermutation. J. Allergy Clin. Immunol.. 2014.07; 134(1); 135-144

28. Kazuhiro Kogawa, Hiroki Sato, Takeshi Asano, Shouichi Ohga, Kazuko Kudo, Akira Morimoto, Shigeru Ohta, Hiroshi Wakiguchi, Hirokazu Kanegane, Megumi Oda, Eiichi Ishii. Prognostic factors of Epstein-Barr virus-associated hemophagocytic lymphohistiocytosis in children: report of the Japan Histiocytosis Study Group. Pediatr Blood Cancer. 2014.07; 61(7); 1257-1262

29. Nakazawa M, Akasaka M, Hasegawa T, Suzuki T, Shima T, Takanashi JI, Yamamoto A, Ishidou Y, Kikuchi K, Niijima S, Shimizu T, Okumura A.. Efficacy and safety of fosphenytoin for acute encephalopathy in children. Brain and Development. 2014.07;

30. Masaaki Mori, Tomohiro Morio, Shuichi Ito, Akira Morimoto, Setsuo Ota, Koichi Mizuta, Tsutomu Iwata, Toshiro Hara, Tsutomu Saji. Risks and prevention of severe RS virus infection among children with immunodeficiency and Down's syndrome. J. Infect. Chemother.. 2014.08; 20(8); 455-459

31. Akifumi Endo, Ken Watanabe, Tamae Ohye, Kyoko Suzuki, Tomoyo Matsubara, Norio Shimizu, Hiroki Kurahashi, Tetsushi Yoshikawa, Harutaka Katano, Naoki Inoue, Kohsuke Imai, Masatoshi Takagi, Tomohiro Morio, Shuki Mizutani. Molecular and Virological Evidence of Viral Activation From Chromosomally Integrated Human Herpesvirus 6A in a Patient With X-Linked Severe Combined Immunodeficiency. Clin. Infect. Dis.. 2014.08; 59(4); 545-548

32. Akihiro Hoshino, Kohsuke Imai, Yusei Ohshima, Motoko Yasutomi, Masashi Kasai, Masaru Terai, Keiko Ishigaki, Tomohiro Morio, Toshio Miyawaki, Hirokazu Kanegane. Pneumothorax in patients with severe combined immunodeficiency. Pediatr Int. 2014.08; 56(4); 510-514

33. K Nakatani, K Imai, M Shigeno, H Sato, M Tezuka, T Okawa, N Mitsuiki, T Isoda, D Tomizawa, M Takagi, M Nagasawa, M Kajiwara, M Yamamoto, A Arai, O Miura, C Kamae, N Nakagawa, K Honma, S Nonoyama, S Mizutani, T Morio. Cord blood transplantation is associated with rapid B-cell neogenesis compared with BM transplantation. Bone Marrow Transplant.. 2014.09; 49(9); 1155-1161

34. M Mizawa, T Makino, O Norisugi, H Hara, K Shimizu, K Nomura, H Kanegane, T Nojima, T Shimizu. Primary cutaneous Ewing sarcoma following metastasis to the bone and lymph nodes. Br. J. Dermatol.. 2014.09; 171(3); 660-662

35. Aoki Yuki, Sato Ayako, Mizutani Shuki, Takagi Masatoshi. Hematopoietic myeloid cell differentiation diminishes nucleotide excision repair. Int J Hematol. 2014.09; 100(3); 260-265

36. Akihiro Hoshino, Keiko Nomura, Kyo Noguchi, Hirokazu Kanegane. Relapsed leukemia without peripheral blood abnormalities and clinical symptoms detected on MRI. Pediatr Int. 2014.10; 56(5); 798

37. Masaaki Mori, Masafumi Onodera, Akira Morimoto, Yoshiyuki Kosaka, Tomohiro Morio, Gerard F Notario, Shringi Sharma, Tsutomu Saji. Palivizumab use in Japanese infants and children with immunocompromised conditions. Pediatr. Infect. Dis. J.. 2014.11; 33(11); 1183-1185

38. Yasuhiro Yamazaki, Masafumi Yamada, Toshinao Kawai, Tomohiro Morio, Masafumi Onodera, Masahiro Ueki, Nobuyuki Watanabe, Hidetoshi Takada, Shunichiro Takezaki, Natsuko Chida, Ichiro Kobayashi, Tadashi Ariga. Two novel gain-of-function mutations of STAT1 responsible for chronic mucocutaneous candidiasis disease: impaired production of IL-17A and IL-22, and the presence of anti-IL-17F autoantibody. J. Immunol.. 2014.11; 193(10); 4880-4887

39. Claire Aguilar, Christelle Lenoir, Nathalie Lambert, Bernadette Bègue, Nicole Brousse, Danielle Canioni, Dominique Berrebi, Maryline Roy, Stéphane Gérart, Helen Chapel, Tobias Schwerd, Laurent Siproudhis, Michela Schäppi, Ali Al-Ahmari, Masaaki Mori, Akiko Yamaide, Lionel Galicier, Bénédicte Neven, John Routes, Holm H Uhlig, Sibylle Koletzko, Smita Patel, Hirokazu Kanegane, Capucine Picard, Alain Fischer, Nadine Cerf Bensussan, Frank Ruemmele, Jean-Pierre Hugot, Sylvain Latour. Characterization of Crohn disease in X-linked inhibitor of apoptosis-deficient male patients and female symptomatic carriers. J. Allergy Clin. Immunol.. 2014.11; 134(5); 1131-1141.e9

40. Ataru Igarashi, Hirokazu Kanegane, Midori Kobayashi, Toshio Miyawaki, Kiichiro Tsutani. Cost-minimization Analysis of IgPro20, a Subcutaneous Immunoglobulin, in Japanese Patients With Primary Immunodeficiency. Clin Ther. 2014.11; 36(11); 1616-1624

41. Ohnishi Michihiro, Sasaki Naoyuki, Kishimoto Takuya, Watanabe Hidetoshi, Takagi Masatoshi, Mizutani Shuki, Kishii Noriyuki, Yasuda Akio. A new microcolumn-type microchip for examining the expression of chimeric fusion genes using a nucleic acid sandwich hybridization technique. J Chromatogr B Analyt Technol Biomed Life Sci. 2014.11; 970; 60-67

42. Naoya Mori, Teruhiko Makino, Megumi Mizawa, Ko Kagoyama, Hirokazu Kanegane, Hirotoshi Sakaguchi, Takayoshi Miyazono, Seiji Kojima, Tadamichi Shimizu. Late presentation of X-linked dyskeratosis congenita with a missense mutation in codon 350 of the dyskerin protein. Eur J Dermatol. 2014.12;

43. Aoki Yuki, Watanabe Takashi, Saito Yoriko, Kuroki Yoko, Hijikata Atsushi, Takagi Masatoshi, Tomizawa Daisuke, Eguchi Mariko, Eguchi-Ishimae Minenori, Kaneko Akiko, Ono Rintaro, Sato Kaori, Suzuki Nahoko, Fujiki Saera, Koh Katsuyoshi, Ishii Eiichi, Shultz Leonard D, Ohara Osamu, Mizutani Shuki, Ishikawa Fumihiko. Identification of CD34+ and CD34- leukemia-initiating cells in MLL-rearranged human acute lymphoblastic leukemia. Blood. 2014.12;

44. Tae-Yoon Park, Sung-Dong Park, Jen-Young Cho, Jae-Seung Moon, Na-Yeon Kim, Kyungsoo Park, Rho Hyun Seong, Sang-Won Lee, Tomohiro Morio, Alfred L M Bothwell, Sang-Kyou Lee. ROR γ t-specific transcriptional interactomic inhibition suppresses autoimmunity associated with TH17 cells. Proc. Natl. Acad. Sci. U.S.A.. 2014.12; 111(52); 18673-18678

[Books etc]

1. Taki Atsuko. NICU manual. Kanehara Syuppan, 2014.07 (ISBN : 978-4-307-17068-0)

2. Akifumi Endo, Masanori Takagi. Recent advances of genomic research in pediatric hematology.. KAGAKU-HYOURONSHA, 2014.12

[Misc]

1. Shigeyoshi Fujiwara, Hiroshi Kimura, Ken-ichi Imadome, Ayako Arai, Eiichi Kodama, Tomohiro Morio, Norio Shimizu, Hiroshi Wakiguchi. Current research on chronic active Epstein-Barr virus infection in Japan. Pediatr Int. 2014.04; 56(2); 159-166

[Conference Activities & Talks]

1. Ayako Kashimada, Koji Takahashi, Mamiko Hotate, Shinpei Baba, Keisuke Nakajima, Norimichi Higurashi, Shinichi Hirose, Hiroshi Sakuma, Yuji Sugawara . Intravenous corticosteroid therapy for seizure clusters of PCDH19-related epilepsy. 7th IGAKUKEN International Symposium on Fever, Inflammation, and Epilepsy 2014.02

2. Two cases of hematopoietic stem cell transplantation for Severe congenital neutropenia from cord. 2014.03.07

3. Doi Shozaburo. What tests should be done before we label a child as IPAH?. The 5th Congress of Asia Pacific Pediatric Cardiac Society 2014.03.08

4. Masatoshi Takagi, Jinhua Piao, Takahiro Kamiya, Mitsuko Masutani, Shuki Mizutani. Poly(ADP-Ribose) Polymerase inhibitor selectively induce cell killing in E2A-PBX1 and E2A-HLF positive leukemic cell. 8th SIOP Asia Congress 2014.04.17

5. Morio T.. Primary Immunodeficiency.. Brain Korea 21 Plus Project Seminar. 2014.05

6. A case of MERS accompanied by cerebellitis with prolonged cerebellar symptom. 2014.05.29

7. Morio T, Fujita Y, Ono T, Ochiai N, Leen A.M, and Takahashi S.. Development of simplified method for generation of multivirus-specific T cells.. 2014 International Symposium and Annual Meeting of Korean Society of Microbiology and Biotechnology. 2014.06 Busan, Korea.

8. Yuichi Miyakawa, Yohei Matsubara, Atsumi Tsuji, Kei Takasawa, Kenichi Kashimada. Three Families of Pseudohypoparathyroidism Type 1a with Delayed Language Development during Early Childhood. 16th International Congress of Endocrinology (ICE ENDO 2014) 2014.06.21 Chicago

9. Morioka C, Honda I, Taki A, Sugie M, Morio T, Mizutani S, Morita I . New therapy of umbilical cord mesenchymal stem cell for periventricular leukomalacia. The 50th annual congress of Japan society of perinatal and neonatal medicine 2014.07.13

10. Morioka Chikako. A novel therapy for Periventricular leucomalacia using mesenchymal stem cell . 2014.07.13

11. Keisuke Nakajima, Sayaka Hirai, Shinobu Hirai, and Haruo Okado. Status epilepticus changes the level of inhibitory neurons. The Japan Neuroscience Society 2014.09

12. Generation of Multivirus-specific T cells by a single stimulation of PBMCs with a peptide mixture utilizing serum free medium. 2014.09.06

13. Yuichi Miyakawa, Atsumi Tsuji, Yohei Matsubara, Gen Nishimura, Kenichi Kashimada. A case of Pycnodysostosis presented with short stature and delayed union fracture. 612th Japan Pediatric Society Tokyo Chapter 2014.09.13 Tokyo

14. Yuichi Miyakawa, Atsumi Tsuji, Yohei Matsubara, Yuko Segawa, Gen Nishimura, Kenichi Kashimada. A case of Pycnodysostosis presented with short stature and delayed union fracture. The 48th Annual Scientific Meeting of the Japanese Society for Pediatric Endocrinology 2014.09.27 Hamamatsu

15. Yang X, Nishida N, Hoshino A, Goi K, Kanzaki T, Yoshida K, Muramatsu H, Ogawa S, Kojima S, Kanegane H. X-linked dysgammaglobulinemia associated with somatically reverted memory T cells in a family with X-linked lymphoproliferative syndrome type 1. 16th Biennial Meeting of the European Society of Immunodeficiencies 2014.10 Prague, Czech Rep

16. Aguilar C, Lenoir C, Lambert N, Begue B, Brousse N, Canioni D, Berrebi D, Roy M, Gerart S, Chapel H, Schwerd T, Siproudhis L, Schappi M, Al-Ahmari A, Yamaide A, Mori M, Galicier L, Neven B, Routes J, Ulhig H, Koletzko S, Patel S, Kanegane H, Picard C, Fischer A, Cerf Bensussan N, Ruemmele F, Hugot J.P, Latour S. Characterization of crohn disease in X-linked inhibitor of apoptosis protein-deficient male patients and female symptomatic carriers. 16th Biennial Meeting of the European Society of Immunodeficiencies 2014.10 Prague, Czech Rep

17. Nishida N, Yang X, Hoshino A, Kanegane H. Inflammatory bowel disease in Japanese patients with xiap deficiency. 16th Biennial Meeting of the European Society of Immunodeficiencies 2014.10 Prague, Czech Rep

18. Kanegane H, Imai K, Yamada M, Takada H, Ariga T, Hara T, Rojavin M, Hu W, Hubsch A, Nonoyama S. Safety and tolerability of hizentra in patients with primary immunodeficiency in Japan, Europe and the US. 16th Biennial Meeting of the European Society of Immunodeficiencies 2014.10 Prague, Czech Rep

19. Mitsuiki N, Yang X, Bartol S, Kosaka Y, Takada H, Imai K, Kanegane H, Mizutani S, Van der Burg M, Van Zelm M, Ohara O, Morio T. Mutations in Bruton' s tyrosine kinase impair IgA responses. 16th Biennial Meeting of the European Society of Immunodeficiencies 2014.10 Prague, Czech Rep

20. Hoshino A, Okuno Y, Migita M, Ban H, Yang X, Kiyokawa N, Kojima S, Ohara O, Kanegane H. B-precursor acute lymphoblastic leukemia in a patient with X-linked agammaglobulinemia. 16TH Biennial Meeting of the European Society of Immunodeficiencies 2014.10

21. Honda I, Taki A, Morioka C, Oshima N, Toba M, Komaki M, Morio T, Miyasaka N, Kubota T, Morita I . analysis for placenta and newborn in intrauterine infectious model by LSP injection to amniotic fluid in rat. The 22th meeting of Japan placenta association 2014.10.03

22. Honda I, Taki A, Morioka C, Oshima N, Toba M, Komaki M, Morio T, Miyasaka N, Kubota T, Morita I . analysis for placenta and newborn in intrauterine infectious model by LSP injection to amniotic fluid in rat. The 22th meeting of Japan placenta association 2014.10.03

23. Differential Diagnosis & Treatment Strategy of Eisenmenger Syndrome. Symposium 2 Management of PH associated with CHD. 2014.10.04

24. N. Mitsuiki, X. Yang, S. Bartol, Y.Kosaka, H.Takada, K. Imai, H. Kanegane, S. Mizutani, M. Van der Burg, M. Van Zelm, O. Ohara, T. Morio. Mutations in bruton's tyrosine kinase impair IgA responses. 16th Biennial Meeting of the European society for immunodeficiencies 2014.10.30 Prague, Czech Republic

25. K. Imai, Y. Tsujita, K. Mitsui-Sekinaka, N. Mitsuiki, T. Takashima, T. Okano, Y. Aoki, F. Kimoto, M. Inoue, F. Iwasaki, T. Kaneko, T. Waragai, H. Sano, A. Kikuta, T. Morio, S. Nonoyama. Hematopoietic stem cell transplantation for the patients with activated PI3K-delta syndrome. 16th Biennial Meeting of the European society for immunodeficiencies 2014.10.30 Prague, Czech Republic

26. L. Gamez-Diaz, D. August, N. Kanariou, S. Seneviratne, C. Speckmann, M. Seidel, M. Noriko, T. Morio, M. Jordan, P. Stepensky, B. Grimbacher. LRBA deficiency:clinical, immunologic and genetic characterization. 16th Biennial Meeting of the European society for immunodeficiencies 2014.10.30 Prague, Czech Republic

27. T.Takashima, Y. Tsujita, T.W.Yeh, N. Mitsuiki, H. Kanegane, S Kracker, A.Durandy, S. Nonoyama, T. Morio, K. Imai. Clinical and immunological features of patients with gain-of-function PIK3CD mutations in japan. 16th Biennial Meeting of the European society for immunodeficiencies 2014.10.30 Prague, Czech Republic

28. H. Takada, T. Takimoto, M. Ishimura, M. Urata, T. Morio, T. Hara. Wiskott-aldrich syndrome in a girl caused by heterozygous wasp mutation and extremely skewed x-chromosome inactivation:an association of non-randome x-chromosome inactivation and uniparental isodisomy 6. 16th Biennial Meeting of the European society for immunodeficiencies 2014.10.31 Prague, Czech Republic

29. T. Wada, T. Toma, M. Yasui, M. Inoue, K. Kawa, K. Imai, T. Morio, A. Yachie. Different leaky phenotype in two siblings with x-linked severe combined immunodeficiency. 16th Biennial Meeting of the European society for immunodeficiencies 2014.10.31 Prague, Czech Republic

30. Susumu Hosokawa, Go Haraguchi, Yasuhiro Maejima, Shozaburo Doi, Mitsuaki Isobe. The synergistic effects of Incretin-related drugs for the treatment of pulmonary arterial hypertension. American Heart Association Scientific Session s 2014 2014.11 Chicago, USA

31. Akifumi Endo, Daisuke Tomizawa, Kohsuke Imai, Masatoshi Takagi, Tomohiro Morio, Shuki Mizutani. Identification and characterization of a novel chimeric gene with EWSR1 in acute myeloid leukemia. The76th the Japanese Society of Hematlogy 2014.11.02 Osaka

32. Kanegane H. Whole exome sequencing reveals atypical phenotype of X-linked lymphoproliferative syndrome.. A symposium for researchers and clinicians on XLP WAS 2014.11.03 London, UK

33. Taki A, Morioka C, Ito K, Sugie M, Morio T, Morita I . effect of experimental intrauterine infection for umbilical cord mesenchymal stem cell. The 59th meeting Japan society for premature and newborn medicine 2014.11.11

34. Setsuko Kaneko, Masatoshi Takagi, Satoko Kumada. Efficacy and safety of very-low-dose betamethasone therapy in ataxia telangiectasia. Ataxia Telangiectasia Clinical Research Conference 2014 2014.11.15

35. Masatoshi Takagi, Setsuko Hasegawa, Shuki Mizutani. Whole-exome sequence analysis of Ataxia-Telangiectasia like phenotype. Ataxia Telangiectasia Clinical Research Conference 2014 2014.11.15

36. Yuichi Miyakawa, Nozomi Matsuda, Atsumi Tsuji, Kenichi Kashimada. Two cases of isodycentic Yp presented with short stature. 24th Japan Endocrine Society Clinical Update on Endocrinology and Metabolism 2014.11.29 Omiya

37. Masatoshi Takagi, Jinhua Piao, Takahiro Kamiya, Mitsuko Masutani, Shuki Mizutani. Poly(ADP-Ribose) Polymerase inhibitor selectively induce cell killing in E2A-PBX1 and E2A-HLF positive leukemic cell. 56th American society of Hematology Annual Meeting 2014.12.06

38. Tsubasa Okano, Kohsuke Imai, Reiji Miyawaki, Mika Okutsu, Takehiro Takashima, Yuki Aoki, Daisuke Tomizawa, Masatoshi Takagi, Michiko Kajiwara, Shuki Mizutani, Tomohiro Morio.. A case of NEMO deficiency with inflammatory bowel disease and Mycobacterium avium infection successfully treated with allogeneic bone marrow transplantation.. the 56th annual meeting of the japanese society of pediatric hematology/oncology. 2014.12.28

Rheumatology

· Professor emeritus
Nobuyuki MIYASAKA

· Professor
Hitoshi KOHSAKA

· Concurrent Professor
Masayoshi HARIGAI(1), Tetsuo KUBOTA(2), Kazuki TAKADA(3)

· Associate Professor
Norihito Kawataha

· Concurrent Associate Professor
Ryuji KOIKE(4), Kenji NAGASAKA(1)

· Junior Associate Professor
Hideyuki IWAI

· Assistant Professor
Akito TAKAMURA, Tetsuya SAITO, Naoki KIMURA, Tadashi HOSOYA, Ryoko SAKAI(1),
Shoko KASAI(4), Waka YOKOYAMA

· Visiting Lecturer
Rieko TSUBATA, Hiroyuki HAGIYAMA, Yoshiki NONOMURA, Fumihito SUZUKI,
Kayoko KANEKO, Peter Y. Shane, Makoto SOEJIMA, Kaori IMAI

· Graduate Student
Yusuke MATSUO, Yoko Yoshihashi, Shin FUKUDA, Kenchi TAKENAKA, Natsuka UMEZAWA,
Mari KIHARA, Fumio HIRANO, Masako HONGO, Sayoko HARADA, Hirokazu SASAKI,
Akio YAMAMOTO, Tomoko MINAMI

· Resident Physician
Mari KAMIYA, Yasuhiro TAGAWA, Wakako SEKIYA, Tatsuhiko SHINOHARA

· Office Administrator
Rie FUJIME, Kaori KONNO, Tomoko TAKAHASHI(1), Marie YAJIMA(1), Asuka HIKICHI, Kayoko KAJIWARA

· Technical Staff
Yuki ISHIGE, Hidemi KASAHARA

(1) Department of Pharmacovigilance, (2) Health care sciences,
(3) Clinical Clerkship Working Group, (4) Clinical Research Center

(1) Research

Following studies have been extensively carried out in our laboratory with various biochemical, immunological, molecular biological and statistical techniques:

1) Development of new therapeutics for the treatment of rheumatoid arthritis targeting cell cycle regulators, inflammatory molecules and synovial fibroblasts.

2) Investigation of mechanism and development of new therapeutics for the treatment of polymyositis.

3) Analysis of the roles of chemokine and bioactive lipid on the pathogenesis of rheumatic diseases.

4) Establishment of evidence-based treatment of rheumatic diseases by implementing several cohort studies.

(2) Education

We have provided medical students and graduates with the opportunity to obtain the ability to identify important clinical problems and to solve them by clinical reasoning through their active participation into the diagnosis and management of various rheumatic diseases.

(3) Clinical Services & Other Works

We have provided care to a large number of patients with diverse rheumatic diseases with 29,514 clinic visits and 337 hospital admissions in 2014. We have aimed to practice evidence-based medicine and to provide care that is in accordance with the global standard. We have contributed to the development of potential new drugs and treatments through participation into industry- as well as investigator-initiated clinical trials for chemical and biological agents. We have also contributed to the refinement of the care of rheumatic disease patients through the conduct of various pharmacovigilance studies.

(4) Publications

[Original Articles]

1. Nakashima Ran, Imura Yoshitaka, Hosono Yuji, Seto Minae, Murakami Akihiro, Watanabe Kizuku, Handa Tomohiro, Mishima Michiaki, Hirakata Michito, Takeuchi Tsutomu, Fujio Keishi, Yamamoto Kazuhiko, Kohsaka Hitoshi, Takasaki Yoshinari, Enomoto Noriyuki, Suda Takafumi, Chida Kingo, Hisata Shu, Nukiwa Toshihiro, Mimori Tsuneyo. The multicenter study of a new assay for simultaneous detection of multiple anti-aminoacyl-tRNA synthetases in myositis and interstitial pneumonia. PLoS One. 2014; 9(1); e85062

2. Waka Yokoyama, Hitoshi Kohsaka, Kayoko Kaneko, Matthew Walters, Aiko Takayasu, Shin Fukuda, Chie Miyabe, Yoshishige Miyabe, Paul E Love, Nobuhiro Nakamoto, Takanori Kanai, Kaori Watanabe-Imai, Trevor T Charvat, Mark Et Penfold, Juan Jaen, Thomas J Schall, Masayoshi Harigai, Nobuyuki Miyasaka, Toshihiro Nanki. Abrogation of CC chemokine receptor 9 ameliorates collagen-induced arthritis of mice. Arthritis Res. Ther.. 2014; 16(5); 445

3. Waka Yokoyama, Kazuki Takada, Nobuyuki Miyasaka, Hitoshi Kohsaka. Myelitis and optic neuritis induced by a long course of etanercept in a patient with rheumatoid arthritis. BMJ Case Rep. 2014; 2014; bcr-2014

4. Yoshishige Miyabe, Chie Miyabe, Yoshiko Iwai, Waka Yokoyama, Chiyoko Sekine, Kazutaka Sugimoto, Masayoshi Harigai, Masayuki Miyasaka, Nobuyuki Miyasaka, Toshihiro Nanki. Activation of fibroblast-like synoviocytes derived from rheumatoid arthritis via lysophosphatidic acid-lysophosphatidic acid receptor 1 cascade. Arthritis Res. Ther.. 2014; 16(5); 461

5. Shin Fukuda, Hitoshi Kohsaka, Aiko Takayasu, Waka Yokoyama, Chie Miyabe, Yoshishige Miyabe, Masayoshi Harigai, Nobuyuki Miyasaka, Toshihiro Nanki. Cannabinoid receptor 2 as a potential therapeutic target in rheumatoid arthritis. BMC Musculoskelet Disord. 2014; 15; 275

6. Sada Ken-ei, Yamamura Masahiro, Harigai Masayoshi, Fujii Takao, Dobashi Hiroaki, Takasaki Yoshinari, Ito Satoshi, Yamada Hidehiro, Wada Takashi, Hirahashi Junichi, Arimura Yoshihiro, Makino Hirofumi, Research Committee on Intractable Vasculitides the Ministry of Health Labour and Welfare of Japan.

Classification and characteristics of Japanese patients with antineutrophil cytoplasmic antibody-associated vasculitis in a nationwide, prospective, inception cohort study. Arthritis Res Ther. 2014; 16(2); R101

7. Nishimoto Norihiro, Amano Koichi, Hirabayashi Yasuhiko, Horiuchi Takahiko, Ishii Tomonori, Iwahashi Mitsuhiro, Iwamoto Masahiro, Kohsaka Hitoshi, Kondo Masakazu, Matsubara Tsukasa, Mimura Toshihide, Miyahara Hisaaki, Ohta Shuji, Saeki Yukihiko, Saito Kazuyoshi, Sano Hajime, Takasugi Kiyoshi, Takeuchi Tsutomu, Tohma Shigeto, Tsuru Tomomi, Ueki Yukitaka, Yamana Jiro, Hashimoto Jun, Matsutani Takaji, Murakami Miho, Takagi Nobuhiro. Retreatment efficacy and safety of tocilizumab in patients with rheumatoid arthritis in recurrence (RESTORE) study. Mod Rheumatol. 2014.01; 24(1); 26-32

8. Nishimoto Norihiro, Amano Koichi, Hirabayashi Yasuhiko, Horiuchi Takahiko, Ishii Tomonori, Iwahashi Mitsuhiro, Iwamoto Masahiro, Kohsaka Hitoshi, Kondo Masakazu, Matsubara Tsukasa, Mimura Toshihide, Miyahara Hisaaki, Ohta Shuji, Saeki Yukihiko, Saito Kazuyoshi, Sano Hajime, Takasugi Kiyoshi, Takeuchi Tsutomu, Tohma Shigeto, Tsuru Tomomi, Ueki Yukitaka, Yamana Jiro, Hashimoto Jun, Matsutani Takaji, Murakami Miho, Takagi Nobuhiro. Drug free REmission/low disease activity after cessation of tocilizumab (Actemra) Monotherapy (DREAM) study. Mod Rheumatol. 2014.01; 24(1); 17-25

9. Kimura Naoki, Takada Kazuki, Murata Kiyoshi, Kohsaka Hitoshi, Miyasaka Nobuyuki. A case of Behcet's disease complicated by carotid-oesophageal fistula. Rheumatology (Oxford). 2014.01; 53(1); 196-198

10. Dougados Maxime, Soubrier Martin, Antunez Anna, Balint Peter, Balsa Alejandro, Buch Maya H, Casado Gustavo, Detert Jacqueline, El-Zorkany Bassel, Emery Paul, Hajjaj-Hassouni Najia, Harigai Masayoshi, Luo Shue-Fen, Kurucz Reka, Maciel Gabriel, Mola Emilio Martin, Montecucco Carlo Maurizio, McInnes Iain, Radner Helga, Smolen Josef S, Song Yeong-Wook, Vonkeman Harald Erwin, Winthrop Kevin, Kay Jonathan. Prevalence of comorbidities in rheumatoid arthritis and evaluation of their monitoring: results of an international, cross-sectional study (COMORA). Ann Rheum Dis. 2014.01; 73(1); 62-68

11. Koike Takao, Harigai Masayoshi, Inokuma Shigeko, Ishiguro Naoki, Ryu Junnosuke, Takeuchi Tsutomu, Takei Syuji, Tanaka Yoshiya, Sano Yoko, Yaguramaki Hitomi, Yamanaka Hisashi. Effectiveness and safety of tocilizumab: postmarketing surveillance of 7901 patients with rheumatoid arthritis in Japan. J Rheumatol. 2014.01; 41(1); 15-23

12. Harigai Masayoshi, Mochida Satoshi, Mimura Toshihide, Koike Takao, Miyasaka Nobuyuki. A proposal for management of rheumatic disease patients with hepatitis B virus infection receiving immunosuppressive therapy. Mod Rheumatol. 2014.01; 24(1); 1-7

13. Takeuchi Tsutomu, Kawai Shinichi, Yamamoto Kazuhiko, Harigai Masayoshi, Ishida Kota, Miyasaka Nobuyuki. Post-marketing surveillance of the safety and effectiveness of tacrolimus in 3,267 Japanese patients with rheumatoid arthritis. Mod Rheumatol. 2014.01; 24(1); 8-16

14. Mitsuru Imamura, Oh Sasaki, Katsuhide Okunishi, Kazuyuki Nakagome, Hiroaki Harada, Kimito Kawahata, Ryoichi Tanaka, Kazuhiko Yamamoto, Makoto Dohi. Perillyl alcohol suppresses antigen-induced immune responses in the lung. Biochem. Biophys. Res. Commun.. 2014.01; 443(1); 266-271

15. Nakazato Yoko, Mizoguchi Fumitaka, Kohsaka Hitoshi, Miyasaka Nobuyuki. A case of relapsing polychondritis initially presenting with bronchial chondritis. Mod Rheumatol. 2014.02;

16. Kenchi Takenaka, Takehiko Ohba, Kozo Suhara, Yurie Sato, Kenji Nagasaka. Successful treatment of refractory aortitis in antineutrophil cytoplasmic antibody-associated vasculitis using tocilizumab. Clin. Rheumatol.. 2014.02; 33(2); 287-289

17. Yokota Masaya, Suzuki Kotaro, Tokoyoda Koji, Meguro Kazuyuki, Hosokawa Junichi, Tanaka Shigeru, Ikeda Kei, Mikata Takashi, Nakayama Toshinori, Kohsaka Hitoshi, Nakajima Hiroshi. Roles of mast cells in the pathogenesis of inflammatory myopathy. Arthritis Res Ther. 2014.03; 16(2); R72

18. Saito R, Takahashi R, Sawabe E, Koyano S, Takahashi Y, Shima M, Ushizawa H, Fujie T, Tosaka N, Kato Y, Moriya K, Tohda S, Tojo N, Koike R, Kubota T. First Report of KPC-2 Carbapenemase-Producing Klebsiella pneumoniae in Japan. Antimicrob Agents Chemother. 2014.05; 58(5); 2961-2963

19. Ryoko Sakai, Soo-Kyung Cho, Toshihiro Nanki, Ryuji Koike, Kaori Watanabe, Hayato Yamazaki, Hayato Nagasawa, Koichi Amano, Yoshiya Tanaka, Takayuki Sumida, Atsushi Ihata, Shinsuke Yasuda, Atsuo Nakajima, Takahiko Sugihara, Naoto Tamura, Takao Fujii, Hiroaki Dobashi, Yasushi Miura, Nobuyuki Miyasaka, Masayoshi Harigai, . The risk of serious infection in patients with rheumatoid arthritis treated

with tumor necrosis factor inhibitors decreased over time: a report from the registry of Japanese rheumatoid arthritis patients on biologics for long-term safety (REAL) database. Rheumatol. Int.. 2014.05;

20. Ohta Akiko, Nagai Masaki, Nishina Motoko, Tomimitsu Hiroyuki, Kohsaka Hitoshi. Prevalence and incidence of polymyositis and dermatomyositis in Japan. Mod Rheumatol. 2014.05; 24(3); 477-480

21. Shin Fukuda, Toshihiro Nanki, Tomohiro Morio, Hisanori Hasegawa, Ryuji Koike, Nobuyuki Miyasaka. Recurrent mitral valve regurgitation with neutrophil infiltration in a patient with multiple aseptic abscesses. Mod Rheumatol. 2014.05; 24(3); 537-539

22. Shimogaki Satoka, Ito Sayaka, Komatsu Sachiyo, Koike Ryuji, Miyasaka Nobuyuki, Umezawa Kazuo, Kubota Tetsuo. Inhibition of the NF-kappaB pathway as a candidate therapeutic strategy for cryopyrin-associated periodic syndrome. Mod Rheumatol. 2014.05; 24(3); 517-524

23. Koike Takao, Harigai Masayoshi, Ishiguro Naoki, Inokuma Shigeko, Takei Syuji, Takeuchi Tsutomu, Yamanaka Hisashi, Haruna Shigenori, Ushida Naoko, Kawana Katsuyoshi, Tanaka Yoshiya. Safety and effectiveness of adalimumab in Japanese rheumatoid arthritis patients: postmarketing surveillance report of 7740 patients. Mod Rheumatol. 2014.05; 24(3); 390-398

24. Kim Jinhyun, Choi Ji Yong, Park Sung-Hye, Yang Seung Hee, Park Ji Ah, Shin Kichul, Lee Eun Young, Kawachi Hiroshi, Kohsaka Hitoshi, Song Yeong Wook. Therapeutic effect of anti-C-X-C motif chemokine 10 (CXCL10) antibody on C protein-induced myositis mouse. Arthritis Res Ther. 2014.06; 16(3); R126

25. Soo-Kyung Cho, Ryoko Sakai, Toshihiro Nanki, Ryuji Koike, Kaori Watanabe, Hayato Yamazaki, Hayato Nagasawa, Yoshiya Tanaka, Atsuo Nakajima, Shinsuke Yasuda, Atsushi Ihata, Kazuhiko Ezawa, Soyoung Won, Chan-Bum Choi, Yoon-Kyoung Sung, Tae-Hwan Kim, Jae-Bum Jun, Dae-Hyun Yoo, Nobuyuki Miyasaka, Sang-Cheol Bae, Masayoshi Harigai, , . A comparison of incidence and risk factors for serious adverse events in rheumatoid arthritis patients with etanercept or adalimumab in Korea and Japan. Mod Rheumatol. 2014.07; 24(4); 572-579

26. Oishi Kyosuke, Hamaguchi Yasuhito, Matsushita Takashi, Hasegawa Minoru, Okiyama Naoko, Dernedde Jens, Weinhart Marie, Haag Rainer, Tedder Thomas F, Takehara Kazuhiko, Kohsaka Hitoshi, Fujimoto Manabu. A crucial role of L-selectin in C protein-induced experimental polymyositis in mice. Arthritis Rheumatol. 2014.07; 66(7); 1864-1871

27. Umezawa Natsuka, Kohsaka Hitoshi, Nanki Toshihiro, Watanabe Kaori, Tanaka Michi, Shane Peter Y, Miyasaka Nobuyuki. Successful treatment of eosinophilic granulomatosis with polyangiitis (EGPA; formerly Churg-Strauss syndrome) with rituximab in a case refractory to glucocorticoids, cyclophosphamide, and IVIG. Mod Rheumatol. 2014.07; 24(4); 685-687

28. Soo-Kyung Cho, Ryoko Sakai, Toshihiro Nanki, Ryuji Koike, Kaori Watanabe, Hayato Yamazaki, Hayato Nagasawa, Yoshiya Tanaka, Atsuo Nakajima, Shinsuke Yasuda, Atsushi Ihata, Kazuhiko Ezawa, Soyoung Won, Chan-Bum Choi, Yoon-Kyoung Sung, Tae-Hwan Kim, Jae-Bum Jun, Dae-Hyun Yoo, Nobuyuki Miyasaka, Sang-Cheol Bae, Masayoshi Harigai, , . A comparison of incidence and risk factors for serious adverse events in rheumatoid arthritis patients with etanercept or adalimumab in Korea and Japan. Mod Rheumatol. 2014.07; 24(4); 572-579

29. Tadashi Hosoya, Hideyuki Iwai, Yu Yamaguchi, Kimito Kawahata, Nobuyuki Miyasaka, Hitoshi Kohsaka. Cell cycle regulation therapy combined with cytokine blockade enhances antiarthritic effects without increasing immune suppression. Annals of the rheumatic diseases, Tokyo Medical and Dental University. 2014.08;

30. Junichi Hirahashi, Kimito Kawahata, Makoto Arita, Ryo Iwamoto, Keiichi Hishikawa, Mie Honda, Yoshifumi Hamasaki, Mototsugu Tanaka, Koshu Okubo, Miho Kurosawa, Osamu Takase, Masanori Nakakuki, Kan Saiga, Kazuo Suzuki, Shoji Kawachi, Akihiro Tojo, George Seki, Takeshi Marumo, Matsuhiko Hayashi, Toshiro Fujita. Immunomodulation with eicosapentaenoic acid supports the treatment of autoimmune small-vessel vasculitis. Sci Rep. 2014.09; 4; 6406

31. Masakazu Washio, Takao Fujii, Masataka Kuwana, Yasushi Kawaguchi, Akio Mimori, Takahiko Horiuchi, Yoshifumi Tada, Hiroki Takahashi, Tsuneyo Mimori, Japan MCTD study group.. Lifestyle and other related factors for the development of mixed connective tissue disease among Japanese females in comparison with systemic lupus erythematosus. Mod Rheumatol. 2014.09; 24(5); 788-792

32. Takahiko Sugihara, Tatsuro Ishizaki, Tadashi Hosoya, Shoko Iga, Waka Yokoyama, Fumio Hirano, Nobuyuki Miyasaka, Masayoshi Harigai. Structural and functional outcomes of a therapeutic strategy targeting low disease activity in patients with elderly-onset rheumatoid arthritis: a prospective cohort study (CRANE). Rheumatology (Oxford). 2014.10;

33. Nishimura Katsuji, Omori Masako, Sato Eri, Katsumata Yasuhiro, Gono Takahisa, Kawaguchi Yasushi, Harigai Masayoshi, Yamanaka Hisashi, Ishigooka Jun. New-onset psychiatric disorders after corticosteroid therapy in systemic lupus erythematosus: an observational case-series study. J Neurol. 2014.11; 261(11); 2150-2158

34. Fukuda S, Kohsaka H, Takayasu A, Yokoyama W, Miyabe C, Miyabe Y, Harigai M, Miyasaka N, Nanki T. Cannabinoid Receptor 2 as a Potential Therapeutic Target in Rheumatoid Arthritis. BMC Musculoskelet Disord . 2014.12; 15; 275

35. Sada Ken-Ei, Yamamura Masahiro, Harigai Masayoshi, Fujii Takao, Arimura Yoshihiro, Makino Hirofumi, for the Research Committee on Intractable Vasculitides the Ministry of Health Labour and Welfare of Japan. Issues associated with the Ministry of Health, Labour and Welfare diagnostic criteria for antineutrophil cytoplasmic antibody-associated vasculitides: Reclassification of patients in the prospective cohort study of Remission Induction Therapy in Japanese patients with ANCA-associated vasculitides according to the MHLW criteria. Mod Rheumatol. 2014.12; 1-3

36. Tanaka Michi, Koike Ryuji, Sakai Ryoko, Saito Kazuyoshi, Hirata Shintaro, Nagasawa Hayato, Kameda Hideto, Hara Masako, Kawaguchi Yasushi, Tohma Shigeto, Takasaki Yoshinari, Dohi Makoto, Nishioka Yasuhiko, Yasuda Shinsuke, Miyazaki Yasunari, Kaneko Yuko, Nanki Toshihiro, Watanabe Kaori, Yamazaki Hayato, Miyasaka Nobuyuki, Harigai Masayoshi. Pulmonary infections following immunosuppressive treatments during hospitalization worsen the short-term vital prognosis for patients with connective tissue disease-associated interstitial pneumonia. Mod Rheumatol. 2014.12; 1-6

37. Kimura N, Hirata S, Miyasaka N, Kawahata K, Kohsaka H. Injury and subsequent regeneration of muscles activate local innate immunity to facilitate development and relapse of autoimmune myositis Arthritis Rheumatol.

38. Okiyama N, Hasegawa H, Oida T, Hirata S, Yokozeki H, Fujimoto M, Miyasaka M, Kohsaka H. Experimental myositis inducible with transfer of dendritic cells presenting a skeletal muscle C protein-derived CD8 epitope peptide Int Immunol.

[Conference Activities & Talks]

1. Tadashi Hosoya, Hideyuki Iwai, Yu Yamaguchi, Nobuyuki Miyasaka, Hitoshi Kohsaka. Cell cycle regulation therapy combined with cytokine blockade enhances anti-arthritic effects without increase of immune suppression.. 58th Annual General Assembly and Scientific Meeting of the Japan College of Rheumatology 2014.04.24 Tokyo

2. Yoko Yoshihashi-nakazato, Naoki Kimura, Akito Takamura, Nobuyuki Miyasaka, Hitoshi Kohsaka. Exacerbation of polymyositis model in interferon-gammma-deficient mice. 58th Annual General Assembly and Scientific Meeting of the Japan College of Rheumatology 2014.04.24 Tokyo

3. Naoki Kimura, Shinya Hirata, Nobuyuki Miyasaka, Hitoshi Kohsaka. Muscle injury and regeneration activate innate immunity in muscle tissues to contribute to development of autoimmune myositis.. 58th Annual General Assembly and Scientific Meeting of the Japan College of Rheumatology 2014.04.24 Tokyo

4. Masayoshi Harigai. Clinical implications and management of comorbidity/multimorbidity in patients with rheumatoid arthritis. Expert meeting-Biologic in Rheumatoid Arthritis management 2014.05 Nha Trang

5. Masayoshi Harigai. Treatment of RA with tocilizumab in the real world setting: experience from Japan. Expert meeting-Biologic in Rheumatoid Arthritis management 2014.05.17 Nha Trang

6. Ryoko Sakai, Fumio Hirano, Mari Kihara, Waka Yokoyama, Hayato Yamazaki, Ryuji Koike, Nobuyuki Miyasaka, Masayoshi Harigai. Prevalence of comorbidities in patients with rheumatoid arthritis using Japanese health insurance database . Annual European Congress of Rheumatology 2014.06.13

7. Masayoshi Harigai. Data and Experience of Orencia with Japanese RA patients. Orencia Speaker Forum, PacRim 2014.09 Seoul

8. Hitoshi Kohsaka. Seed and soil model of autoimmunity -from myositis to arthritis. Karolinska Institute Joint CMM/CID Seminar 2014.09.29 Stokholm

9. Fumio Hirano, Masayoshi Harigai. Predicting factors of good clinical outcomes in a treat-to-target implementing cohort. 6th CRCRA International Symposium 2014.10.17 Seoul, Republic of Korea

10. Tadashi Hosoya, Kimito Kawahata,Hideyuki Iwai, Hitoshi Kohsaka. Cell cycle regulation therapy, when combined with TNF blockade, exerted significant therapeutic effects even in the late stage of a rheumatoid arthritis model. ACR/ARHP Annual Meeting 2014.11.18 Boston

Dermatology

Professor Hiroo YOKOZEKI
Junior Associate Professor Takeshi NAMIKI
Junior Associate Professor Ken IGAWA
Junior Associate Professor Kaoru TAKAYAMA
Assistant Professor Shoun TOKORO
Assistant Professor Makiko UENO
Assistant Professor Kohei KATO
Project Assistant Professor Tsukasa UGAJIN
Project Assistant Professor Rumi SUZUKI
Project Assistant Professor Madoka IIKAWA
Senior Resident Madoka ARAI
Senior Resident Yumiko SONE
Resident Yumi ARIMA
Doctoral student Takichi MUNETSUGU
Doctoral student Minako INAZAWA
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Technical Assistant Yoshiko ITO
Staff Assistant Masae SAKATA
Staff Assistant Yu KAWAMURA

(1) Outline

Dermatology is a department of medical science which educates students to make a diagnosis and treatment for skin diseases. Main objective of Dermatology in the graduate course is to provide students opportunity to study advanced Immunodermatology, physiology, pathology and allergology, and also to study making diagnosis of skin diseases and operation techniques. Students are also taught on skin oncology (melanoma, angiosarcoma) and its related laboratory technology depending on their research project.

(2) Research

1) Mechanisms of contact hypersensitivity
2) Pathological etiology of atopic dermatitis
3) Mechanisms of eosinophil recruitment to the skin
4) Roles of basophils in human skin diseases
5) Functional roles of PGD2 and its receptors in allergic inflammation
6) Therapeutic approach for skin diseases by stable form of galectin-9
7) Analysis of pathological mochanisms' of hyperhidrosis
8) Investigation of mediators for itch
9) Pathological etiology of chronic prurigo
10) Therapeutic approach for angiosarcoma with HVJ-E.
11) To establish the in vitro diseases model of dermatological disorders using human induced pluripotent stem

cell
12) Murine food allergy model with transcutaneous sensitization

(3) Clinical Performances

Dermatology clinic provides an advanced treatment for skin diseases; skin tumors, infectious diseases, skin allergy, collagen diseases and psoriasis. Recently, we established the gene thearies (STAT6 decoy ODN) for severe atopic dermatitis in the clinic.

(4) Publications

[Original Articles]

1. Shibama S, Igawa K, Munetsugu T, Fukuyama K, Nishizawa A, Takayama K, Yokozeki H. A case of sarcoidosis presenting as livedo. Ann Dermatol. . 2014; 26(6); 773-774
2. Dobashi K, Akiyama K, Usami A, Yokozeki H, Ikezawa Z, Tsurikisawa N, Nakamura Y, Sato K, Okumura J. Japanese Guideline for Occupational Allergic Diseases 2014. Committee for Japanese Guideline for Diagnosis and Management of Occupational Allergic Diseases; Japanese Society of Allergology. Allergol Int.. 2014; 63(3); 21-42
3. Nishizawa A, Igawa K, Teraki H, Yokozeki H.. Diffuse disseminated lichenoid-type cutaneous sarcoidosis mimicking erythroderma. Int J Dermatol. . 2014; 53(8); 369-370
4. Igawa K, Kokubu C, Yusa K, Horie K, Yoshimura Y, Yamauchi K, Suemori H, Yokozeki H, Toyoda M, Kiyokawa N, Okita H, Miyagawa Y, Akutsu H, Umezawa A, Katayama I, Takeda J.. Removal of Reprogramming Transgenes Improves the Tissue Reconstitution Potential of Keratinocytes Generated From Human Induced Pluripotent Stem Cells. Stem Cells Transl Med. . 2014; 3(9); 992-1001
5. Ueno M, Aoto T, Mohri Y, Yokozeki H, Nishimura EK.. Coupling of the radiosensitivity of melanocyte stem cells to their dormancy during the hair cycle. Pigment Cell Melanoma Res. . 2014; 27(4); 540-551
6. Yokozeki H.. A nucleic acid-based medication for allergic skin diseases. J Dermatol Sci. . 2014; 75(2); 75-81
7. Nakazono S, Nojima K, Kumagai J, Hagiyama H, Yokozeki H, Namiki T.. Amicrobial pustulosis-like rash associated with systemic lupus erythematosus. J Dermatol.. 2014; 41(4); 359-360
8. Higuchi T, Satoh T, Yokozeki H.. Using CD40 ligand expression to detect antigen-specific T cells in patients with drug eruptions. Acta Derm Venereol. . 2014; 94(1); 86-87
9. Inazawa M, Satoh T, Yokozeki H.. Hyperkeratotic variant of inflammatory disseminated superficial porokeratosis with lichenoid reaction and extensive amyloid deposition. Int J Dermatol. . 2014; 53(2); 94-95
10. Hashimoto T, Satoh T, Furuya A, Kataoka N, Yokozeki H.. Kimura's disease with prurigo lesions treated with systemic indomethacin. J Eur Acad Dermatol Venereol. . 2014; 28(9); 1260-1262
11. Kato K, Hanafusa T, Igawa K, Tatsumi M, Takahashi Y, Yamanaka T, Katayama I.. A rare case of annular pustular psoriasis associated with pemphigus foliaceus. Ann Dermatol. . 2014; 26(2); 260-261
12. Senda S, Igawa K, Nishioka M, Murota H, Katayama I.. Systemic sclerosis with sarcoidosis: case report and review of the published work. J Dermatol. . 2014; 41(5); 421-423
13. Inoue T, Yamaoka T, Murota H, Yokomi A, Tanemura A, Igawa K, Tani M, Katayama I. . Effective oral psoralen plus ultraviolet a therapy for digital ulcers with revascularization in systemic sclerosis. Acta Derm Venereol. . 2014; 94(2); 250-251
14. Nakazono S, Takayama N, Nojima K, Kumagai J, Izumi M, Namiki T. . Well-differentiated syringomatous carcinoma with solid carcinoma-like features. J Dermatol. . 2014; 41(12); 1126-1127
15. Takayama N, Nakazono S, Kumagai J, Kawamura T, Suzuki F, Ishii N, Hashimoto T, Namiki T. . Case of subepidermal bullous disease with diffuse esophageal involvement presenting with immunoglobulin G autoantibodies to both the BP180 NC16a and C-terminal domains, and immunoglobulin A autoantibodies to the BP180 NC16a domain. J Dermatol. . 2014; 41(7); 665-667

16. Okiyama N, Katz SI.. Programmed cell death 1 (PD-1) regulates the effector function of CD8 T cells via PD-L1 expressed on target keratinocytes. J Autoimmun. . 2014; 53; 1-9

17. Oishi K, Hamaguchi Y, Matsushita T, Hasegawa M, Okiyama N, Dernedde J, Weinhart M, Haag R, Tedder TF, Takehara K, Kohsaka H, Fujimoto M.. A crucial role of L-selectin in C protein-induced experimental polymyositis in mice. Arthritis Rheumatol. . 2014; 66(7); 1864-1871

18. Villarroel VA, Okiyama N, Tsuji G, Linton JT, Katz SI.. CXCR3-mediated skin homing of autoreactive CD8 T cells is a key determinant in murine graft-versus-host disease. J Invest Dermatol.. 2014; 134(6); 1552-1560

19. Okiyama N, Furumoto Y, Villarroel VA, Linton JT, Tsai WL, Gutermuth J, Ghoreschi K, Gadina M, O'Shea JJ, Katz SI.. Reversal of CD8 T-cell-mediated mucocutaneous graft-versus-host-like disease by the JAK inhibitor tofacitinib. J Invest Dermatol. . 2014; 134(4); 992-1000

[Conference Activities & Talks]

1. Kohei Kato. Allergic contact dermatitis due to sodium N-methyl-N(1-oxododecyl)-beta-alaninate. 12th congress of the ESCD 2014.06.25 BARCELONA

2. Makiko Ueno, Takahiro Aoto, Yasuaki Mohri, Hiroo Yokozeki, Emi K. Nishimura. Coupling of the radiosensitivity of melanocyte stem cells to their dormancy during the hair cycle.. The 39th Annual Meeting of the Japanese Society for Investigative Dermatology. 2014.12.14 Osaka

NCCHD Child Health and Development

Collaborative Professor Akutsu, Hidenori
Collaborative Professor Onodera, Masashi
Collaborative Professor Fukami, Maki
Collaborative Professor Hata, Kenichiro
Collaborative Professor Takada, Shuji
Collaborative Professor Yamauchi, Junji

(1) Education

The goal of this course is to learn the developmental process of human life from the viewpoints of latest molecular biology and genetics. Medical science for child health and development is the study to comprehensively grasp various health problems related to "human life cycle" to begin with the fertilization and to continue to the next generation through generation and development. Students of this course are required to understand a role and a function of medical care for child health and development, to acquire ability to handle such health problems and support relevant person with specialized theory and technique.

(2) Research

1) Exploring molecular mechanism for acquisition of zygote totipotency, epigenetic reprogramming and pluripotency in stem cells Application studies for reproductive medicine and regenerative medicine

(Akutsu, Hidenori; Center for Regenerative Medicine, National Institute for Child Health and Development)

Exploring molecular mechanism for acquisition of zygote totipotency, epigenetic reprogramming and pluripotency in stem cells. Application studies for reproductive medicine and regenerative medicine.

2) Studying for cellular model in human severe disease by advancing flow cytometry

(Onodera, Masashi; Dept. of Human Genetics, National Institute for Child Health and Development)

We aim to identify causative genes for child intractable hereditary diseases and analyze their functions to develop new gene-based therapeutic options. We also establish iPS cells from peripheral blood or skin fibroblasts obtained from patients with intractable hereditary diseases such as primary immunodeficiencies and congenital metabolic disorders.

3) Elucidation of genetic abnormality in congenital severe metabolic diseases using advanced genetic analysis

(Fukami, Maki; Dept. of Molecular Endocrinology, National Institute for Child Health and Development)

Our objective is to clarify the molecular basis of congenital endocrine-related disorders and apply our findings to new innovations in clinical medicine. We investigate the molecular basis of single gene disorders, epigenetic/inprinting disorders, and multifanctorial disorder.

4) Elucidating for molecular mechanism of perinatal abnormality using system biology

(Hata, Kenichiro; Dept. of Maternal-Fetal Biology, National Institute for Child Health and Development)

We aim to clarify mechanisms underlysing abnormalities in fetal development and placentation, and/or perinatal diseases with developmental defects. To identify the underlying mechanisms of perinatal diseases, we take advantage of post-genomic technologies and investigate etiologies using an integrated genomic and epigenomic approach.

5) Identification of target molecules in severe diseases and establishment of disease model mice by studying molecular mechanisms of genomic imprinting, gametogenesis and sexual differentiation

(Takada, Shuji; Dept. of Systems Biomedicine, National Institute for Child Health and Development)

Our aim is to reveal the molecular mechanisms underlying embryonic development, cell differentiation

and tissue formation and apply our findings to understand the causes of developmental diseases.

6) Elucidation for neurological disease mechanism and target molecules using molecular biology and tissue engineering

(Yamauchi, Junji; Dept. of Pharmacology, National Institute for Child Health and Development)

We focus on middle embryonic-to-neonatal neuronal developmental stages and specially study glial development. Many genetic neuropathies are known to be glial dystrophies, which involve dismyelinating/demyelinating diseases. We believe that knowing how glial cells develop is tightly related to clarifying how glial neuropathies occur. These studies will allow us to present novel drug-target-molecules for neuropathies, as well as to provide paradigm of neuronal regeneration.

(3) Publications

[Original Articles]

1. Ichida JK, T C W J, Williams LA, Carter AC, Shi Y, Moura MT, Ziller M, Singh S, Amabile G, Bock C, Umezawa A, Rubin LL, Bradner JE, Akutsu H*, Meissner A*, Eggan K* (*;corresponding author) Notch inhibition allows oncogene-independent generation of iPS cells. Nat Chem Biol. 2014 Jun 22.
2. Igawa K, Kokubu C, Yusa K, Horie K, Yoshimura Y, Yamauchi K, Suemori H, Yokozeki H, Toyoda M, Kiyokawa N, Okita H, Miyagawa Y, Akutsu H, Umezawa A, Katayama I, Takeda J. Removal of Reprogramming Transgenes Improves the Tissue Reconstitution Potential of Keratinocytes Generated From Human Induced Pluripotent Stem Cells. Stem Cells Transl Med. 2014 Jul 14.
3. Okamoto N, Aoto T, Uhara H, Yamazaki S, Akutsu H, Umezawa A, Nakauchi H, Miyachi Y, Saida T, Nishimura EK. A melanocyte-melanoma precursor niche in sweat glands of volar skin. Pigment Cell Melanoma Res. 2014 Jul 26.
4. Nishi M, Akutsu H, Kudoh A, Kimura H, Yamamoto N, Umezawa A, Lee SW, Ryo A. Induced cancer stem-like cells as a model for biological screening and discovery of agents targeting phenotypic traits of cancer stem cell. Oncotarget. 2014 Aug 17.
5. Iwao T, Toyota M, Miyagawa Y, Okita H, Kiyokawa N, Akutsu H, Umezawa A, Nagata K, Matsunaga T. Differentiation of Human Induced Pluripotent Stem Cells into Functional Enterocyte-Like Cells Using a Simple Method. Drug Metab Pharmacokinet. 2014; 29: 44-51.
6. Akutsu H, Machida M, Kanzaki S, Sugawara T, Ohkura T, Nakamura N, Yamazaki-Inoue M, Miura T, Vemurib MC, Rao MS, Miyado K, Umezawa A. Xenogeneic-free defined conditions for derivation and expansion of human embryonic stem cells with mesenchymal stem cells. Regenerative Therapy 2015; 1:18-29.
7. Fukami M, Suzuki J, Nakabayashi K, Tsunasima R, Ogata T, Shozu M, Noguchi S. Lack of Genomic Rearrangements Involving the Aromatase Gene *CYP19A1* in Breast Cancer. Breast Cancer. 21(3):382-385, 2014
8. Shihara D, Miyado M, Nakabayashi K, Shozu M, Ogata T, Nagasaki K, Fukami M. Aromatase excess syndrome in a family with upstream deletion of *CYP19A1*. Clinical Endocrinology. 81(2):314-316, 2014
9. Tsuchiya T, Shibata M, Numabe H, Jinno T, Nakabayashi K, Nishimura G, Nagai T, Ogata T, Fukami M. Compound heterozygous deletions in pseudoautosomal region 1 in an infant with mild manifestations of Langer mesomelic dysplasia. American Journal of Medical Genetics Part A. 164A(2):505-510, 2014
10. Nagasaki K, Asami T, Sato H, Ogawa Y, Kikuchi T, Saitoh A, Ogata T, Fukami M. Long term follow up study for a patient with Floating-Harbor syndrome due to a hotspot SRCAP mutation. American Journal of Medical Genetics Part A. 164A(3):731-735, 2014
11. Suzuki E, Yatsuga S, Igarashi M, Miyado M, Nakabayashi K, Hayashi K, Hata K, Umezawa A, Yamada G, Ogata T, Fukami M. De Novo Frameshift Mutation in Fibroblast Growth Factor 8 in a Male Patient with Gonadotropin Deficiency. Hormone Research in Paediatrics. 81(2):139-144, 2014
12. Saito R, Yamamoto Y, Goto M, Araki S, Kubo K, Kawagoe R, Kawada Y, Kusuhara K, Igarashi M, Fukami M. Tamoxifen Treatment for Pubertal Gynecomastia in Two Siblings with Partial Androgen Insensitivity Syndrome. Hormone Research in Paediatrics. 81(3):211-216, 2014
13. Kato F, Hamajima T, Hasegawa T, Amano N, Horikawa R, Nishimura G, Nakashima S, Fuke T, Sano S, Fukami M, Ogata T. IMAGe syndrome: clinical and genetic implications based on investigations in three Japanese patients. Clinical Endocrinology. 80(5):706-713, 2014
14. Abe Y, Nagasaki K, Watababe T, Abe T, Fukami M. Association between compound heterozygous mutations of SLC34A3 and hypercalciuria. Hormone Research in Paediatrics. 2014 [Epub ahead of print]
15. Ogata T, Niihori T, Tanaka N, Kawai M, Nagashima T, Funayama R, Nakayama K, Nakashima S,

Kato F, Fukami M, Aoki Y, Matsubara Y. TBX1 Mutation Identified by Exome Sequencing in a Japanese Family with 22q11.2 Deletion Syndrome-like Craniofacial Features and Hypocalcemia. PLOS ONE. 9(3):e91598, 2014

16. Matsubara K, Kataoka N, Ogita S, Sano S, Ogata T, Fukami M, Katsumata N. Uniparental disomy of chromosome 8 leading to homozygosity of a *CYP11B1* mutation in a patient with congenital adrenal hyperplasia: Implication for a rare etiology of an autosomal recessive disorder. Endocrine Journal. 61(6):629-633, 2014
17. Suzuki J, Azuma N, Dateki S, Soneda S, Muroya K, Yamamoto Y, Saito R, Sano S, Nagai T, Wada H, Endo A, Urakami T, Ogata T, Fukami M. Mutation spectrum and phenotypic variation in nine patients with SOX2 abnormalities. Journal of Human Genetics. 59(6):353-356, 2014
18. Izumi Y, Suzuki E, Kanzaki S, Yatsuga S, Kinjo S, Igarashi M, Maruyama T, Sano S, Horikawa R, Sato N, Nakabayashi K, Hata K, Umezawa A, Ogata T, Yoshimura Y, Fukami M. Genome-wide copy number analysis and systematic mutation screening in 58 patients with hypogonadotropic hypogonadism. Fertility and Sterility. 102(4):1130-1136, 2014
19. Inui M, Miyado M, Igarashi M, Tamano M, Kubo A, Yamashita S, Asahara H, Fukami M, Takada S. Rapid generation of mouse models with defined point mutations by the CRISPR/Cas9 system. Scientific Reports. 4:5396, 2014
20. Nakashima S, Ohishi A, Takada F, Kawamura H, Igarashi M, Fukami M, Ogata T. Clinical and molecular studies in four patients with SRY-positive 46,XX testicular disorders of sex development: implications for variable sex development and genomic rearrangements. Journal of Human Genetics. 2014 [Epub ahead of print]
21. Kagami M, Mizuno S, Matsubara K, Nakabayashi K, Sano S, Fuke T, Fukami M, Ogata T. Epimutations of the IG-DMR and the MEG3-DMR at the 14q32.2 imprinted region in two patients with Silver-Russell syndrome-compatible phenotype. *European Journal of Human Genetics*. 2014 in press
22. Izumi Y, Musha I, Suzuki E, Iso M, Jinno T, Horikawa R, Amemiya S, Ogata T, Fukami M, Ohtake A. Hypogonadotropic hypogonadism in a female patient previously diagnosed as having Waardenburg syndrome due to a *SOX10* mutation. endocrine. 2014 in press
23. Nagata E, Hiroki Kano H, Kato F, Yamaguchi R, Nakashima S, Takayama S, Kosaki R, Tonoki H, Mizuno S, Watanabe S, Yoshiura K-I, Kosho T, Hasegawa T, Kimizuka M, Suzuki A, Shimizu K, Ohashi H, Haga N, Numabe H, Horii E, Nagai T, Yoshihashi H, Nishimura G, Toda T, Takada S, Yokoyama S, Asahara H, Sano S, Fukami M, Ikegawa S, Ogata T. Japanese founder duplications/triplications involving BHLHA9 are associated with split-hand/foot malformation with or without long bone deficiency and Gollop-Wolfgang complex. Orphanet Journal of Rare Diseases. 9:125, 2014
24. Nakashima S, Kato F, Kosho T, Nagasaki K, Kikuchi T, Kagami M, Fukami M, Ogata T. Silver-Russell syndrome without body asymmetry in three patients with duplications of maternally derived chromosome 11p15 involving CDKN1C. Journal of Human Genetics. 2014 in press
25. Kon M, Suzuki E, Dung VC, Hasegawa Y, Mitsui T, Muroya K, Ueoka K, Igarashi N, Nagasaki K, Oto Y, Hamajima T, Yoshino K, Igarashi M, Kato-Fukui Y, Nakabayashi K, Hayashi K, Hata K, Matsubara Y, Moriya K, Ogata T, Nonomura K, Fukami M. Molecular basis of non-syndromic hypospadias: Systematic mutation screening and genome-wide copy-number analysis of 62 patients. *Human Reproduction*. 2014 [Epub ahead of print]
26. Saito K, Miyado M, Kobori Y, Tanaka Y, Ishikawa H, Yoshida A, Katsumi M, Saito H, Kubota T, Okada H, Ogata T, Fukami M. Copy-Number Variations in Y Chromosomal Azoospermia Factor Regions Identified by Multiplex Ligation-Dependent Probe Amplification. *Journal of Human Genetics*. 2014 [Epub ahead of print]
27. Igarashi M, Wada Y, Kojima Y, Miyado M, Nakamura M, Muroya K, Mizuno K, Hayashi Y, Nonomura K, Kohri K, Ogata T, Fukami M. Novel Splice Site Mutation in MAMLD1 in a Patient with Hypospadias. Sexual Development. 2014 [Epub ahead of print]
28. Igarashi M, Mikami H, Katsumi M, Miyado M, Izumi Y, Ogata T, Fukami M. *SOX3* Overdosage Permits Normal Sex Development in Females with Random X Inactivation. Sexual Development. 2015 [Epub ahead of print]
29. Tomohiro Torii*, Yuki Miyamoto, Kenji Tago, Kazunori Sango, Kazuaki Nakamura, Atsushi Sanbe, Akito Tanoue, and Junji Yamauchi* (2014) Arf6 guanine-nucleotide exchange factor cytohesin-2 binds to CCDC120 and is transported along neurites to mediate neurite growth. J. Biol. Chem. 289, 33887-33903: *Corresponding authors
30. Tomohiro Torii, Yuki Miyamoto, Shuji Takada, Hideki Tsumura, Miyuki Arai, Kazuaki Nakamura,

Katsuya Ohbuchi, Masahiro Yamamoto, Akito Tanoue, and Junji Yamauchi* (2014) In vivo knockdown of ErbB3 in mice inhibits Schwann cell precursor migration. Biochem. Biophys. Res. Commun. 452, 782-788: *Corresponding author

31. Yuki Miyamoto, Takahiro Eguchi, Tomohiro Torii, Kazuaki Nakamura, Akito Tanoue, and Junji Yamauchi* (2014) Hypomyelinating leukodystrophy-associated missense mutant of FAM126A/hyccin/DRCTNNB1A aggregates in the endoplasmic reticulum. J. Clin. Neurosci. 21, 1033-1039: *Corresponding author
32. Yuki Miyamoto, Natsuki Yamamori, Tomohiro Torii, Akito Tanoue, and Junji Yamauchi* (2014) Rab35, acting through ACAP2 switching off Arf6, negatively regulates oligodendrocyte differentiation and myelination. Mol. Biol. Cell 25, 1532-1542: *Corresponding author[Picked up as 'cover image': Mol. Biol. Cell Vol. 25, No. 15 (2014)]
33. Onizuka N, Ito Y, Inagawa M, Nakahara H, Takada S, Lotz M, Toyama Y, *Asahara H. The Mohawk homeobox transcription factor regulates the differentiation of tendons and volar plates. Journal of Orthopaedic Science. 2014; 19(1): 172-180.
34. Matsubara Y, Chiba T, Kashimada K, Morio T, Takada S, Mizutani S, *Asahara H. Transcription activator-like effector nuclease-mediated transduction of exogenous gene into IL2RG locus. Scientific Reports. 2014; 4: 5043.
35. *Inui M, Miyado M, Igarashi M, Tamano M, Kubo A, Yamashita S, Asahara H, Fukami M, *Takada S. Rapid generation of mouse models with defined point mutations by the CRISPR/Cas9 system. Scientific Reports. 2014; 4: 5396.
36. Fukawatase Y, Toyoda M, Okamura K, Nakamura K, Takada S, Yamazaki-Inoue M, Masuda A, Nasu M, Hata K, Hanaoka K, Higuchi A, Takubo K, *Umezawa A. Ataxia telangirctasia derived iPS cells show preserved x-ray sensitivity and decreased chromosomal instability. Scientific Reports. 2014; 5: 5421.
37. Torii T, Miyamoto Y, Takada S, Tsumura H, Arai M, Nakamura K, Ohbuchi K, Yamamoto M, Tanoue A, *Yamauchi J. In vivo knockdown of ErbB3 in mice inhibits Schwann cell precursor migration. Biochemical and Biophysical Research Communications. 2014; 452(3): 782-788.
38. Miyata K, Yotsumoto F, Nam SO, Odawara T, Manabe S, Ishikawa T, Itamochi H, Kigawa J, Takada S, Asahara H, Kuroki M, *Miyamoto S. Contribution of transcription factor, SP1, to the promotion of HB-EGF expression in defense mechanism against the treatment of irinotecan in ovarian clear cell carcinoma. Cancer Medicine. 2014; 3(5): 1159-1169.

[Review Articles]

1. Tomohiro Torii, Yuki Miyamoto, Junji Yamauchi, and Akito Tanoue (2014) Pelizaeus-Merzbacher disease: cellular pathogenesis and pharmacologic therapies. Pediatr. Int. 56, 659-666

[Books]

1. Kazunori Sango, and Junji Yamauchi: Preface. Schwann Cell Development and Pathology (2014) (Springer's book, Kazunori Sango, and Junji Yamauchi Eds.) pages vii-viii
2. Kazunori Sango, and Junji Yamauchi: Chapter 1. Introduction. Schwann Cell Development and Pathology (2014) (Springer's book, Kazunori Sango, and Junji Yamauchi Eds.) pages 1-4
3. Yuki Miyamoto, and Junji Yamauchi: Chapter 2. Recent insights into molecular mechanisms that control growth factor receptor-mediated Schwann cell morphological changes during development. Schwann Cell Development and Pathology (2014) (Springer's book, Kazunori Sango, and Junji Yamauchi Eds.) pages 5-27

Human Pathology

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Secretary: Miho IWAMITSU,Mayako TOKUNAGA

(1) Outline

Pathology in a medical department used to be the general study field about human disease. Later, Microbiology and Parasitology had been separated from the field of Pathology. Lately, interdisciplinary of traditional study field had been advanced and new specific academic disciplines are developed. Pathology is currently under the same trend. Basic divisions such as Experimental and Cell Biological pathology are becoming independent from the clinicopathological field. Thus, Human Pathology has become the main category of pathology.

The principles of Human Pathology are to educate clinical pathologists with accurate pathological diagnosis skills of human disease, to research theses that are directly related to human disease, and to educate pathological researchers with ability to perform such research.

(2) Research

1)Endogenous infection (diseases caused by indigenous microorganisms in susceptible hosts)

2)Cancer research (histopathology, carcinogenesis, prognostic factors, and so on)

(3) Education

In the course, they usually spend the first two years for anatomical pathology training, searching for their own research theme and another two years for researches and thesis-writing.

(4) Lectures & Courses

Department of Human Pathology provides a graduate course for future pathologists to train the skills and knowledge of anatomical pathology and develop the abilities for medical researches. Graduate students are

educated to associate their researches with problems in diagnosis and treatment of diseases and etiologies of the diseases of unknown causes.

(5) Clinical Performances

After the Meiji Era, the department of Human Pathology in medical faculty belonged under the basic medical sciences; however, Pathology in the existing hospitals is essentially the clinical medicine. Diagnosis of patients in each clinical department is done by taking the biopsy of diseased tissues or collecting the cell samples by either endoscope or surgery. Then, the lesions are analyzed with the microscope, and pathological diagnosis is reported to the clinical departments. The samples of organs and tissues taken from the surgery are used to study the spread of the lesion and its characteristics, and also to examine the adequacy of surgery. It is also used to determine future treatment policy. During the course of patients' treatments, sample tissues are taken periodically and are analyzed pathologically to see therapeutic effect. If a patient has unfortunately joined the majority, morbid anatomy is done by the pathologists along with the patient's attending physician. They study the resulting effects of laboratory findings and choice of treatment, and improve the future diagnosis and treatments. The department of Human Pathology and Surgical Pathology technically work as one although they are separated in this university's organizational structure. Human Pathology does not directly work with the patients; however, it is involved directly with the diagnosis as well as the treatments. Strong cooperation between clinicians and pathologists is essential for the best practice, and is required for the university hospital as an "advanced treatment hospital." Therefore, doctors of Human Pathology study, research and practice pathology to be the great pathologists so-called the "doctor of doctors.

(6) Publications

[Original Articles]

1. Ota Kiyobumi, Obayashi Masato, Ozaki Kokoro, Ichinose Shizuko, Kakita Akiyoshi, Tada Mari, Takahashi Hitoshi, Ando Noboru, Eishi Yoshinobu, Mizusawa Hidehiro, Ishikawa Kinya. Relocation of p25alpha/tubulin polymerization promoting protein from the nucleus to the perinuclear cytoplasm in the oligodendroglia of sporadic and COQ2 mutant multiple system atrophy. Acta Neuropathol Commun. 2014; 2; 136

2. Bae Y, Ito T, Iida T, Uchida K, Sekine M, Nakajima Y, Kumagai J, Yokoyama T, Kawachi H, Akashi T, Eishi Y. Intracellular Propionibacterium acnes infection in glandular epithelium and stromal macrophages of the prostate with or without cancer. PLoS One. 2014; 9(2); e90324

3. Takemori N, Nakamura M, Kojima M, Eishi Y. Successful treatment in a case of Propionibacterium acnes-associated sarcoidosis with clarithromycin administration: a case report. J Med Case Rep. 2014; 8; 15

4. Tulafu M, Mitaka C, Hnin Si MK, Abe S, Kitagawa M, Ikeda S, Eishi Y, Kurata S, Tomita M. Atrial natriuretic peptide attenuates kidney-lung crosstalk in kidney injury. J Surg Res. 2014.01; 186(1); 217-225

5. Takemura K, Kawachi H, Eishi Y, Kitagaki K, Negi M, Kobayashi M, Uchida K, Inoue J, Inazawa J, Kawano T, Board PG. γ-Glutamylcyclotransferase as a novel immunohistochemical biomarker for the malignancy of esophageal squamous tumors. Hum Pathol. 2014.02; 45(2); 331-341

6. Ueno H, Shirouzu K, Shimazaki H, Kawachi H, Eishi Y, Ajioka Y, Okuno K, Yamada K, Sato T, Kusumi T, Kushima R, Ikegami M, Kojima M, Ochiai A, Murata A, Akagi Y, Nakamura T, Sugihara K; Study Group for Perineural Invasion projected by the Japanese Society for Cancer of the Colon and Rectum (JSCCR). Histogenesis and prognostic value of myenteric spread in colorectal cancer: a Japanese multi-institutional study. J Gastroenterol. 2014.03; 49(3); 400-407

7. Ichiro Yamada, Keigo Hikishima, Naoyuki Miyasaka, Yutaka Tokairin, Eisaku Ito, Tatsuyuki Kawano, Daisuke Kobayashi, Yoshinobu Eishi, Hideyuki Okano. Esophageal carcinoma: Evaluation with q-space diffusion-weighted MR imaging ex vivo. Magn Reson Med. 2014.06;

8. Omori M, Bito T, Yamada M, Ogura K, Eishi Y, Nishigori C. Systemic sarcoidosis with bone marrow involvement showing Propionibacterium acnes in the lymph nodes. J Eur Acad Dermatol Venereol. 2014.06;

9. Yamada I, Hikishima K, Miyasaka N, Kawano T, Tokairin Y, Ito E, Kobayashi D, Eishi Y, Okano H. Esophageal carcinoma: ex vivo evaluation with diffusion-tensor MR imaging and tractography at 7 T. Radiology. 2014.07; 272(1); 164-173

10. Yamada I, Hikishima K, Miyasaka N, Tokairin Y, Kawano T, Ito E, Kobayashi D, Eishi Y, Okano H, Shibuya H. Diffusion-tensor MRI and tractography of the esophageal wall ex vivo. J Magn Reson Imaging. 2014.09; 40(3); 567-576

11. Fuminori Nomura, Taro Sugimoto, Keisuke Kitagaki, Takashi Ito, Hiroshi Kawachi, Yoshinobu Eishi, Ken Watanabe, Miki Igaue, Norio Shimizu, Makoto Tomita, Ken Kitamura, Seiji Kishimoto. Clinical characteristics of Japanese oropharyngeal squamous cell carcinoma positive for human papillomavirus infection. Acta Otolaryngol.. 2014.12; 134(12); 1265-1274

[Conference Activities & Talks]

1. Eishi Y,Uchida K,Furukawa A,Suzuki Y,Sekine M,Sakakibara Y . Sarcoidosis as an allergic endogenous infection caused by Propionibacterim acnes . 3rd Combined WASOGBAL Meeting, 11th WASOG Meetning and 13th International Conference on BAL 2014.10.08 Kusadasi, Turky

Physiology and Cell Biology

Professor: Shu Takeda
Assistant professor: Toru Fukuda
Assistant professor: Shingo Sato
Assistant professor: Hiroki Ochi

(1) Outline

Recent progress in molecular biology and genetics advanced our understanding of molecular basis of physiological function and pathophysiological mechanisms of various diseases. Besides, signal transduction system using intercellular, intersystem, and inter-organ networks has been shown to be essential for whole-body homeostatic function. In our department, we are studying on the inter-organ regulatory networks of metabolism, especially between bone and the other organs.

(2) Research

1. Studies on the regulatory network of metabolism between bone and the other internal organs: It had been believed that bone is controlled by local environment through the action of hormones and cytokines, independently of the other organs. However, our discovery that leptin regulates bone formation through the central nervous system shed light on a new regulatory system of bone metabolism, i.e., neuronal control (Takeda S, Cell, 2002、Nature, 2005). In addition, we have also demonstrated that neuromedin U, an anorexigenic neuropeptide, regulates bone formation through the central nervous system (Sato S, Nat Med, 2007). Moreover, recent studies have revealed that FGF23 or osteocalcin, which is secreted by bone, regulates the metabolism of kidney or pancreas. Thus, bone is now considered as a major player for whole-body homeostasis, and forms a regulatory network of metabolism together with the other organs. We are now conducting further experiments to clarify a comprehensive network between bone and the other organs.

2. Studies on the regulation of bone metabolism by sensory nerves: We have recently revealed that sensory nerves inside bones have a crucial role in regulating bone mass, and that the penetration of sensory nerves into bones is necessary for normal bone development or fracture healing (Fukuda T, Nature, 2013). Based on these findings, we are now conducting further experiments to develop novel therapeutic approaches to osteoporosis.

3. Studies on the regulation of bone metabolism and bone metastasis by microRNA: microRNA (miRNA) is a small non-coding RNA molecule, and regulates various developmental and homeostatic events in vertebrates and invertebrates. Aberrant expression of miRNA has been implicated in numerous disease states, and miRNA-based therapies are under investigation. We have previously demonstrated the physiological role of miRNA in osteoblast differentiation (PNAS, 2009). We are now conducting further experiments to identify novel miRNAs regulating bone metabolism or bone metastasis.

(3) Education

We give lectures and laboratory teachings about physiology to sophomore medical students. We also teach experimental techniques to a lot of undergraduate students to develop young basic scientist. PhD students are required to join our research team and learn various experimental techniques including molecular biology, cellular biology, and physiology.

(4) Lectures & Courses

All students are expected to understand the background of the research field and bring up relevant scientific questions to verify the hypothesis. They are also expected to develop their scientific thinking with effective questions and cultivate their abilities to analyze obtained results objectively, discuss them logically and scientifically, and present them effectively.

(5) Publications

[Original Articles]

1. Nakamoto, A., Sato, T., Hirosawa, N., Nakamoto, N., Enoki, Y., Chida, D., Usui, M., Takeda, S., Nagai, T., Sasaki, A., Sakamoto, Y., and Yoda, T. Proteomics-based identification of novel proteins in temporal tendons of patients with masticatory muscle tendon–aponeurosis hyperplasia. Int J Oral Maxillofac Surg. 2014; 43; 113-119

2. Kanno N, Hara Y, Fukano S, Fujie H, Ochi H, Fujita Y, Yasuji H, Nezu Y, Yogo T, Tagawa M. Tibial displacement with stifle joint flexion and cranial cruciate ligament transection in the dog. An ex vivo study using a robotic simulator. Vet Comp Orthop Traumatol. 2014; 27(4); 277-284

3. Yuichiro Enoki, Tsuyoshi Sato, Shinya Tanaka, Takanori Iwata, Michihiko Usui, Shu Takeda, Shoichiro Kokabu, Masahito Matsumoto, Masahiko Okubo, Keisuke Nakashima, Masayuki Yamato, Teruo Okano, Toru Fukuda, Dai Chida, Yuuki Imai, Hisataka Yasuda, Tatsuji Nishihara, Masumi Akita, Hiromi Oda, Yasushi Okazaki, Tatsuo Suda, Tetsuya Yoda. Netrin-4 derived from murine vascular endothelial cells inhibits osteoclast differentiation in vitro and prevents bone loss in vivo. FEBS Lett.. 2014.06; 588(14); 2262-2269

4. Muraoka N, Yamakawa H, Miyamoto K, Sadahiro T, Umei T, Isomi M, Nakashima H, Akiyama M, Wada R, Inagawa K, Nishiyama T, Kaneda R, Fukuda T, Takeda S, Tohyama S, Hashimoto H, Kawamura Y, Goshima N, Aeba R, Yamagishi H, Fukuda K, Ieda M. MiR-133 promotes cardiac reprogramming by directly repressing Snai1 and silencing fibroblast signatures EMBO Journal. 2014.07; 33(14); 1565-1581

5. Kataoka Y, Umino Y, Ochi H, Harada K, Sawada T.. Antimicrobial susceptibility of enterococcal species isolated from antibiotic-treated dogs and cats. J Vet Med Sci. 2014.10; 76(10); 1399-1402

[Misc]

1. Shu Takeda. IMPLICATION OF VITAMIN E IN BONE METABOLISM Osteoporosis International. 2014.11; 25; 568

[Conference Activities & Talks]

1. Shu Takeda. How does Sema3A regulate bone?. 2014 Seoul International Congress of Endocrinology and Metabolism(SICEM) 2014.05.16 Seoul, Korea

2. Shingo Sato. Pericyte as a cell of origin for sarcomas. The 226th Kanto Musculoskeletal Oncology Meeting 2014.07.08 Tokyo

3. Shingo Sato, Qingxia Wei, Makoto Hirata, Jackie Tang, Seiichi Matsumoto, Atsushi Okawa, Shu Takeda, Benjamin Alman. The gene expression analysis of mouse sarcomas developed in our novel mouse model and identification of neoplastic changes in pericytes. The 29th Annual Research Meeting of the Japanese Orthopaedic Association 2014.10.10 Kagoshima

4. Shingo Sato, Qingxia Wei, Makoto Hirata, Yuning Tang, Shu Takeda, Jay S. Wunder, Benjamin Alman. Microarray and RNA sequencing analysis of pericyte-derived sarcomas in a novel sarcoma mouse model. Connective Tissue Oncology Society Meeting 2014 2014.10.17 Berlin

5. Shu Takeda. Implication of Vitamin E in Bone Metabolism.. IOF Reagionals Taipei 2014 5th Asia -Pacific Osteoporosis Meeting. 2014.11.14 Taipei, Taiwan

6. Shu Takeda. Control of bone remodeling by interorgan communication. Crest International Symposium on Homeodynamics during Development and Diseases 2014.12.15 Tokyo, Japan

Molecular Cellular Cardiology

Professor	Tetsushi Furukawa
Assistant professor	Yusuke Ebana
Post-doc (RPD)	Masami Kodama
Post-doc	Kensuke Ihara
D4	Yuya Karube
D4	Akiko Koizumi
D4(Dept. Cardiovascular Medicine)	Kentaro Takahashi
D4(Dept. Cardiovascular Medicine)	Kouji Sugiyama
D2	Peng Zhang
D2	Lian Liu
M2	Miki Fujizuka
M1	Saki Ito
M1	Terumi Sato
M1	Erina Hayashi
M1	Xiaoki Yang
Technician	Tomoko Ando
Technician	Ayumi Sakata
Technician	Reiko Kimura
Secretary	Kuniko Yamaguchi

(1) Outline

This laboratory focuses on understanding pathogenesis of intractable and common cardiovascular diseases using multidisciplinary approach (patch-clamp, cell biology, optical recording, genetic analysis, and computational analysis). Our ultimate goal is to improve diagnosis and management of intractable and common cardiovascular diseases.

(2) Research

1. Gender-specific medicine (GSM) for cardiovascular diseases
In the past few years, we have shown that non-genomic regulation of cardiac ion channels by sex hormones underlies, at least in part, gender difference in cardiac electrophysiology, and thus susceptibility to arrhythmias. This year, we used FRET imaging and LC/MS technology to show that non-genomic regulation of cardiac ion channels by sex hormones cross-talks with β-adrenergic receptor signaling specifically in the raft micro-domain.

2. Pathogenesis of atrial fibrillation (AF)
Atrial fibrillation (AF) is the most frequent arrhythmias, reaching more than 1 million patients in Japan. Associated cerebral infarction due to cardiogenic thrombosis (250,000 patients /year in Japan) and higher incidence of cognitive impairment cause reduced QOL and are main causes of bedridden old people. Thus, establishment of therapeutic strategy for AF is an urgent requirement.
(1) GWAS for AF
We had carried out most extensive GWAS (genome-wide association study) in Japan to determine gene polymorphisms associated with AF. Since 2011, we have participated in the international Meta-analysis called as

CHARGE study. CHARGE study found 10 SNPs associated with AF: among them, 6 SNPs were associated with both European/American and Japanese, and 4 with European/American but not with Japanese.

(2) Functional analysis of AF associated genes

One of the sales-points of GWAS is the identification of novel pathogenic pathways and therapeutic targets due to its comprehensibility. We carried out functional analysis for 6 genes associated with Japanese AF patients, and found a novel pathway generating abnormal automaticity in the pulmonary vein myocardium, which is the main triggering factor of atrial fibrillation.

(3) Risk stratification

Another sales-point of GWAS is the risk stratification of the diseases and its use for future personalized medicine. Based on GWAS data, we calculated AF risk score and classified them into 4 quartile groups. The highest risk group has 5.5 higher risk of AF development relative to the lowest risk group (left panel in Figure 1). The risk stratification yielded around 60% sensitivity and specificity (right panel in Figure 1), which are not enough for personalized medicine, and further studies to increase odds ratio are needed.

3. Pathogenesis of ventricular fibrillation (VF) and sudden cardiac death

Despite extensive effort by many researchers for years, VF remains the main cause of sudden death, and the biggest challenge in arrhythmia research. Last year, we showed that genetic deletion of the His-Purkinje system-specific transcription factor in mice exhibited exercise-related ventricular tachyarrhythmias. This year, we searched for genetic disturbance of this transcription factor in patients with idiopathic VF, and found that the mutations of this factor are responsible for idiopathic VF, and a common variant is a modifier of causative gene mutations for idiopathic VF.

4. Use of iPS cells for arrhythmia research

In the past few years, we have aimed to use human iPS-derived cardiomyocytes (hiPS-CMs) for drug screening. hiPS-CMs include various types of cardiomyocytes, such as atrial, ventricular, and nodal types of cardiomyocytes, and exhibit relatively immature electrophysiological properties of cardiac cells, hindering high-quality drug screening. In order to generate mature ventricular-like hiPS-CMs, we over-expressed a gene into hiPS-CMs. The genetically-altered hiPS-CMs exhibited mature forms of action potentials and drug sensitivity. Our novel technique would be useful for evaluation of drug-induced alternation of repolarization processes in the human cardiomyocytes.

5. Use of state-of-art technology for cardiovascular research

(1) Use of motion vector technology for in vitro analysis of cardiac contraction

Motion vector technology created by Sony Co. (Dr. Matsui E. et al.) is the in vitro system to assay non-invasively contraction and relaxation speed of cardiac myocytes. We have tried to broaden its application to screening of cardiac toxicity of drugs. This year, we applied to examine cardiac toxicity of anti-cancer drugs.

(2) Use of 3-D cardiac simulator (UT-heart) for screening of cardiac toxicity of drugs

Prof. Hisada T. et al. in the University of Tokyo have developed 3-D cardiac simulator (UT-heart). We have tried to broaden its application to screening of cardiac toxicity of drugs. This year, we examined 10 standard drugs (high risk, intermediate risk, and no risk).

(3) Education

School of Medicine
- 2nd grade Introduction to Neurophysiology (2 units)
- 2nd grade Physiology (6 units)
- 3rd grade Cardiology (1 unit)
- 4th grade Project semester

School of Health Care Medicine
- 3rd/4th grade Cardiac physiology (8 units)

(4) Publications

[Original Articles]

1. Hayakawa T, Kunihiro T, Ando T, Kobayashi S, Matsui E, Yada H, Kanda Y, Kurokawa J, Furukawa T.. Image-based evaluation of contraction-relaxation kinetics of human-induced pluripotent stem cell-derived

cardiomyocytes: correlation and complementarity with extracellular electrophysiology. J Mol Cell Cardiol. 2014; 77; 178-191

2. Sinner MF, Tucker NR, Lunetta KL, Ozaki K, Smith JG, Trompet S, Bis JC, Lin H, Chung MK, Nielsen JB, Lubitz SA, Krijthe BP, Magnani JW, Ye J, Gollob MH, Tsunoda T, Müller-Nurasyid M, Lichtner P, Peters A, Dolmatova E, Kubo M, Smith JD, Psaty BM, Smith NL, Jukema JW, Chasman DI, Albert CM, Ebana Y, Furukawa T, Macfarlane PW, Harris TB, Darbar D, Dörr M, Holst AG, Svendsen JH, Hofman A, Uitterlinden AG, Gudnason V, Isobe M, Malik R, Dichgans M, Rosand J, Van Wagoner DR; METASTROKE Consortium; AFGen Consortium, Benjamin EJ, Milan DJ, Melander O, Heckbert SR, Ford I, Liu Y, Barnard J, Olesen MS, Stricker BH, Tanaka T, Kääb S, Ellinor PT.. Integrating Genetic, Transcriptional, and Functional Analyses to Identify Five Novel Genes for Atrial Fibrillation. Circulation. 2014.08;

3. Atsushi Tanaka, Shinsuke Yuasa, Giulia Mearini, Toru Egashira, Tomohisa Seki, Masaki Kodaira, Dai Kusumoto, Yusuke Kuroda, Shinichiro Okata, Tomoyuki Suzuki, Taku Inohara, Takuro Arimura, Shinji Makino, Kensuke Kimura, Akinori Kimura, Tetsushi Furukawa, Lucie Carrier, Koichi Node, Keiichi Fukuda. Endothelin-1 induces myofibrillar disarray and contractile vector variability in hypertrophic cardiomyopathy-induced pluripotent stem cell-derived cardiomyocytes. J Am Heart Assoc. 2014.11; 3(6); e001263

[Conference Activities & Talks]

1. Furukawa T. Sex hormones on ventricular electrophysiology. The 2014 Annual Scientific Meeting of Taiwan HRS 2014.03.08 Taipei

2. Takahashi K, Sasano T, Koizumi A, Sugiyama K, Furukawa T, Isobe M. High-fat diet increases vulnerability to atrial arrhythmia by conduction disturbance via microRNA. The 78th Annual Scientific Meeting of the Japanese Circulation Society 2014.03.21 Tokyo

3. Furukawa T, Ebana Y, Nogami A, Nitta J, Kobayashi K, Mokura M, Takahashi Y, Hachiya H, Miyazaki S, Nakamura H, Hirao K, Isobe M, Ozaki K, Kubo M, Tanaka T. Genome-wide association study (GWAS) for a cardiac arrhythmia, atrial fibrillation. The 78th Annual Scientific Meeting of the Japanese Circulation Society 2014.03.21 Tokyo

4. Sato Y, Satoh A, Nitta J, Honda Y, Kuroda S, Sekigawa M, Kanoh M, Suzuki M, Inaba O, Muramatsu K, Yamato T, Matsumura Y, Asakawa K, Ebana Y, Furukawa T, Hirao K, Isobe M. Impact of SNP on 1q24 (rsrs593479) in PRRX1 for the age at onset of atrial fibrillation. The 78th Annual Scientific Meeting of the Japanese Circulation Society 2014.03.22 Tokyo

5. Takahashi Y, Ebana Y, Hayashi T, Miwa N, Masumura M, Goto K, Sakakibara A, Itoh J, Ohmi T, Ohno M, Katoh R, Nozato T, Satoh Y, Furukawa T, Hirao K, Isobe M. Arrhythmogenicity of the superior vena cava and common single nucleotide polymorphisms in patients with paroxysmal atrial fibrillation. The 78th Annual Scientific Meeting of the Japanese Circulation Society 2014.03.22 Tokyo

6. Sato Y, Satoh A, Nitta J, Honda Y, Kuroda S, Sekigawa M, Kanoh M, Suzuki M, Inaba O, Muramatsu K, Yamato T, Matsumura Y, Asakawa K, Ebana Y, Furukawa T, Hirao K, Isobe M. Impact of SNP on IL6R (rs7514452) for age at onset of atrial fibrillation. The 78th Annual Scientific Meeting of the Japanese Circulation Society 2014.03.22 Tokyo

7. Sato A, Honda Y, Sato Y, Kuroda S, Kanoh M, Sekigawa M, Suzuki M, Inaba O, Muramatsu K, Yamato T, Matsumura Y, Nitta J, Asakawa K, Ebana Y, Furukawa T. The relationship between the single nucleotide polymorphism rs2634073 and arrhythmogenic superior vena cava in the patients with atrial fibrillation. The 78th Annual Scientific Meeting of the Japanese Circulation Society 2014.03.22 Tokyo

8. Okata S, Yuasa S, Suzuki T, Egashira T, Kuroda Y, Tanaka A, Makita N, Kurokawa J, Furukawa T, Fukuda K. Na+ channel beta-subunit affects the phenotype in long QT syndrome type 3 and Brugada syndrome induced pluripotent stem cell-derived cardiomyocytes. The 78th Annual Scientific Meeting of the Japanese Circulation Society 2014.03.22 Tokyo

9. Kurokawa J, Kanda Y, Furukawa T. Cardio-toxicity screening system using human iPS-derived cardiomyocytes. The 9th International Symposium of the Institute Network 2014.06.19 Osaka

10. Furukawa T, Okata S, Yuasa S, Suzuki T, Makita N, Kurokawa J, Egashira T, Yamakawa H, Seki T, Aizawa T, Hashimoto H, Kuroda Y, Tanaka A, Yae K, Murata M, Aiba T, Shimizu W, Horie M, Kodama I, Ogawa S, Fukuda K. Disease modeling using iPS cells. The 78th Annual Scientific Meeting of the Japanese Circulation Society Tokyo

11. Sato Y, Satoh A, Nitta J, Honda Y, Kuroda S, Sekigawa M, Kanoh M, Suzuki M, Inaba O, Muramatsu K, Yamato T, Matsumura Y, Asakawa K, Ebana Y, Furukawa T, Hirao K, Isobe M. Impact of SNP on IL6R (rs7514452) for age at onset of atrial fibrillation. The 78th Annual Scientific Meeting of the Japanese Circulation Society Tokyo

12. Sekigawa M, Satoh A, Nitta J, Sato Y, Honda Y, Kuroda S, Kanoh M, Suzuki M, Inaba O, Muramatsu K, Yamato T, Matsumura Y, Asakawa K, Ebana Y, Furukawa T, Hirao K, Isobe M. Effect of SNP on 9q22 (rs6479562) on the progression from paroxysmal atrial fibrillation to persistent atrial fibrillation. The 78th Annual Scientific Meeting of the Japanese Circulation Society Tokyo

Stem Cell Regulation

Professor Tetsuya TAGA
Associate Professor Tetsushi KAGAWA
Associate Professor Ikuo NOBUHISA
Project Assistant Professor Kouichi TABU (-August)
Administrative Assistant Mako FUSHIMI
Technical Assistant Kazuko INOUE

(1) Outline

Research in this department has been conducted to elucidate the mechanisms by which stem cells are regulated. The major focus has been on neural stem cells, hematopoietic stem cells, and cancer stem cells. The study is aimed to understand development, maintenance, and regeneration of the central nervous system and the hematopoietic system, and to obtain a clue to tackle the problem of cancer recurrence. Particular attention is given to cell-external cues (such as cytokines) and cell-intrinsic programs (including chromatin modification), taking cross-interactions of transcriptional regulatory signals into consideration.

(2) Research

Research Subjects in this department are as follows:

1) Molecular basis for the maintenance of neural stem cells
2) Regulation of the neural stem cell fate
3) Characterization of hematopoietic stem cells in fetal hematopoietic organs
4) Characterization of cancer stem cells and their niche
5) Epigenetic regulation of neural development

(3) Education

Our education has been conducted to elucidate the mechanisms by which stem cells are regulated. The major focus has been on neural stem cells, hematopoietic stem cells, and cancer stem cells. The study is aimed to understand development, maintenance, and regeneration of the central nervous system and the hematopoietic system, and to obtain a clue to tackle the problem of cancer recurrence. The projects have been performed, for instance by elucidation of stem cell characteristics, analysis of transcriptional regulatory signaling pathways, and identification of niche signals.

(4) Lectures & Courses

Under our education program, students will learn the molecular basis of stem cell regulation in view of cell-extrinsic signals and cell intrinsic-programs during tissue development, maintenance, and regeneration from molecular to whole-body levels. Students will receive exposure to cutting edge concepts and research technologies, and study regulatory mechanisms in neural, hematopoietic, and cancer stem cells. With emphasis

also on physiological and pathological conditions surrounding the stem cells, we aims to improve student's understanding of stem cells from multiple viewpoints.

(5) Publications

[Original Articles]

1. Nobuhisa I, Osawa M, Uemura M, Kishikawa Y, Anani M, Harada K, Takagi H, Saito K, Kanai-Azuma M, Kanai Y, Iwama A, and Taga T. Sox17-mediated maintenance of fetal intra-aortic hematopoietic cell clusters. Mol Cell Biol. 2014.06; 34(11); 1976-1990
2. Bizen N, Inoue T, Shimizu T, Tabu K, Kagawa T, and Taga T. A growth-promoting signaling component cyclin D1 in neural stem cells has antiastrogliogenic function to execute self-renewal. Stem Cells. 2014.06; 32(6); 1602-1615
3. Anani M, Nobuhisa I, Osawa M, Iwama A, Harada K, Saito K, and Taga T. Sox17 as a candidate regulator of myeloid restricted differentiation potential. Dev Growth Differ. 2014.08; 56(6); 496-479

[Conference Activities & Talks]

1. Kaneko S, Bizen N, Kagawa T, Nakamura T, Nakano T, and Taga T. Neuronal differentiation of neural stem/progenitor cells induced by methylcytosine hydroxylase Tet3. The 7th Annual Meeting for Developmental Neuroscientists 2014.03.13 Suita, Japan
2. Bizen N, Kaneko S, Kagawa T, Nakamura T, Nakano T, and Taga T. Contribution of methylcytosine hydroxylase Tet3 in acquisition of astrocyte differentiation potency in neural stem/progenitor cells during embryonic development.. The 7th Annual Meeting for Developmental Neuroscientists 2014.03.13 Suita, Japan
3. Taga T and Tabu K. Characterization of C6 glioma cancer stem cell niche by using synthetic polymers for the development of therapeutic strategies. 2014 Seoul National University Cancer Research Institute Cancer Symposium 2014.04.16 Mokpo, Korea
4. Anani M, Nobuhisa I, Osawa M, Iwama A, Harada K, Saito K, and Taga T. Sox17-transduction imparts fetal hematopoietic cells with the myeloid-restricted differentiation potential. The 12th Stem Cell Research Symposium 2014.05.30 Fukuoka
5. Wang W, Tabu T, Sugiyama Y, Hagiya Y, Ogura S, and Taga T. C6 glioma SP and MP cells are different metabolism on the ALA-PplX-heme pathway: an implication for self-creating cancer stem cell niche. The 12th Stem Cell Research Symposium 2014.05.30 Fukuoka
6. Kokubu Y, Tabu K, Muramatsu N, Murota Y, Kimura R, and Taga T. Heterogeneity within CD204(+) tumor-associated macrophages induced by C6 glioma stem cells. The 12th Stem Cell Research Symposium 2014.05.30 Fukuoka
7. Bizen N, Inoue T, Shimizu T, Tabu K, Kagawa T, and Taga T. Dual roles of cyclin D1 in self-renewal of neural stem cells: promotion of cell proliferation and inhibition of glial differentiation. The 12th Stem Cell Research Symposium 2014.05.30 Fukuoka
8. Taga T and Tabu K. Understanding of C6 glioma cancer stem cell niche with the use of synthetic polymers. The 12th Stem Cell Research Symposium 2014.05.31 Fukuoka
9. Taga T. Niche signals regulating neural stem cells and glioma stem cells. The 10th Annual Meeting of Korean Society for Stem Cell Research 2014.08.28 Soul
10. Taga T. Understanding of glioma stem cell niche and application of synthetic polymers. The 32nd Japan Human Cell Society Meeting 2014.08.30 Tokyo
11. Wang W, Tabu K, Sugiyama Y, Hagiya Y, Ogura S, and Taga T. Roles of cancer-derived heme in erythropoiesis: implications for erythroid niche for cancer stem cells. The 73rd Annual Meeting of the Japanese Cancer Association 2014.09.25 Yokohama
12. Tabu K, Kokubu Y, Taga T. Autoschizic cancer cell death and its implications to cancer stem cell niche. The 73rd Annual Meeting of the Japanese Cancer Association 2014.09.25 Yokohama

13. Kokubu Y, Tabu K, Wang W, Baghdadi M, Jinushi M, and Taga T. C6 glioma stem cell-derived GM-CSF induces CD11chighCD204(+) protumoral macrophages. The 73rd Annual Meeting of the Japanese Cancer Association 2014.09.25 Yokohama

14. Sudo G, Kagawa T, Yamaguchi Y, Minowa A, Konno K, Watanabe M, Inazawa J, and Taga T. Pathogenic mechanisms in mouse model of mental disorder caused by histone demethylase Gasc1 mutation.. The 36th Annual Meeting of Japanese Society of Biological Psychiatry/ The 57th Annual Meeting of Japanese Society for Neurochemistry 2014.09.30 Nara, Japan

15. Kagawa T, Yamaguchi Y, Sudo G, Minowa A, Nakagata N, Hattori S, Takao K, Inazawa J, Miyakawa T, and Taga T. Histone demethylase GASC1 hypomorphic mutant mice exhibit mental disorder-like abnormal behaviors.. The 36th Annual Meeting of Japanese Society of Biological Psychiatry/ The 57th Annual Meeting of Japanese Society for Neurochemistry 2014.10.01 Nara, Japan

16. Taga T. Niche signals regulating neural stem cells and glioma stem cells revealed by synthetic polymers. Collaborative Meeting between High-Throughput Chemical Biology, School of Chemistry, University of Edinburgh and Department of Stem Cell Regulation, Medical Research Institute, Tokyo Medical and Dental University 2014.11.02 Edinburgh

17. Taga T. Characteristics of glioma cancer stem cell niche revealed by synthetic polymers. 14th Japanese-German Cancer Research Workshop 2014.11.14 Berlin

18. Nobuhisa I, Anani M, Osawa M, Iwama A, Harada K, Saito K, and Taga T. Sustained expression of Sox17 in the aorta-gonad-mesonephros-derived hematopoietic cells maintain the self-renewal capacity and the hematopoietic ability to produce myeloid progenitors. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.26 Yokohama

19. Anani M, Nobuhisa I, Osawa M, Iwama A, Harada K, Saito K, and Taga T. Sustained expression of Sox17 in AGM-derived hematopoietic stem/progenitor cells maintain the self-renewal capacity and the hematopoietic ability to produce myeloid progenitors. The 43rd Annual Meeting of The Japanese Society for Immunology 2014.12.11 Kyoto

20. Kagawa T, Yamaguchi Y, Sudo G, Minowa A, Nakagata N, Hattori S, Takao K, Konno K, Inoue T, Watanabe M, Inazawa J, Miyakawa T, and Taga T. Pathogenic mechanisms of mouse mental disorder-like behavior caused by histone demethylase Gasc1 mutation.. The 2014 Winter Symposium of Comprehensive Brain Science Network 2014.12.12 Tokyo, Japan

Molecular Pharmacology

Professor: Masaki Noda, M.D., Ph.D.
Associate Professor: Yoichi Ezura, M.D., Ph.D.
Assistant Professor: Yayoi Izu, DVM, Ph.D.
Research Assistant Professor: Smriti Aryal A.C., DDS, Ph.D.

(1) Outline

In order to contribute to the establishment of therapy and prevention for osteoporosis and the other calcium-related disorders, we are elucidating molecular mechanisms underlying regulation of calcium metabolism with emphases on bone formation and resorption. Skeletal system is the largest storage site for calcium in a living body and its metabolism is conducted by a complex cell society consisting of bone-forming osteoblasts and bone-resorbing osteoclasts as well as stromal cells and chondrocytes. In our department, we take molecular and cellular biological approaches to study the mechanisms underlying regulation of development, differentiation, and function of these cells.

(2) Research

Bone is the major organ for calcium metabolism in our body. The regulation of bone metabolism is mediated by a balance between osteoblastic bone formation and osteoclastic bone resorption. These activities are maintained in balance and called bone remodeling. Imbalance of the remodeling results in development of bone disorders, such as osteoporosis. Osteoblasts are differentiated from mesenchymal stem cells. These cells are under the regulation by local and systematical factors, such as growth factors and hormones. These factors activate intracellular signaling, which promotes transcription factors thereby delineates cell differentiation. In our laboratory, we are studying the process from various aspects of bone cell regulation including transcription factors, cytokines and hormones. To promote our study, knockout and transgenic mice, gene introduction via virus, global analysis of gene expression, and genome database analysis are used. Our study will provide the basic understandings of bone homeostasis, which will contribute the development of measures for diagnosis and treatment of bone disorders.

(3) Publications

[Original Articles]

1. Chiho Watanabe, Masahiro Morita, Tadayoshi Hayata, Tetsuya Nakamoto, Chisato Kikuguchi, Xue Li, Yasuhiro Kobayashi, Naoyuki Takahashi, Takuya Notomi, Keiji Moriyama, Tadashi Yamamoto, Yoichi Ezura, Masaki Noda. Stability of mRNA influences osteoporotic bone mass via CNOT3. Proc. Natl. Acad. Sci. U.S.A.. 2014.02; 111(7); 2692-2697

2. Takuya Notomi, Ikuaki Karasaki, Yuichi Okazaki, Nobukazu Okimoto, Yushi Kato, Kiyoshi Ohura, Masaki Noda, Toshitaka Nakamura, Masashige Suzuki. Insulinogenic sucrose+amino acid mixture ingestion immediately after resistance exercise has an anabolic effect on bone compared with non-insulinogenic fructose+amino acid mixture in growing rats. Bone. 2014.08; 65; 42-48

3. Takayuki Yamada, Yoichi Ezura, Tadayoshi Hayata, Shuichi Moriya, Junpei Shirakawa, Takuya Notomi, Smriti Arayal, Makiri Kawasaki, Yayoi Izu, Kiyoshi Harada, Masaki Noda. β 2 Adrenergic receptor

activation suppresses BMP-induced alkaline phosphatase expression in osteoblast-like MC3T3E1 cells. J. Cell. Biochem.. 2014.12;

4. Akiko Nakai, Yuki Hayano, Fumika Furuta, Masaki Noda, Kazuhiro Suzuki. Control of lymphocyte egress from lymph nodes through β 2-adrenergic receptors. J. Exp. Med.. 2014.12; 211(13); 2583-2598

[Conference Activities & Talks]

1. Masaki Noda. Molecular bases for the regulation of bone mass. 2nd Asia-Pacific Bone & Mineral Research Meeting 2014.05.30

Epigenetics

Associate Professor Takashi KOHDA
Professor Fumitoshi ISHINO
Assistant Professor Ryuichi ONO
Tokunin Lecturer Jiyoung LEE
Adjunct Lecturer Shin KOBAYASHI,
Graduate students Kiyotaka TAKAGI, Moe KITAZAWA, Ayumi Matsuzawa

(1) Research

1) Genomic imprinting in human and mammalian development.
2) Placenta function and its evolution in mammals.
3) Somatic cloning: its epigenetic effects and application to regenerative medicine.
4) Assisted reproductive technology: its epigenetic effects and safer application.
5) Role of retrotransposon-derived genes in mammalian specific genomic functions.

(2) Lectures & Courses

"Epigenetics" coupled with "Genetics" enables us to elucidate several 'genomic functions' in inheritance, development and evolution of organisms including our human beings. Genomic imprinting is one of the mammalian specific gene regulation mechanisms that gives rise to functional differences between paternally- and maternally-derived genomes in development, behavior and growth. Somatic cloned animals give us unique chances to examine 'genetically identical but epigenetically diverged animals'. These studies show us how Epigenetics is important in mammalian biology. Our department focuses these mammalian specific genomic functions to elucidate how these genomic functions work and how new genomic functions have been evolved during evolution. Our final goal is to contribute to the 21th' s medicine and human biology by novel understanding of genomic functions.

(3) Publications

[Original Articles]

1. Kawasaki Y, Lee J, Matsuzawa A, Kohda T, Kaneko-Ishino T, Ishino F. Active DNA demethylation is required for complete imprint erasure in primordial germ cells Sci Rep. 2014.01;

2. Kawasaki Y, Lee J, Matsuzawa A, Kohda T, Kaneko-Ishino T, Ishino F.. Active DNA demethylation is required for complete imprint erasure in primordial germ cells. Sci Rep. 2014.01; 4; 3658

3. Oikawa M, Inoue K, Shiura H, Matoba S, Kamimura S, Hirose M, Mekada K, Yoshiki A, Tanaka S, Abe K, Ishino F, Ogura A.. Understanding the X chromosome inactivation cycle in mice: a comprehensive view provided by nuclear transfer. 2014.02; 9(2); 204-211

4. Soma M, Fujihara Y, Okabe M, Ishino F, Kobayashi S.. Ftx is dispensable for imprinted X-chromosome inactivation in preimplantation mouse embryos. Sci Rep. 2014.06; 4; 5181

5. Takahashi S, Lee J, Kohda T, Matsuzawa A, Kawasumi M, Kanai-Azuma M, Kaneko-Ishino T, Ishino F. Induction of the G2/M transition stabilizes haploid embryonic stem cells. Development. 2014.10; 141(20); 3842-3847

6. Kamimura S, Hatanaka Y, Hirasawa R, Matsumoto K, Oikawa M, Lee J, Matoba S, Mizutani E, Ogonuki N, Inoue K, Kohda T, Ishino F, Ogura A. Establishment of paternal genomic imprinting in mouse prospermatogonia analyzed by nuclear transfer. Biol Reprod. 2014.11; 91(5);

7. Naruse M, Ono R, Irie M, Nakamura K, Furuse T, Hino T, Oda K, Kashimura M, Yamada I, Wakana S, Yokoyama M, Ishino F, Kaneko-Ishino T. . Sirh7/Ldoc1 knockout mice exhibit placental P4 overproduction and delayed parturition. Development. 2014.12; 141(24); 4463-4771

[Conference Activities & Talks]

1. Masahito Irie, Mie Naruse, Takashi Kohda, Ryuichi Ono, Shigeharu Wakana, Fumitoshi Ishino and Tomoko Kaneko-Ishino.. A sushi-ichi retrotransposon- derived Sirh3 is a eutherian specific gene and its knockout mice display decreased daily activity.. Keystone Symposia –Mobile Genetic Elements and Genome Evolution 2014.03.10 Santa Fe, New Mexico, USA

2. Fumitoshi Ishino, Mie Naruse, Ryuichi Ono, Kenji Nakamura, Shigeharu Wakana, Minesuke Yokoyama and Tomoko Kaneko-Ishino.. Sirh7, an acquired gene from an LTR retrotranspson in eutherian mammals, plays an essential role in viviparity.. Keystone Symposia –Mobile Genetic Elements and Genome Evolution 2014.03.11 Santa Fe, New Mexico, USA

3. iyoung Lee, Yuki Kawasaki, Ayumu Matsuzawa, Takashi Kohda, Tomoko Kaneko-Ishino and Fumitoshi Ishino.. Active DNA demethylation for complete imprint erasure in primordial germ cells. . Keystone Symposia –Epigenetic Programming and Inheritance 2014.04.07

4. Fumitoshi Ishino, Tomoko Kaneko-Ishino. Roles of retrotransposon-derived genes in placenta formation. Japanese Conference for Laboratory Animal Science and Technology, Sapporo 2014 2014.05.15

5. Kohda T. Development of a novel method to identify the hydroxymethyl cytosine in single base resolution using DNMT1 enzyme. The 8th Annual Meeting of the Japanese Society for Epigenetics 2014.05.25

6. Jiyoung Lee, Yuki Kawasaki, Ayumi Matsuzawa, Takashi Kohda, Tomoko Kaneko-Ishino. Active DNA demethylation during imprint erasure in primordial germ cells. The 8th Annual Meeting of the Japanese Society for Epigenetics 2014.05.27

7. Ryu-ichi Ono, Masato Ikawa, Moe Kitazawa, Tomoko Kaneko-Ishino, Fumitoshi Ishino. Functional analysis on mammalian-specific Peg10 gene. The 8th Annual Meeting of the Japanese Society for Epigenetics 2014.05.27

8. Fumitoshi Ishino, Tomoko Kaneko-Ishino. Genomic imprinting and mammalian evolution.. Symposium on Epigenomes in evolution, the 16th 2014.08.22

9. Irie M, Kohda T, Ono R, Furuse T, Wakana S, Yoshikawa M, Ishino F, Kaneko-Ishino T. Analysis of LTR retrotransposon-derived eutherian-specific gene, Sirh11.. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25

10. Kawasaki Y, Lee J, Matsuzawa A, Kohda T, Kaneko-Ishino T, Ishino F. Active DNA demethylation is required for complete imprint erasure in primordial germ cells. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25

11. Kuroda Y, Kawasaki Y, Kohda T, Ishino F. New method 'EnIGMA': Quantitative sequencing of 5-hydroxymethylcytosine at single base resolution. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25

12. Kohda T, Takagi K, Oikawa M, Ogonuki N, Inoue K, Kaneko-Ishino T, Ogura A, Ishino F. Zygotic gene activation and gene expression alterations induced by ICSI treatment in early embryo. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25

13. Takahashi S, Suetake I, Engelhardt J, Kohda T, Tajima S. Development of a method for a single base resolution analysis of 5-hydroxymethylcytosine with recombinant DNMT1. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25

14. Irie M, Kohda T, Ono R, Furuse T, Wakana S, Yoshikawa M, Ishino F, Kaneko-Ishino T. Analysis of LTR retrotransposon-derived eutherian-specific gene, Sirh11.. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25

15. Fumitoshi Ishino, Tomoko Kaneko-Ishino. Mammalian evolution promoted by exaptation of LTR retrotransposons.. Symposium on Biological Evolution and Diversity, the 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.27

Stem Cell Biology

Professor : Emi Nishimura, M.D., Ph.D.
Assistant Professor : Hiroyuki Matsumura, Ph.D.
JSPS Research Fellow : Yasuaki Mohri, Ph.D.
JSPS Research Fellow : Hironobu Morinaga, Ph.D.
Project Assistant Professor : Go YOshida, M.D., Ph.D.

(1) Outline

Stem cell systems play fundamental roles in tissue turnover and homeostasis. Our goal is to understand the mechanisms of tissue homeostasis driven by stem cell systems and to apply the knowledge to better understand the mechanisms underlying specific tissue decline, cancer development and other diseases associated with aging. We further aim to apply this knowledge to regenerative medicine using somatic stem cells and the treatment of cancer as well as other age-associated diseases.

(2) Research

1) Identification of stem cells in the skin: Follicular melanocyte stem cells vs. volar melanocyte stem cells.
The skin is the largest organ in the body. Hair follicles in the skin constantly renew themselves by alternate phases of growth, regression and rest. During this process, mature melanocytes (pigment cells) in hair follicles are replaced by a new cell population every hair cycle. We previously identified the source of those melanocytes, "melanocyte stem cells" (McSC), which are located in the hair follicle bulge and supply mature melanocytes required for hair pigmentation (Nishimura EK et al. Nature 2002). We have searched for a similar stem cell population in non-hair-bearing skin areas and currently identified McSCs in eccrine sweat glands by using Dct-H2BGFP transgenic mice in which melanocyte lineage cells can be stably visualized. We have characterized the H2BGFP positive cell population in sweat glands and demonstrated that the population in the secretory portion of sweat glands possess the features of somatic stem cells. As our analysis on human early acral melanoma has indicated that the stem cell niche maintain early acral melanoma cells with CCND1 gene amplification in a immature and proliferating state, the population is most likely to be the origin of melanoma. We are currently testing the hypothesis and applying the knowledge for early and accurate diagnosis of malignant melanoma.

2) Mechanisms of stem cell maintenance
The underlying mechanisms of stem cell maintenance and regulation is a fundamental issue in stem cell biology and medicine. We previously demonstrated that the niche microenvironment plays dominant role in melanocyte stem cell fate determination (Nishimura EK et al. 2002) and also that the progressive hair graying phenotype, one of the most typical aging phenotype, is caused by incomplete maintenance of McSCs. The phenotype is characteristically seen in some coat color mutants such as Bcl2 deficient mice and Mitf-vit mutant mice. We examined the roles of Mitf and Bcl2 and found that these genes are intrinsic genes critically involved in McSC maintenance to prevent hair graying (Nishimura EK et al. Science 2005). Also we found that hair follicle stem cells (HFSC), which are originally derived from the epidermis, surround McSCs in the hair follicle bulge-subbulge area of hair follicles and play essential role in McSC maintenance as functional niche cells through transforming growth factor β (TGF-β) signaling to prevent premature hair graying (Nishimura EK et al. Cell Stem Cell, 2010)(Tanimura S et al. Cell Stem Cell 2011).

3) Mechanisms for stem cell aging and quality control of stem cell pools.

Physiological hair graying is the most obvious outward sign of aging even in normal mammals. We previously demonstrated that physiological hair graying is caused by incomplete self-renewal/maintenance of McSCs (Nishimura EK et al. 2005). However, it was not clear what causes the self-renewal of MsSCs to become defective during the course of aging. We have found that genotoxic stress abrogates renewal of melanocyte stem cells by triggering their differentiation without inducing stem cell apoptosis nor cellular senescence. Our findings indicated that a "stemness checkpoint" exists to maintain the quality of the melanocyte stem cell pool (Inomata K, Aoto T et al. Cell 2009). Since then similar checkpoint mechanisms have been found in other stem cell systems as well. Therefore, it seems to be a common mechanism in some stem cell systems to maintain the quality of stem cell pools.

(3) Publications

[Original Articles]

1. Natsuko Okamoto, Takahiro Aoto, Hisashi Uhara, Satoshi Yamazaki, Hidenori Akutsu, Akihiro Umezawa, Hiromitsu Nakauchi, Yoshiki Miyachi, Toshiaki Saida, Emi K Nishimura. A melanocyte-melanoma precursor niche in sweat glands of volar skin. Pigment Cell Melanoma Res. 2014.07; 27(6); 1039-1050

2. Makiko Ueno, Takahiro Aoto, Yasuaki Mohri, Hiroo Yokozeki, Emi K Nishimura. Coupling of the radiosensitivity of melanocyte stem cells to their dormancy during the hair cycle. Pigment Cell Melanoma Res. 2014.07; 27(4); 540-551

[Books etc]

1. Maintenance of Melanocyte Stem Cell Pool and Aging. 2014 (ISBN : 1880-1579)

[Conference Activities & Talks]

1. Emi K. Nishimura. Stress Sensitivity of Melanocyte Stem Cells during a Hair Cycle. 8th World Congress for Hair Research 2014.05.14 Jeju Island, Korea

2. Emi K. Nishimura. Hair Follicle Aging and Stem Cell Regulation. 8th World Congress for Hair Research 2014.05.14 Jeju Island, Korea

3. Emi K. Nishimura. Coupling of the Stress Sensitivity of Melanocyte Stem Cells to their Dormancy during a Hair Cycle. IPCC 2014 2014.09.07 Singapore

4. Emi K. Nishimura. Identification of melanocyte stem cells and melanocyte-melanoma precursor niche in sweat glands. International Symposium on Tumor Biology in Kanazawa 2014.11.04 Kanazawa

Respiratory Medicine

Professor: Naohiko INASE
Junior Associate Professor: Kimitake TSUCHIYA
Assistant Professor: Toshihide FUJIE, Tomoya TATEISHI, Haruhiko FURUSAWA, Tsukasa OKAMOTO
Graduate Students: Mayuko TAO, Sahoko CHIBA, Yumi SAKAKIBARA, Masahiro ISHIZUKA, Kozo SUHARA, Toshiharu TSUTSUI, Masahiro MASUO, Tsuyoshi SHIRAI, Makiko SUGIURA, Yuta ADACHI, Ken UCHIBORI, Yu KUSAKA, Rie SAKAKIBARA, Manabu SEMA, Tomoko TERADA, Yoshihisa NUKUI, Takayuki HONDA, Takahiro MITSUMURA

(1) Outline

Respiratory Medicine deals with a variety of pulmonary diseases including tumors, infectious diseases, allergic diseases, non-allergic inflammatory diseases, and genetic disorders.

(2) Research

1) Pathogenesis of hypersensitivity pneumonitis and detection of environmental causative antign
2) Airway remodeling in bronchial asthma model
3) Acute exacerbation in pulmonary fibrosis
4) Proteomics of pulmonary fibrosis
5) Pathogenesis of pulmonary fibrosis and emphysema

(3) Education

Main objective in the graduate course is to provide students to study specific diagnostic modalities as well as basic scientific findings regarding the pathogenesis of pulmonary diseases. Students are also taught on basic science and its related laboratory technology depending upon their research subject.

(4) Lectures & Courses

Students should try to understand a variety of pulmonary diseases in terms of scientific aspect and make an appropriate plan to examine unsolved research questions.

(5) Clinical Services & Other Works

Our clinic provides a full spectrum of diagnosis and treatment of a variety of pulmonary diseases. Consultant system is open to all departments in this hospital and daily clinical conference regarding inpatients is organized by professors of the department. In outpatient clinic, chemotherapy, home oxygen therapy, management of sleep apnea, and arrange of clinical studies are provided.

(6) Clinical Performances

We have immunological tools to examine hypersensitivity pneumonitis including antigen inhalation challenge test, specific antibody against causative antigen, and lymphocyte proliferation test. Many patients with interstitial lug diseases in Japan are referred to our clinic.

(7) Publications

[Original Articles]

1. Komazaki Y, Miyazaki Y, Fujie T, Sakashita H, Tsuchiya K, Tamaoka M, Sumi Y, Maruyama Y, Nanki T, Inase N. Serodiagnosis of Mycobacterium avium complex pulmonary disease in rheumatoid arthritis. Respiration. 2014; 87(2); 129-135

2. Furusawa H, Miyazaki Y, Sonoda S, Tsuchiya K, Yaguchi T, Kamei K, Inase N. Penicilliosis marneffei complicated with interstitial pneumonia Intern Med. 2014; 53; 321-323

3. Iijima Y, Furusawa H, Tateishi T, Tsuchiya K, Fujie T, Tamaoka M, Sakashita H, Miyazaki Y, Sumi Y, Hosono Y, Nakashima R, Mimori T, Inase N. Amyopathic dermatomyositis complicated with eosinophilic pneumonia Intern Med. 2014; 53(14); 1539-1544

4. Sakakibara Yumi, Kishimoto Kumiko, Kojima Kaoru, Fujie Toshihide, Inase Naohiko. [Fatal nontuberculous mycobacterial lung disease caused by Mycobacterium kyorinense: a case report with five years of follow-up] . Kekkaku. 2014.04; 89(4); 509-513

5. Ono H, Motoi N, Nagano H, Miyauchi E, Ushijima M, Matsuura M, Okumura S, Nishio M, Hirose T, Inase N, Ishikawa Y. Long noncoding RNA HOTAIR is relevant to cellular proliferation, invasiveness, and clinical relapse in small-cell lung cancer. Cancer Med. 2014.06; 3(3); 632-642

6. Chiba S, Uchibori K, Fujiwara T, Ogata T, Yamauchi S, Shirai T, Masuo M, Okamoto T, Tateishi T, Furusawa H, Fujie T, Sakashita H, Tsuchiya K, Tamaoka M, Miyazaki Y, Inase N, Sumi Y. Dielectric Blood Coagulometry as a Novel Coagulation Test Journal of Scientific Research & Reports. 2014.10; 4(3); 180-188

[Conference Activities & Talks]

1. Okamoto T, Furusawa H, Tateishi T, Tsuchiya K, Fujie T, Tamaoka M, Sakashita H, Miyazaki Y, Sumi Y, Inase N. Seasonal variation of serum KL-6 and SP-D levels in bird-related hypersensitivity pneumonitis. ATS International Conference 2014.05.16 San Diego

2. Shirai T, Furusawa H, Furukawa A, Masuo M, Okamoto T, Tateishi T, Tsuchiya K, Fujie T, Tamaoka M, Sumi Y, Sakashita H, Miyazaki Y, Eishi Y, Inase N. Identification for specific antigen of bird related hypersensitivity pneumonitis. ATS International Conference 2014.05.16 San Diego

3. Tateishi T, Johkou T, Sakai F, Miyazaki Y, Ogura T, Ichikado K, Suda T, Taguchi Y, Inoue Y, Takemura T, Colby T.V, Sumikawa H, Fujimoto K, Arakawa H, Inase N. UIP pettern of chronic hypersensitivity pneumonitis: differentiation from idiopathic pulmonary fibrosis. ATS International Conference 2014.05.16 San Diego

4. Masuo M, Miyazaki Y, Okamoto T, Furusawa H, Tateishi T, Tsuchiya K, Fujie T, Tamaoka M, Sakashita H, Sumi Y, Inase N. Significant clinical parameters for diagnosis in chronic bird-related hypersensitivity pneumonitis . ATS International Conference 2014.05.16 San Diego

5. Chiba S, Sumi Y, Okayasu K, Okamoto T, Tateishi T, Furusawa H, Tsuchiya K, Fujie T, Tamaoka M, Sakashita H, Miyazaki Y, Inase N. The C-jun N-terminal Kinase Signaling Pathway Regulates Airway Smooth Muscle Cell Proliferation. ERS International Conference 2014.09.09 Munich, Germany

Gastroenterology and Hepatology

Professor Mamoru WATANABE
Professor Yasuhiro ASAHINA (Department for Hepatitis Control)
Kazuo OHTSUKA (Department of Endoscopic Diagnosis and Therapeutics)
Ryuichi OKAMOTO (Center for Stem Cell and Regenerative Medicine)
Tetsuya NAKAMURA
(Department of Advanced Therapeutics in Gastrointestinal Diseases)
Associate Professor
Kiichiro TSUCHIYA
(Department of Advanced Therapeutics in Gastrointestinal Diseases)
Shinya OOKA (Cancer Center)
Mina NAKAGAWA (Center for Interprofessional Education)
Project Associate Professor
Masakazu NAGAHORI
Junior Associate Professor
Akihiro ARAKI
Sei KAKINUMA (Department for Hepatitis Control),
Yasuhiro ITSUI (Department of General Medicine)
Eriko OKADA (Department of Endoscopic Diagnosis and Therapeutics)
Katsuyoshi MATSUOKA
(Department of Advanced Therapeutics in Gastrointestinal Diseases)
Assistant Professor
Cheng-Hsin AZUMA, Shigeru OSHIMA, Takashi NAGAISHI, Toshimitu FUJII,
Yoshiki WADA (Department of Endoscopic Diagnosis and Therapeutics),
Eiko SAITO, Yasuhiro NEMOTO
Project Assistant Professor
Megumi FUJITA(Center for Interprofessional Education), Tomohiro MIZUTANI,
Sayuri NITTA
Hospital Staff
Yuki SAKURAI, Takako WATANABE, Michihiro SHIMIZU, Miyako MURAKAWA,
Masayoshi FUKUDA, Nobukatsu HORITA, Yu MATSUZAWA, Maiko KIMURA,
Kento TAKENAKA, Emi INOUE, Nobuhiro KATSUKURA, Shintaro AKIYAMA
Medical Fellow
Go ITOH
Graduate Student
Hukiko KITAHATA, Miki TANIGUCHI, Kenji OOTANI, Keita FUKUSHIMA, Kengo NOZAKI,
Fumio GOTO, Taichi MATSUMOTO, Masanori KOBAYASHI, Toru NAKATA, Yoichi NIBE,
Hideji HIBIYA, Satoru FUJII, Hiroko NAGATA, Syun KANEKO, Chiaki MAEYASHIKI,
Taro WATABE, Yuka MATSUMOTO, Kohei SUZUKI, Ryohei HAYASHI, Yuu ASANO

(1) Outline

Research project is selected from the clinical problems in the Gastroenterology and Hepatology to understand the research policy, as clinical science that the results of research project finally should be restored to clinical medicine.

The purpose of this course is the understanding the situation of inflammatory bowel disease (IBD) in Japan and the problems about the pathogenesis and intractable cause of IBD. In addition, the understanding the patogeneisis and problems about the liver diseases such as viral hepatitis, cirrhosis and hepatocelluar carcinoma is the purpose of this course.

(2) Research

Basic Research Projects
Systemic Organ Regulation
· Elucidating the pathophysiology of inflammatory bowel diseases and development of treatment by diseasespecific
immue-regulation.
· Development of novel therapeutics for inflammatory and allergic diseases based on gut–specific mucosal immune
regulation.
· Basic research and clinical application of regenerative medicine in gastrointestinal diseases.
· Analysis of interferon-resistant hepatitis C virus.
· Comprehensive analysis of susceptibility genes for various gastrointestinal diseases.
· Crosstalk of the signaling pathways in intestinal epithelial cells.
· Functional analysis of the intestine using primary cell curture in vitro.

(3) Education

We believe that the central role of clinical departments in the graduate school is to establish basis for the innovative medicine / medical treatment in the next generation. Basic research lead by clinical concepts, and development of novel therapeutics established upon basic research are both critically required to achieve our mission. Therefore, our primary goal is set to train highly educated and experienced clinician-researchers in the field of gastroenterology and hepatology.
In the clinical area, we pursue development and application of highly advanced technologies, including novel endoscopic procedures, for sophisticated diagnosis and treatment of gastrointestinal and liver diseases. In basic research, our principle is to achieve "clinical science", a research evoked from various clinical problems, and also directed to launch innovative therapeutic procedures to the daily clinical practice. Based on these principals, we are running research projects to 1) develop novel therapy for refractory inflammatory bowel diseases, 2) prevent progression of liver failure in chronic hepatitis patients and 3) improve anti-cancer therapy for the treatment of gastrointestinal malignancies, by expanding our distinct basic research findings in the area of mucosal immunology, liver immunology, regenerative medicine and virology, to various clinical settings. Moreover, we promote both intra- and inter-national exchanges of researchers, and provide good opportunities to study abroad. The final goal of our education is to promote students to become a well-developed clinician researcher, and also a leading expert in the field of gastroenterology and hepatology.

(4) Lectures & Courses

Research Conference	every Tuesday 18:00 19:30
Journal Club	every Tuesday 18:00 19:30

(5) Clinical Services & Other Works

Expert Areas in Clinical Practice
· Immune-regulation based treatment of inflammatory bowel diseases.
· Prevention of chronic hepatitis progression to hepatocellular cancer and liver failure, by virology-based treatment strategy.
· Clinical trial of innovative treatment for hepatocellular cancer.

· Diagnosis and treatment of small intestinal diseases by balloon enteroscopy and capsule enteroscopy.
· Advanced diagnosis and treatment of colonic diseases by colonoscopy.
· Development of minimally-invasive diagnostic modalities for gastrointestinal diseases (i.e. MR enteroclysis).
· Improved chemotherapy for gastric and pancreatic malignancies.

(6) Clinical Performances

Therapeutics of inflammatory bowel diseases by corrections of immunological disfuctions.
Diagnostic and interventional gastrointestinal endoscopy
Antiviral therapies against chronic viral hepatitis and preventions of hepatic malignancy novel intervensions of hepatic malignancy

(7) Publications

[Original Articles]

1. Yasui Y, Kudo A, Kurosaki M, Matsuda S, Muraoka M, Tamaki N, Suzuki S, Hosokawa T, Ueda K, Matsunaga K, Nakanishi H, Tsuchiya K, Itakura J, Takahashi Y, Tanaka S, Asahina Y, Enomoto N, Arii S, Izumi N.. Reduced organic anion transporter expression is a risk factor for hepatocellular carcinoma in chronic hepatitis C patients: a propensity score matching study. Oncology. 2014.01; 86(1); 53-62

2. Eiko Saito, Masakazu Nagahori, Toshimitsu Fujii, Kazuo Ohtsuka, Mamoru Watanabe. Efficacy of salvage therapy and its effect on operative outcomes in patients with ulcerative colitis. Digestion. 2014.01; 89(1); 55-60

3. Toshimitsu Fujii, Makoto Naganuma, Yoshio Kitazume, Eiko Saito, Masakazu Nagahori, Kazuo Ohtsuka, Mamoru Watanabe. Advancing magnetic resonance imaging in Crohn's disease. Digestion. 2014.01; 89(1); 24-30

4. Motohiro Esaki, Takayuki Matsumoto, Kenji Watanabe, Tetsuo Arakawa, Yuji Naito, Minoru Matsuura, Hiroshi Nakase, Toshifumi Hibi, Takayuki Matsumoto, Sadaharu Nouda, Kazuhide Higuchi, Naoki Ohmiya, Hidemi Goto, Sei Kurokawa, Satoshi Motoya, Mamoru Watanabe. Use of capsule endoscopy in patients with Crohn's disease in Japan: a multicenter survey. J. Gastroenterol. Hepatol. 2014.01; 29(1); 96-101

5. Takashi Hisabe, Fumihito Hirai, Toshiyuki Matsui, Mamoru Watanabe. Evaluation of diagnostic criteria for Crohn's disease in Japan. J. Gastroenterol. 2014.01; 49(1); 93-99

6. Shin-ei Kudo, Yuichi Mori, Kunihiko Wakamura, Nobunao Ikehara, Katsuro Ichimasa, Yoshiki Wada, Makoto Kutsukawa, Masashi Misawa, Toyoki Kudo, Takemasa Hayashi, Hideyuki Miyachi, Haruhiro Inoue, Shigeharu Hamatani. Endocytoscopy can provide additional diagnostic ability to magnifying chromoendoscopy for colorectal neoplasms. J. Gastroenterol. Hepatol. 2014.01; 29(1); 83-90

7. Kaoru Tsuchiya, Yasuhiro Asahina, Shuya Matsuda, Masaru Muraoka, Toru Nakata, Yuichiro Suzuki, Nobuharu Tamaki, Yutaka Yasui, Shoko Suzuki, Takanori Hosokawa, Takashi Nishimura, Ken Ueda, Teiji Kuzuya, Hiroyuki Nakanishi, Jun Itakura, Yuka Takahashi, Masayuki Kurosaki, Nobuyuki Enomoto, Namiki Izumi. Changes in plasma vascular endothelial growth factor at 8 weeks after sorafenib administration as predictors of survival for advanced hepatocellular carcinoma. Cancer. 2014.01; 120(2); 229-237

8. Tadakazu Hisamatsu, Fumiaki Ueno, Takayuki Matsumoto, Kiyonori Kobayashi, Kazutaka Koganei, Reiko Kunisaki, Fumihito Hirai, Masakazu Nagahori, Mitsunobu Matsushita, Kenji Kobayashi, Mitsumasa Kishimoto, Mitsuhiro Takeno, Masanori Tanaka, Nagamu Inoue, Toshifumi Hibi. The 2nd edition of consensus statements for the diagnosis and management of intestinal Behçet's disease: indication of anti-TNF α monoclonal antibodies. J. Gastroenterol. 2014.01; 49(1); 156-162

9. Asahina Y, HayashinN, Hiramatsu N, Izumi N, Koike K, Kumada H, Kurosaki M,Oketani M, Suzuki F, Takikawa H, Tanaka A, Tanaka E, Tanaka Y, Tsubouchi H,Yotsuyanagi H. JSH Guidelines for the Management of Hepatitis B Virus Infection. Hepatol Res. 2014.01; 44 Suppl S1; 1-58

10. Yohei Mikami, Shinta Mizuno, Nobuhiro Nakamoto, Atsushi Hayashi, Tomohisa Sujino, Toshiro Sato, Nobuhiko Kamada, Katsuyoshi Matsuoka, Tadakazu Hisamatsu, Hirotoshi Ebinuma, Toshifumi Hibi, Akihiko Yoshimura, Takanori Kanai. Macrophages and dendritic cells emerge in the liver during intestinal inflammation and predispose the liver to inflammation. PLoS ONE. 2014.01; 9(1); e84619

11. Atsushi Sakuraba, Yasushi Iwao, Katsuyoshi Matsuoka, Makoto Naganuma, Haruhiko Ogata, Takanori Kanai, Toshifumi Hibi. Endoscopic and pathologic changes of the upper gastrointestinal tract in Crohn's disease. Biomed Res Int. 2014.02; 2014; 610767

12. Mamoru Watanabe. Adult tissue stem cell therapy for gastrointestinal diseases.[Epub ahead of print] J Gastroenterol Hepatol. 2014.02;

13. Masahiro Suzuki, Takashi Nagaishi, Motomi Yamazaki, Michio Onizawa, Taro Watabe, Yuriko Sakamaki, Shizuko Ichinose, Mamoru Totsuka, Shigeru Oshima, Ryuichi Okamoto, Motoyuki Shimonaka, Hideo Yagita, Tetsuya Nakamura, Mamoru Watanabe. Myosin light chain kinase expression induced via tumor necrosis factor receptor 2 signaling in the epithelial cells regulates the development of colitis-associated carcinogenesis. PLoS ONE. 2014.02; 9(2); e88369

14. Yasuo Suzuki, Satoshi Motoya, Hiroyuki Hanai, Takayuki Matsumoto, Toshifumi Hibi, Anne M Robinson, Nael M Mostafa, Jingdong Chao, Vipin Arora, Anne Camez, Roopal B Thakkar, Mamoru Watanabe. Efficacy and safety of adalimumab in Japanese patients with moderately to severely active ulcerative colitis. J. Gastroenterol. 2014.02; 49(2); 283-294

15. Toshifumi Hibi, Atsushi Sakuraba, Mamoru Watanabe, Satoshi Motoya, Hiroaki Ito, Noriko Sato, Toru Yoshinari, Kenta Motegi, Yoshitaka Kinouchi, Masakazu Takazoe, Yasuo Suzuki, Takayuki Matsumoto, Kazuhiko Kawakami, Takayuki Matsumoto, Ichiro Hirata, Shinji Tanaka, Toshifumi Ashida, Toshiyuki Matsui. C-reactive protein is an indicator of serum infliximab level in predicting loss of response in patients with Crohn's disease. J. Gastroenterol. 2014.02; 49(2); 254-262

16. Kazuhiro Watanabe, Iwao Sasaki, Kouhei Fukushima, Kitaro Futami, Hiroki Ikeuchi, Akira Sugita, Riichiro Nezu, Tsunekazu Mizushima, Shingo Kameoka, Masato Kusunoki, Kazuhiko Yoshioka, Yuji Funayama, Toshiaki Watanabe, Hisao Fujii, Mamoru Watanabe. Long-term incidence and characteristics of intestinal failure in Crohn's disease: a multicenter study. J. Gastroenterol. 2014.02; 49(2); 231-238

17. Nao Nishida, Hiromi Sawai, Koichi Kashiwase, Mutsuhiko Minami, Masaya Sugiyama, Wai-Kay Seto, Man-Fung Yuen, Nawarat Posuwan, Yong Poovorawan, Sang Hoon Ahn, Kwang-Hyub Han, Kentaro Matsuura, Yasuhito Tanaka, Masayuki Kurosaki, Yasuhiro Asahina, Namiki Izumi, Jong-Hon Kang, Shuhei Hige, Tatsuya Ide, Kazuhide Yamamoto, Isao Sakaida, Yoshikazu Murawaki, Yoshito Itoh, Akihiro Tamori, Etsuro Orito, Yoichi Hiasa, Masao Honda, Shuichi Kaneko, Eiji Mita, Kazuyuki Suzuki, Keisuke Hino, Eiji Tanaka, Satoshi Mochida, Masaaki Watanabe, Yuichiro Eguchi, Naohiko Masaki, Kazumoto Murata, Masaaki Korenaga, Yoriko Mawatari, Jun Ohashi, Minae Kawashima, Katsushi Tokunaga, Masashi Mizokami. New susceptibility and resistance HLA-DP alleles to HBV-related diseases identified by a trans-ethnic association study in Asia. PLoS ONE. 2014.02; 9(2); e86449

18. Taku Kobayashi, Erin C Steinbach, Steven M Russo, Katsuyoshi Matsuoka, Tomonori Nochi, Nitsan Maharshak, Luke B Borst, Bruce Hostager, J Victor Garcia-Martinez, Paul B Rothman, Masaki Kashiwada, Shehzad Z Sheikh, Peter J Murray, Scott E Plevy. NFIL3-deficient mice develop microbiota-dependent, IL-12/23-driven spontaneous colitis. J. Immunol. 2014.02; 192(4); 1918-1927

19. Kaoru Tsuchiya, Yasuhiro Asahina, Nobuharu Tamaki, Yutaka Yasui, Takanori Hosokawa, Ken Ueda, Hiroyuki Nakanishi, Jun Itakura, Masayuki Kurosaki, Nobuyuki Enomoto, Namiki Izumi. Risk factors for exceeding the Milan criteria after successful radiofrequency ablation in patients with early-stage hepatocellular carcinoma. Liver Transpl. 2014.03; 20(3); 291-297

20. Hiroyuki Nakanishi, Masayuki Kurosaki, Kaoru Nakanishi, Kaoru Tsuchiya, Takamasa Noda, Nobuharu Tamaki, Yutaka Yasui, Takanori Hosokawa, Ken Ueda, Jun Itakura, Kimitaka Anami, Yasuhiro Asahina, Nobuyuki Enomoto, Teruhiko Higuchi, Namiki Izumi. Impaired brain activity in cirrhotic patients with minimal hepatic encephalopathy: Evaluation by near-infrared spectroscopy. Hepatol Res. 2014.03; 44(3); 319-326

21. Makoto Kutsukawa, Shin-Ei Kudo, Nobunao Ikehara, Yushi Ogawa, Kunihiko Wakamura, Yuichi Mori, Katsuro Ichimasa, Masashi Misawa, Toyoki Kudo, Yoshiki Wada, Takemasa Hayashi, Hideyuki Miyachi,

Haruhiro Inoue, Shigeharu Hamatani. Efficiency of endocytoscopy in differentiating types of serrated polyps. Gastrointest. Endosc. 2014.04; 79(4); 648-656

22. Fábio Shiguehissa Kawaguti, Caio Sérgio Rizkallah Nahas, Carlos Frederico Sparapan Marques, Bruno da Costa Martins, Felipe Alves Retes, Raphael Salles S Medeiros, Takemasa Hayashi, Yoshiki Wada, Marcelo Simas de Lima, Ricardo Sato Uemura, Sérgio Carlos Carlos Nahas, Shin-ei Kudo, Fauze Maluf-Filho. Endoscopic submucosal dissection versus transanal endoscopic microsurgery for the treatment of early rectal cancer. Surg Endosc. 2014.04; 28(4); 1173-1179

23. Tadakazu Hisamatsu, Makoto Naganuma, Katsuyoshi Matsuoka, Takanori Kanai. Diagnosis and management of intestinal Behçet's disease. Clin J Gastroenterol. 2014.04; 7; 205-212

24. Hiromichi Shimizu, Ryuichi Okamoto, Go Ito, Satoru Fujii, Toru Nakata, Kohei Suzuki, Tatsuro Murano, Tomohiro Mizutani, Kiichiro Tsuchiya, Tetsuya Nakamura, Katsuto Hozumi, Mamoru Watanabe. Distinct expression patterns of Notch ligands, Dll1 and Dll4, in normal and inflamed mice intestine. PeerJ. 2014.05; 2(1); e370

25. Kazuaki Yoneno, Tadakazu Hisamatsu, Katsuyoshi Matsuoka, Susumu Okamoto, Tetsuro Takayama, Riko Ichikawa, Tomohisa Sujino, Jun Miyoshi, Kaoru Takabayashi, Yohei Mikami, Shinta Mizuno, Yasuyo Wada, Tomoharu Yajima, Makoto Naganuma, Nagamu Inoue, Yasushi Iwao, Haruhiko Ogata, Hirotoshi Hasegawa, Yuko Kitagawa, Toshifumi Hibi, Takanori Kanai. Risk and management of intra-abdominal abscess in Crohn's disease treated with infliximab. Digestion. 2014.06; 89(3); 201-208

26. Takanori Kanai, Katsuyoshi Matsuoka, Makoto Naganuma, Atsushi Hayashi, Tadakazu Hisamatsu. Diet, microbiota, and inflammatory bowel disease: lessons from Japanese foods. Korean J. Intern. Med. 2014.07; 29(4); 409-415

27. Nobuharu Tamaki, Masayuki Kurosaki, Shuya Matsuda, Toru Nakata, Masaru Muraoka, Yuichiro Suzuki, Yutaka Yasui, Shoko Suzuki, Takanori Hosokawa, Takashi Nishimura, Ken Ueda, Kaoru Tsuchiya, Hiroyuki Nakanishi, Jun Itakura, Yuka Takahashi, Kotaro Matsunaga, Kazuhiro Taki, Yasuhiro Asahina, Namiki Izumi. Prospective comparison of real-time tissue elastography and serum fibrosis markers for the estimation of liver fibrosis in chronic hepatitis C patients. Hepatol Res. 2014.07; 44(7); 720-727

28. Yasuhiro Asahina, Kaoru Tsuchiya, Takashi Nishimura, Masaru Muraoka, Yuichiro Suzuki, Nobuharu Tamaki, Yutaka Yasui, Takanori Hosokawa, Ken Ueda, Hiroyuki Nakanishi, Jun Itakura, Yuka Takahashi, Masayuki Kurosaki, Nobuyuki Enomoto, Mina Nakagawa, Sei Kakinuma, Mamoru Watanabe, Namiki Izumi. Genetic variation near interleukin 28B and the risk of hepatocellular carcinoma in patients with chronic hepatitis C. J. Gastroenterol. 2014.07; 49(7); 1152-1162

29. Shinta Mizuno, Yohei Mikami, Nobuhiko Kamada, Tango Handa, Atsushi Hayashi, Toshiro Sato, Katsuyoshi Matsuoka, Mami Matano, Yuki Ohta, Akira Sugita, Kazutaka Koganei, Rikisaburo Sahara, Masakazu Takazoe, Tadakazu Hisamatsu, Takanori Kanai. Cross-talk between ROR γ t+ innate lymphoid cells and intestinal macrophages induces mucosal IL-22 production in Crohn's disease. Inflamm. Bowel Dis. 2014.08; 20(8); 1426-1434

30. Masayoshi Fukuda, Tomohiro Mizutani, Wakana Mochizuki, Taichi Matsumoto, Kengo Nozaki, Yuriko Sakamaki, Shizuko Ichinose, Yukinori Okada, Toshihiro Tanaka, Mamoru Watanabe, Tetsuya Nakamura. Small intestinal stem cell identity is maintained with functional Paneth cells in heterotopically grafted epithelium onto the colon. Genes Dev. 2014.08; 28(16); 1752-1757

31. Kento Takenaka, Kazuo Ohtsuka, Yoshio Kitazume, Masakazu Nagahori, Toshimitsu Fujii, Eiko Saito, Makoto Naganuma, Akihiro Araki, Mamoru Watanabe. Comparison of magnetic resonance and balloon enteroscopic examination of the small intestine in patients with Crohn's disease. Gastroenterology. 2014.08; 147(2); 334-342.e3

32. Yasuhiro Iizuka, Hideki Sakai, Konomi Kobayashi, Kazue Iizuka, Eri Ito, Nahoko Mochizuki, Yasuhiro Asahina, Mamoru Watanabe. A case of chronic hepatitis B managed with continued adefovir despite treatment-related Fanconi syndrome and osteomalacia. Nihon Shokakibyo Gakkai Zasshi. 2014.08; 111(8); 1618-1623

33. Yasuhiro Asahina, Kaoru Tsuchiya, Namiki Izumi. Reply: To PMID 23564522. Hepatology. 2014.08; 60(2); 764

34. Yoko Yokoyama, Katsuyoshi Matsuoka, Taku Kobayashi, Koji Sawada, Tateshi Fujiyoshi, Takafumi Ando, Yoshifumi Ohnishi, Tetsuya Ishida, Masashi Oka, Masahiro Yamada, Takashi Nakamura, Tomoko Ino, Toyoko Numata, Hirofumi Aoki, Jun-Ichi Sakou, Masahiro Kusada, Tomoki Maekawa, Toshifumi Hibi. A large-scale, prospective, observational study of leukocytapheresis for ulcerative colitis: treatment outcomes of 847 patients in clinical practice. J Crohns Colitis. 2014.09; 8(9); 981-991

35. Shingo Usui, Naoki Hosoe, Katsuyoshi Matsuoka, Taku Kobayashi, Masaru Nakano, Makoto Naganuma, Yuka Ishibashi, Kayoko Kimura, Kazuaki Yoneno, Kazuhiro Kashiwagi, Tadakazu Hisamatsu, Nagamu Inoue, Hiroshi Serizawa, Toshifumi Hibi, Haruhiko Ogata, Takanori Kanai. Modified bowel preparation regimen for use in second-generation colon capsule endoscopy in patients with ulcerative colitis. Dig Endosc. 2014.09; 26(5); 665-672

36. Norimasa Fukata, Kazuichi Okazaki, Mika Omiya, Mitsunobu Matsushita, Mamoru Watanabe. Hematologic malignancies in the Japanese patients with inflammatory bowel disease. J. Gastroenterol. 2014.09; 49(9); 1299-1306

37. Daisuke Oryoji, Tadakazu Hisamatsu, Kiichirou Tsuchiya, Jyunji Ueno, Syou Ueda, Ken Yamamoto, Takayuki Matsumoto, Mamoru Watanabe, Toshifumi Hibi, Takehiko Sasazuki. Associations of HLA class I alleles in Japanese patients with Crohn's disease. Genes Immun. 2014.09; 16; 54-56

38. Severa Bunda, Pardeep Heir, Tharan Srikumar, Jonathan D Cook, Kelly Burrell, Yoshihito Kano, Jeffrey E Lee, Gelareh Zadeh, Brian Raught, Michael Ohh. Src promotes GTPase activity of Ras via tyrosine 32 phosphorylation. Proc Natl Acad Sci U S A. 2014.09; 111(36); E3785-E3794

39. Goki Suda, Yoshiya Yamamoto, Astushi Nagasaka, Ken Furuya, Mineo Kudo, Yoshimichi Chuganji, Yoko Tsukuda, Seiji Tsunematsu, Fumiyuki Sato, Katsumi Terasita, Masato Nakai, Hiromasa Horimoto, Takuya Sho, Mitsuteru Natsuizaka, Kouji Ogawa, Shunsuke Ohnishi, Makoto Chuma, Yasuyuki Fujita, Riichiro Abe, Miki Taniguchi, Mina Nakagawa, Yasuhiro Asahina, Naoya Sakamoto. Serum granulysin levels as a predictor of serious telaprevir-induced dermatological reactions. Hepatol Res. 2014.09;

40. Kaoru Tsuchiya, Yasuhiro Asahina, Masayuki Kurosaki, Nobuyuki Enomoto, Namiki Izumi. Reply: To PMID 24734314. Liver Transpl. 2014.09; 20(9); 1152

41. Keiichiro Saigusa, Tadakazu Hisamatsu, Tango Handa, Tomohisa Sujino, Yohei Mikami, Atsushi Hayashi, Shinta Mizuno, Kozue Takeshita, Toshiro Sato, Katsuyoshi Matsuoka, Takanori Kanai. Classical Th1 cells obtain colitogenicity by co-existence of ROR γ t-expressing T cells in experimental colitis. Inflamm. Bowel Dis. 2014.10; 20(10); 1820-1827

42. Nobukatsu Horita, Kiichiro Tsuchiya, Ryohei Hayashi, Keita Fukushima, Shuji Hibiya, Masayoshi Fukuda, Yoshihito Kano, Tomohiro Mizutani, Yasuhiro Nemoto, Shiro Yui, Ryuichi Okamoto, Tetsuya Nakamura, Mamoru Watanabe. Fluorescent labelling of intestinal epithelial cells reveals independent long-lived intestinal stem cells in a crypt. Biochem Biophys Res Commun. 2014.10; 454(4); 493-499

43. Satoko Ohfuji, Wakaba Fukushima, Kenji Watanabe, Satoshi Sasaki, Hirokazu Yamagami, Masakazu Nagahori, Mamoru Watanabe, Yoshio Hirota. Pre-illness isoflavone consumption and disease risk of ulcerative colitis: a multicenter case-control study in Japan. PLoS ONE. 2014.10; 9(10); e110270

44. Yoshihito Kano, Sei Kakinuma, Fumio Goto, Seishin Azuma, Yuki Nishimura-Sakurai, Yasuhiro Itsui, Mina Nakagawa, Atsushi Kudo, Minoru Tanabe, Susumu Kirimura, Tomonori Amano, Takashi Ito, Takumi Akashi, Yasuhiro Asahina, Mamoru Watanabe. Primary Hepatic Neuroendocrine Carcinoma with a Cholangiocellular Carcinoma Component in One Nodule. Clinical Journal of Gastroenterology. 2014.10; 7; 449-454

45. Xuan Li, Yun-Jia Zhao, Jun Dai, Xiao-Bo Li, Han-Bin Xue, Yao Zhang, Guang-Su Xiong, Kazuo Ohtsuka, Yun-Jie Gao, Qiang Liu, Yan Song, Jing-Yuan Fang, Zhi-Zheng Ge. Carbon dioxide insufflation improves the intubation depth and total enteroscopy rate in single-balloon enteroscopy: a randomised, controlled, double-blind trial. Gut. 2014.10; 63(10); 1560-1565

46. Jun Miyoshi, Tadakazu Hisamatsu, Katsuyoshi Matsuoka, Makoto Naganuma, Yuriko Maruyama, Kazuaki Yoneno, Kiyoto Mori, Hiroki Kiyohara, Kosaku Nanki, Susumu Okamoto, Tomoharu Yajima, Yasushi Iwao, Haruhiko Ogata, Toshifumi Hibi, Takanori Kanai. Early intervention with adalimumab may contribute to favorable clinical efficacy in patients with Crohn's disease. Digestion. 2014.10; 90(2); 130-136

47. Kiyonori Kobayashi, Fumihito Hirai, Makoto Naganuma, Kenji Watanabe, Takafumi Ando, Hiroshi Nakase, Katsuyoshi Matsuoka, Mamoru Watanabe. A randomized clinical trial of mesalazine suppository: The usefulness and problems of central review of evaluations of colonic mucosal findings. J Crohns Colitis. 2014.11; 8(11); 1444-1453

48. Mamoru Watanabe, Toshifumi Hibi, Nael M Mostafa, Jingdong Chao, Vipin Arora, Anne Camez, Joel Petersson, Roopal Thakkar. Long-term safety and efficacy of adalimumab in Japanese patients with moderate to severe Crohn's disease. J Crohns Colitis. 2014.11; 8(11); 1407-1416

49. Shigeyuki Kawa, Kazuichi Okazaki, Kenji Notohara, Mamoru Watanabe, Tooru Shimosegawa. Autoimmune pancreatitis complicated with inflammatory bowel disease and comparative study of type 1 and type 2 autoimmune pancreatitis.(Epub ahead of print) J. Gastroenterol. 2014.11;

50. Shintaro Akiyama, Tsunao Imamura, Tetsuo Tamura, Yuko Koizumi, Rikako Koyama, Kazuo Takeuchi, Goro Watanabe. Recurrent common bile duct stones composed of ursodeoxycholic acid: a report of four cases. Intern. Med. 2014.11; 53(21); 2489-2492

51. Shintaro Akiyama, Koji Izutsu, Yasunori Ota, Tsunao Imamura, Osamu Ogawa, Atsushi Wake, Kazuo Takeuchi. A case report of the histologic transformation of primary follicular lymphoma of the duodenum. Medicine (Baltimore). 2014.11; 93(26); e165

52. Shintaro Akiyama, Kenji Ikeda, Hitomi Sezaki, Taito Fukushima, Yushi Sorin, Yusuke Kawamura, Satoshi Saitoh, Tetsuya Hosaka, Norio Akuta, Masahiro Kobayashi, Fumitaka Suzuki, Yoshiyuki Suzuki, Yasuji Arase, Hiromitsu Kumada. Therapeutic effects of short- and intermediate-term tolvaptan administration for refractory ascites in patients with advanced liver cirrhosis.(Epub ahead of print) Hepatol. Res. 2014.11;

53. Katsuyoshi Matsuoka, Shinta Mizuno, Atsushi Hayashi, Tadakazu Hisamatsu, Makoto Naganuma, Takanori Kanai. Fecal microbiota transplantation for gastrointestinal diseases. Keio J Med. 2014.12; 63(4); 69-74

[Conference Activities & Talks]

1. Hibiya S, Tsuchiya K, Fukushima K, Hayashi R, Horita N, Kano Y , Okamoto R, Nakamura T,Watanabe M. Long-term stimulation with cytokines acquires irreversible accumulation of NF-κ B signaling in primary colonic epithelial cells. 4th International Symposium on Carcinogenic Spiral 2014.02.11 Sapporo

2. Takenaka K, Otsuka K, Nagahori M, Fujii T, Saito E, Watanabe M. Comparing MR enterocolonography to enteroscopy in Crohn's disease, especially focusing on small intestinal findings. 9th congress of European Crohn's and Colitis Organisation 2014.02.20 Copenhagen

3. Mizutani T, Fukuda M, Mochizuki W, Matsumoto T, Nozaki K, Ichinose S, Watanabe M, Nakamura T. Successful Engraftment of Cultured Small Intestinal Epithelial Stem Cells onto Damaged Colonic Mucosa by Heterotopic Transplantation. Digestive Disease Week 2014 2014.05.03 Chicago

4. Watanabe M, Yoshimura N, Motoya S, Tominaga K, Iwakiri R, Watanabe K, Hibi T. AJM300, an oral α 4 integrin antagonist, for active ulcerative colitis: a multicenter, randomized, doubleblind,placebo-controlled phase 2a study. Digestive Disease Week 2014 2014.05.04 Chicago

5. Mizutani T. Successful Engraftment of Cultured Small Intestinal Epithelial Stem Cells onto Damaged Colonic Mucosa by Heterotopic Transplantation. GI Research Academy 2014 2014.06.06 Tokyo

6. Fukuda M, Mizutani T, Mochiduki W, Taichi M, Nozaki K, Ichinose S, Watanabe M, Nakamura T. Successful Engraftment of Cultured Small Intestinal Epithelial Stem Cells onto Damaged Colonic Mucosa by Heterotopic Transplantation. I2th Interational society for stem cell research 2014.06.19 Vancouver

7. Takenaka K, Otsuka K, Nagahori M, Fujii T, Saito E, Watanabe M. Comparison of Magnetic Resonance and Balloon Enteroscopic Examination of Deep Small Intestine in Patients with Crohn's Disease. The 2nd Annual Meeting of AOCC 2014.06.20 Seoul

8. Saito E, Nagahori M, Waranabe M. Outcome of induction and maintenance therapy for refractory ulceractry colitis. The 2nd Annual Meeting of AOCC 2014.06.20 Seoul

9. Watanabe M. Stem cell as a promising target for IBD:From the bench to the bedside. The 2nd Annual Meeting of AOCC 2014.06.20 Seoul

10. Watanabe M. Basic Forum 1. Emerging New Concepts in IBD: Genetics and stem cell. (Chair) . The 2nd Annual Meeting of AOCC 2014.06.20 Seoul

11. Matsuoka k. Management of intra-abdominal abscess and stricture. The 2nd Annual Meeting of AOCC 2014.06.21 Seoul

12. Go Ito, Ryuichi Okamoto, Hiromichi Shimizu, Satoru Fujii, Toru Nakata, Kohei Suzuki, Kiichiro Tsuchiya, Tetsuya Nakamura, Mamoru Watanabe. Notch signaling and TNF-α synergistically promotes intracellular protein expression of OLFM4 in human intestinal epithelial cells. The 2nd Annual Meeting of Asian Organization for Crohn's and Colitis 2014.06.21 Seoul

13. Hiromichi Shimizu, Ryuichi Okamoto, Go Ito, Satoru Fujii, Toru Nakata, Kohei Suzuki, Tatsuro Murano, Tomohiro Mizutani, Kiichiro Tsuchiya, Tetsuya Nakamura, Katsuto Hozumi, Mamoru Watanabe. Distinct Expression Patterns of Notch Ligands, DLL1 and DLL4, in Normal and Inflamed Mice Intestine. The 2nd Annual Meeting of Asian Organization for Crohn's and Colitis 2014.06.21 Seoul

14. Tsuchiya K, Hibiya S, Watanabe M. Innate immune spiral of intestinal epithelial cells by the longterm inflammation. The 73rd Annual Meeting of the Japanese Cancer Association 2014.09.25 Yokohama

15. Watanabe M. Gut as a second brain to regulate human whole body ?. Cluster Lectures 2014.10.14 Hamburg

16. Fujii T, Naganuma M, Kitazume Y, Takenaka K, Nagahori M, Saito E, Ohtsuka K, Watanabe M. MR enterocolonography can identify patients who need additional treatment by predicting recurrence, hospitalization and surgey of Crohn's disease patients in remission. UEGW2014 2014.10.20 Vienna

17. Takenaka K, Ohtsuka K, Kitazume Y, Nagahori M, Fujii T, Saito E, Watanabe M. Magnetic resonance enterocolonography can detect small intestinal active lesions in crohn's disease;comparison with balloon enteroscopy. UEGW2014 2014.10.20 Vienna

18. Ito G, Okamoto R, Shimizu H, Fujii S, Nakata T, Suzuki K, Tsuchiya K, Nakamura T, Watanabe M. Notch Signaling and TNF-α synergistically promotes intracellular protein accumulation of olfm4 in the inflamed mucosa of ulcerative colitis. UEGW2014 2014.10.21 Vienna

19. Matsuzawa Y, Oshima S, Takahara M, Nozaki K, Kobayashi M, Nibe Y, Maeyashiki C, Nemoto Y, Ma A, Watanabe M. A ubiquitin-modifying enzyme A20 controls the dynamics of autophagy. UEGW2014 2014.10.21 Vienna

20. Jose N, Nagaishi T, Watabe T, Tokai A, Suzuki M, Yamazaki M, Watanabe M. The expression of myosin light chain kinase induced by NK-KB activation is involved in the development of colitis-associated cancer. UEGW2014 2014.10.22 Vienna

21. Hayashi R, Tsuchiya K, Hibiya S, Fukushima K, Horita N, Okada E, Araki A, Ohtsuka K, Watanabe M. Human alpha-defensin 6 regulated by both atoh1 and beta-catenin might be the pathogeneses of crohn's disease. UEGW2014 2014.10.22 Vienna

22. Okamoto R, Ito G, Shimizu H, Fujii S, Nakata T, Suzuki K, Watanabe M. Notch signaling regulates expression of gelsolin superfamily genes, gelsolim and scinderin and promotes re-assembly of action cytoskeleton in human intestinal epithelial cells. UEGW2014 2014.10.22 Vienna

23. Otani S, Kakinuma S, Kamiya A, Goto F, Kaneko S, Azuma S, Asahina Y, Watanabe M. Matrix Metalloproteinase-14 controls differentiation of fetal hepatic stem/progenitor cells. Japan Digesive Disease Weeks 2014 2014.10.23 Kobe

24. Takenaka K, Ohtsuka K, Watanabe M. Enteroscopic and MR findings of small intestine in Crohn's disease. Japan Digesive Disease Weeks 2014 2014.10.26 Kobe

25. Matsuoka K, Naganuma M, Kanai T. The Ulserative Colitis Endoscopic Index of Severity (UCEIS) is useful to evaluate endoscopic improvement and to predict medium-term prognosis in ulcerative colitis patients treated with tacrolimus. Japan Digesive Disease Weeks 2014 2014.10.26 Kobe

26. Watanabe M. Novel Therapies for Inflammatory Bowel Disease Stemcelltherapy:what,when,andhow?. SIDDS2014 2014.10.27 Seoul

27. Watanabe M. Stem cell transplantation in IBD, are we there yet?. New Advance in Cancer and Stem Cell 2014.11.08 Kaohsinng

28. Nakagawa M, Asahina Y, Taniguchi M, Watanabe T, Nishimura-Sakurai Y, Itsui Y, Azuma S, Kakinuma S, Tanaka Y, Watanabe M. Impact of host and therapeutic factors and resistant associated variants on response to interferon based-direct acting antiviral treatment in difficult-to-treat chronic hepatitis C patients. The 65th. Annual Meeting of American Association for the Study of Liver Diseases（AASLD The Liver Meeting 2014) 2014.11.09 Boston

29. Watanabe M. Role of Cyclosporin/Tacrolimus：Tacrolimus and infliximab in patients with refractory ulcerative colitis. TSIBD2014 2014.11.09 Taipei

30. Kawai-Kitahata F, Asahina Y, Kaneko S, Nagata H, Goto F, Otani S, Taniguchi M , Murakawa M , Nitta S, Watanabe T, Itsui Y, Nakagawa M, Kakinuma S, Enomoto N, Watanabe M. Gene alterations in β-catenin and p53/cell cycle control pathway are closely associated with development and prognosis of hepatocellular carcinoma: Comprehensive analyses by next generation sequencing technology. The 65th. Annual Meeting of American Association for the Study of Liver Diseases（AASLD The Liver Meeting 2014) 2014.11.10 Boston

31. Nishida N, Sawai H, Kashiwase K, Minami M, Yamamoto K, Sasazuki T, Sugiyama M, Wai-Kay Seto , Man-Fun Yuen, Yong Poovorawan, Sang Hoon Ahn, Kwang-Hyub Han, Matsuura K, Tanaka Y, Kurosaki M, Asahina Y, Izumi N, Jong-Hon Kang, Hige S, Ide T, Yamamoto K, Sakaida I, Murawaki Y, Itoh Y, Tamori A, Orito E, Hiasa Y, Honda M, Kaneko S, Mita E, Suzuki K, Hino K, Tanaka E, Mochida S, Watanabe M, Eguchi Y, Korenaga M, Kawashima M, Tokunaga K, Mizokami M. Assiciations of HLA-DPB1 with CHB infection and HBV related HCC in Asia. The 65th. Annual Meeting of American Association for the Study of Liver Diseases（AASLD The Liver Meeting 2014) 2014.11.11 Boston

32. Murakawa M, Asahina Y, Nakagawa M, Kawai-Kitahata F, Taniguchi M, Nitta S, Watanabe T, Itsui Y, Kakinuma S, Sakamoto N, Watanabe M. Expression of IFN λ 4 in liver and PBMC is closely associated with higher basal expression of ISGs and impaired induction of IL28B by interferon treatment in chronic hepatitis C non-responder patients. The 65th. Annual Meeting of American Association for the Study of Liver Diseases（AASLD The Liver Meeting 2014) 2014.11.11 Boston

33. Otani S, Kakinuma S, Watanabe M. Matrix Metalloproteinase-14 regulates the maturation of fetal hepatic stem/progenitor cells in mice. The 65th. Annual Meeting of American Association for the Study of Liver Diseases（AASLD The Liver Meeting 2014) 2014.11.11 Boston

34. Watanabe T, Asahina Y, Nakagawa M, Kakinuma S, Itsui Y, Taniguchi M, Murakawa M, Nagata H, Miura M, Maekawa S, Enomoto N, Watanabe M. Emergence or selection of resistant associated variant immediately after initiation of the therapy is predictive for failure of direct acting antiviral therapy:ultra-deep sequencing analyses for serial time points. The 65th. Annual Meeting of American Association for the Study of Liver Diseases（AASLD The Liver Meeting 2014) 2014.11.11 Boston

35. Watanabe M. IBD: The New Emerging Diseases in Asia-Pacific. Challenges of IBD in Asia - from diagnosis to management. APDW2014 2014.11.24 Bali

36. Watanabe M. Colorectal Neoplasm. Molecular mechanism of inflammation–associated colorectal cancer. APDW2014 2014.11.24 Bali

37. Watabe T, Nagaishi T, Suzuki M, Yamazaki M, Onizawa M, Jose N, Tokai A, Hosoya A, Totsuka M, Yagita H, Watanabe M. TNFR2 signaling in the epithelia may be involved in the development of colitis-associated tumor. The 43rd Annual Meeting of The Japanese Society for Immunology 2014.12.12 Kyoto

Surgical Oncology

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Tomoki ABURATANI, Chiharu TOMITA

(1) Outline

Surgical oncology clinic performs less invasive operation for cancer of stomach, colon and rectum, and breast with new devices including laparoscope, thereby allowing physiological and neurological functions to be preserved. Moreover, treatment with chemotherapeutic agents for cancer is also conducted.

(2) Research

Main thema of our research activities is identification of predictive factors for chemo-responsiveness and prognosis in cancer by molecular biological technique.

(3) Education

Main objective of surgical oncology in the graduate course is to provide students with opportunity to study oncology in order to become the well-rounded surgeon who has international and scientific feelings.

(4) Publications

[Original Articles]

1. Ishiba Toshiyuki, Nagahara Makoto, Nakagawa Tsuyoshi, Sato Takanobu, Ishikawa Toshiaki, Uetake Hiroyuki, Sugihara Kenichi, Miki Yoshio, Nakanishi Akira. Periostin suppression induces decorin secretion leading to reduced breast cancer cell motility and invasion. Sci Rep. 2014; 4; 7069

2. Inokuchi M, Sugita H, Otsuki S, Sato Y, Nakagawa M, Kojima K. Long-Term Effectiveness of Preserved Celiac Branch of Vagal Nerve After Roux-en-Y Reconstruction in Laparoscopy-Assisted Distal Gastrectomy. Dig Surg. 2014; 31(4-5); 341-346

3. Inokuchi M, Kato K, Sugita H, Otsuki S, Kojima K. Impact of comorbidities on postoperative complications in patients undergoing laparoscopy-assisted gastrectomy for gastric cancer. BMC Surg. 2014; 14; 97

4. Yamauchi S, Iida S, Ishiguro M, Ishikawa T, Uetake H, Sugihara K.. Clinical significance of platelet-derived growth factor-C expression in colorectal cancer. J Cancer Therapy. 2014.01; 5; 11-20

5. Koizumi W, Kim YH, Fujii M, Kim HK, Imamura H, Lee KH, Hara T, Chung HC, Satoh T, Cho JY, Hosaka H, Tsuji A, Takagane A, Inokuchi M, Tanabe K, Okuno T, Ogura M, Yoshida K, Takeuchi M, Nakajima T. Addition of docetaxel to S-1 without platinum prolongs survival of patients with advanced gastric cancer: a randomized study (START). J. Cancer Res. Clin. Oncol.. 2014.02; 140(2); 319-328

6. Kobayashi H, Kotake K, Sugihara K. Outcomes of surgery without HIPEC for synchronous peritoneal metastasis from colorectal cancer: data from a multi-center registry. Int. J. Clin. Oncol.. 2014.02; 19(1); 98-105

7. Sato Y, Yamamoto S, Fujita S. Retroperitoneal liposarcoma with colonic involvement: a case report. Jpn. J. Clin. Oncol.. 2014.04; 44(4); 374-378

8. Kinugasa Y, Arakawa T, Murakami G, Fujimiya M, Sugihara K. Nerve supply to the internal anal sphincter differs from that to the distal rectum: an immunohistochemical study of cadavers. Int J Colorectal Dis. 2014.04; 29(4); 429-436

9. Kobayashi H, Kotake K, Funahashi K, Hase K, Hirata K, Iiai T, Kameoka S, Kanemitsu Y, Maeda K, Murata A, Ohue M, Shirouzu K, Takahashi K, Watanabe T, Yano H, Yatsuoka T, Hashiguchi Y, Sugihara K. Clinical benefit of surgery for stage IV colorectal cancer with synchronous peritoneal metastasis. J. Gastroenterol.. 2014.04; 49(4); 646-654

10. Søndenaa K, Quirke P, Hohenberger W, Sugihara K, Kobayashi H, Kessler H, Brown G, Tudyka V,D'hoore A,Kennedy RH, West NP, Kim SH, Heald R, Storli KE, Nesbakken A, Moran B. The rationale behind complete mesocolic excision (CME) and a central vascular ligation for colon cancer in open and laparoscopic surgery : proceedings of a consensus conference. Int J Colorectal Dis. 2014.04; 29(4); 419-428

11. Ishiguro M, Higashi T, Watanabe T , Sugihara K, Japanese Society for Cancer of the Colon and Rectum Guideline Committee. Changes in colorectal cancer care in japan before and after guideline publication: a nationwide survey about D3 lymph node dissection and adjuvant chemotherapy. J Am Coll Surg. 2014.05; 218(5); 969-977.e1

12. Kobayashi H, Kikuchi A, Okazaki S, Ishiguro M, Ishikawa T, Iida S, Uetake H, Sugihara K. Over-the-scope-clipping system for anastomotic leak after colorectal surgery: report of two cases. World J Gastroenterol. 2014.06; 20(24); 7984-7987

13. Yamaguchi K, Watanabe T, Satoh T, Ishiguro M , Izawa M, Inoshiri S, Sugihara K, Sakata Y. Severe infusion reactions to cetuximab occur within 1 h in patients with metastatic colorectal cancer: results of a nationwide, multicenter, prospective registry study of 2126 patients in Japan. Jpn J Clin Oncol. 2014.06; 44(6); 541-546

14. Shinto E, Hase K, Hashiguchi Y, Sekizawa A, Ueno H, Shikina A, Kajiwara Y, Kobayashi H, Ishiguro M, Yamamoto J. CD8+ and FOXP3+ tumor-infiltrating T cells before and after chemoradiotherapy for rectal cancer. Ann Surg Oncol. 2014.06; 21 Suppl 3; S414-S421

15. Inokuchi M, Kojima K, Kato K, Sugita H, Sugihara K. Risk factors for post-operative pulmonary complications after gastrectomy for gastric cancer. Surg Infect (Larchmt). 2014.06; 15(3); 314-321

16. Kobayashi H, West NP, Takahashi K, Perrakis A, Weber K, Hohenberger W, Quirke P, Sugihara K. Quality of surgery for stage III colon cancer: comparison between England, Germany, and Japan. Ann Surg Oncol. 2014.06; 21 Suppl 3; S398-S404

17. Kobayashi H, Miyata H, Gotoh M, Baba H, Kimura W, Kitagawa Y, Nakagoe T, Shimada M, Tomita N, Sugihara K, Mori M. Risk model for right hemicolectomy based on 19,070 Japanese patients in the National Clinical Database. J. Gastroenterol.. 2014.06; 49(6); 1047-1055

18. Murase H, Inokuchi M, Takagi Y, Kato K, Kojima K, Sugihara K. Prognostic significance of the co-overexpression of fibroblast growth factor receptors 1, 2 and 4 in gastric cancer. Mol Clin Oncol. 2014.07; 2(4); 509-517

19. Yoshida M, Ishiguro M, Ikejiri K, Mochizuki I, Nakamoto Y, Kinugasa Y, Takagane A, Endo T, Shinozaki H, Takii Y, Mochizuki H, Kotake K, Kameoka S, Takahashi K, Watanabe M, Boku N, Tomita N, Nakatani E, Sugihara K. S-1 as adjuvant chemotherapy for stage III colon cancer: a randomized phase III study (ACTS-CC trial). Ann. Oncol.. 2014.09; 25(9); 1743-1749

20. Ozawa H, Kotake K, Kobayashi H, Sugihara K. Prognostic factors for peritoneal carcinomatosis originating from colorectal cancer: an analysis of 921 patients from a multi-institutional database. Surg. Today. 2014.09; 44(9); 1643-1650

21. Kobayashi H, Sugihara K. Intra-abdominal desmoid tumor after resection for gastrointestinal stromal tumor of the small intestine: case report. Jpn J Clin Oncol. 2014.10; 44(10); 982-985

22. Kobayashi H, Kotake K, Sugihara K, Study Group for Peritoneal Metastasis from Colorectal Cancer by the Japanese Society for Cancer of the Colon and Rectum. Enhancing the objectivity of the Japanese classification of peritoneal metastases from colorectal cancer. Jpn J Clin Oncol. 2014.10; 44(10); 898-902

23. Satoh T, Gemma A, Kudoh S, Sakai F, Yamaguchi K, Watanabe T, Ishiguro M, Inoshiri S, Izawa M, Sugihara K, Sakata Y. Incidence and clinical features of drug-induced lung injury in patients with advanced colorectal cancer receiving cetuximab: results of a prospective multicenter registry. Jpn J Clin Oncol. 2014.11; 44(11); 1032-1039

24. Nakagawa M, Inokuchi M, Takagi Y, Kato K, Sugita H, Otsuki S, Kojima K, Uetake H, Sugihara K. Erythropoietin-Producing Hepatocellular A1 is an Independent Prognostic Factor for Gastric Cancer. Ann Surg Oncol. 2014.11;

25. Wakatuki T, Stintzing S, Zhang W, Yang D, Azuma M, Ning Y, Yamauchi S, Matsusaka S, Volz NB, Sunakawa Y, Koizumi W, Watanabe M, Barzi A, ElKhoueiry AB, Shah MA, Lenz HJ. Single nucleotide polymorphisms in AREG and EREG are prognostic biomarkers in locally advanced gastric cancer patients after surgery with curative intent. Pharmacogenet. Genomics. 2014.11; 24(11); 539-547

26. Inokuchi M, Kojima K, Kato K, Sugita H, Sugihara K. Laparoscopy versus open distal gastrectomy for advanced gastric cancer: a systematic review and meta-analysis (Qiu J et al. Surg Laparosc Endosc Percutan Tech 2013;23:1-7). Surg Laparosc Endosc Percutan Tech. 2014.12; 24(6); 542

27. Sunakawa Y, Wakatsuki T, Yang D, Zhang W, Ning Y,Stintzing S, Stremitzer S, Yamauchi S, Sebio A, El-Khoueiry R,Iqbal S, Barzi A, Gerger A, Stotz M, Azuma M, Koizumi W, Lenz HJ. Prognostic impact of the c-MET polymorphism on the clinical outcome in locoregional gastric cancer patients. Pharmacogenet. Genomics. 2014.12; 24(12); 588-596

[Books etc]

1. Kobayashi H, Sugihara K.. Linfadenectomia lateral para el cancer de recto. Enfoque multidisciplinario del cancer colorrectal pp99-105. EDICIONES JOURNAL , 2014

[Misc]

1. Inokuchi M, Kato K, Kojima K, Sugihara K. Critical analysis of the potential for therapeutic targeting of mammalian target of rapamycin (mTOR) in gastric cancer Gastrointestinal Cancer: Targets and Therapy. 2014.04; 4; 39-48

[Conference Activities & Talks]

1. Baba H, Ishikawa T, Iwata N, Takahashi H, Kikuchi A, Okazaki S, Ishiguro M, Kobayashi H, Iida S, Uetake H, Sugihara K.. Identification of a novel biomarker related to lymph node metastasis in colorectal cancer through gene expression analysis.. Annual Society Of Surgical Oncology Cancer 2014 (67th SSO) 2014.03.13 Arizona (USA)

2. Nagahara M, Sugihara K, Mori M.. Correlated intrinsic breast cancer subtypes and expression of CD47 in BM and PB predicts poor prognosis.. Annual Society Of Surgical Oncology Cancer 2014 (67th SSO) 2014.03.13 Arizona (USA)

3. Kobayashi H, Sugihara K.. Diagnostic performance of multi-detector row CT for assessment of lymph node metastasis in patients with distal rectal cancer.. Annual Society Of Surgical Oncology Cancer 2014 (67th SSO) 2014.03.13 Arizona (USA)

4. Kobayashi H. Peritoneal metastasis from colorectal cancer: Multicenter study.. The Korean Society of Coloproctology 47th Annual Meeting. 2014.04.12

5. Kobayashi H. Video Presentation-Laparoscopic Proctectomy.. 2014 American Society of Colon and Rectal Surgeons (ASCRS) Annual Scientific Meeting 2014.05.17

6. Kobayashi H, Sugihara K.. Characteristics of colorectal Cancer in the elderly. . 2014 American Society of Colon and Rectal Surgeons (ASCRS) Annual Scientific Meeting 2014.05.20 Hollywood (USA)

7. Yamauchi S, Loupakis F, Matsusaka S, Zhang W, Yang D, Ning Y, Stintzing S, Sunakawa Y, Stremitzer S, Sebio A, El-Khoueiry RE, Pasquini G, Marmorino F, Schirripa M, Fujimoto Y, Ueno M, Mizunuma N, Lenz HJ.. Association of single nucleotide polymorphisms in genes involved in autophagy with overall survival in patients with metastatic colorectal cancer.. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

8. Sebio A, Zhang W, Yang D, Stremitzer S, Stintzing S, Ning Y, Sunakawa Y, Yamauchi S, Matsusaka S, El-Khoueiry RE, Barzi A, Iqbal S, El-Khoueiry AB, Lenz HJ.. Germline polymorphisms in genes involved in the Hippo pathway to predict recurrence in locally advanced colon cancer.. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

9. Yang D, Stremitzer S, Zhang W, Ning Y, Stintzing S, Sebio A, Sunakawa Y, Yamauchi S, Matsusaka S, El-Khoueiry RE, Stift J, Wrba F,Gruenberger T, Lenz HJ.. Association of outcome with genes involved in tumor dormancy in patients with resected colorectal liver metastases.. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

10. Sebastian Stintzing, Stefan Stremitzer, Volker Heinemann, Andreas Jung, Yu Sunakawa, Satoshi Matsusaka, Shinichi Yamauchi, Wu Zhang, Dongyun Yang, Yan Ning, Ana Sebio, Diana L. Hanna, Saadat Siamak, Heinz-Josef Lenz. Amphiregulin (AREG) SNP rs161511 to predict cetuximab efficacy independent of AREG mRNA levels: Data from FIRE3 (AIO KRK-0306).. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

11. Siamak S, Sunakawa Y, Loupakis F, Yang D, Zhang W, Ning Y, Stintzing S, Stremitzer S, Sebio A, Yamauchi S, Matsusaka S, El-Khoueiry RE, Antoniotti C, Rossini D, Cremolini C, Falcone A, Lenz HJ.. CCL2 polymorphism as a predictive marker for bevacizumab (Bev) in combination with FOLFIRI as first-line treatment in metastatic colorectal cancer (mCRC) patients (pts).. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

12. Stremitzer S, Zhang W, Yang D, Ning Y, Stintzing S, Sebio A, Sunakawa Y, Yamauchi S, Matsusaka S, El-Khoueiry RE, Stift J, Wrba F, Gruenberger T, Lenz HJ.. Influence of genetic variations of the angiopoietin and pericyte pathways in resected colorectal liver metastases.. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

13. Stremitzer S, Zhang W, Yang D, Ning Y, Stintzing S, Sebio A, Sunakawa Y, Yamauchi S, Matsusaka S, El-Khoueiry RE, Stift J, Wrba F, Gruenberger T, Lenz HJ.. Association outcome with genes involved in immune response and checkpoints in patients with resected colorectal liver metastases.. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

14. Hanna DL, Sebio A, Zhang W, Yang D, Loupakis F, Stintzing S, Stremitzer S, Ning Y, Sunakawa Y, Yamauchi S, Matsusaka S, Cremolini C, El-Khoueiry RE, Falcone A, Lenz HJ.. Common genetic variants in genes involved in the Hippo pathway: Novel biomarkers in metastatic colorectal cancer patients treated with irinotecan plus cetuximab.. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

15. Sunakawa Y, Volz NB, Zhang W, Yang D, Wakatsuki T, Ning Y, Stintzing S, Stremitzer S, Sebio A, Yamauchi S, Matsusaka S, El-Khoueiry RE, Iqbal S, Barzi A, Azuma M, Watanabe M, Koizumi W, Lenz HJ.. Genetic variants in tumor immune checkpoints as prognostic markers in patients (pts) with localized advanced gastric cancer (AGC).. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

16. Sebio A, Marmorino F, Gerger A, Zhang W, Yang D, Ning Y, Stintzing S, Stremitzer S, Sunakawa Y, Yamauchi S, Matsusaka S, Salvatore L, Cremolini C, El-Khoueiry RE, Falcone A, Lenz HJ.. Genetic variant in the down syndrome candidate region 1 (DSCR1) gene: A novel biomarker in metastatic colorectal cancer.. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

17. Stintzing S, Stremitzer S, Heinemann V, Falcone A, Loupakis F, Cremolini C, Antoniotti C, Sunakawa Y, Matsusaka S, Yamauchi S, Zhang W, Yang D, Ning Y, Sebio A, Hanna DL, Siamak S, Lenz HJ.. Biomarker validation study: Genes involved in ubiquitin proteasome system (UPS) dependent EGFR-degradation for prediction of efficacy in metastatic colorectal cancer patients treated with cetuximab.. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

18. Preusser M, Stremitzer S, Berghoff AS, Volz NB, Zhang W, Yang D, Stintzing S, Ning Y, Sunakawa Y, Yamauchi S, Sebio A, Matsusaka S, El-Khoueiry RE, Birner P, Lenz HJ.. Influence of genetic variants of genes potentially associated with brain metastases on overall survival in 70 colorectal cancer patients.. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

19. Ning Y, Stintzing S, Heinemann V, Zhang W, Yang D, Sunakawa Y, Stremitzer S, Sebio A, Yamauchi S, Matsusaka S, El-khoueiry RE, Barzi A, El-Khoueiry AB, Lenz HJ.. Genetic variants of TCF7L2 and AXIN2 predict gender and tumor location-dependent clinical outcome in FIRE-3 trial: A validation study.. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

20. Sunakawa Y, Zhang W, Yang D, Wakatsuki T, Ning Y, Stintzing S, Stremitzer S, Sebio A, Yamauchi S, Matsusaka S, El-Khoueiry RE, Iqbal S, Barzi A, Azuma M, Watanabe M, Koizumi W, Lenz HJ.. Association of polymorphisms in the CCL2/CCR2 axis with clinical outcome in localized advanced gastric cancer (AGC) patients (pts) from the United States and Japan.. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

21. Zhang W, Schumacher F, Loupakis F, van Den Berg D, Cremolini C, Stintzing S, Ning Y, Sebio A, Stremitzer S, Sunakawa Y, Matsusaka S, Yamauchi S, El-khoueiry RE, Falcone A, Lenz HJ.. High-throughput exome array for identification of novel polymorphisms associated with clinical outcome in mCRC patients treated with first-line FOLFOXIRI/BEV versus FOLFIRI/BEV (TRIBE trial; NCT00719797).. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

22. Matsusaka S, Loupakis F, Zhang W, Yang D, Ning Y, Stintzing S, Sunakawa Y, Yamauchi S, Stremitzer S, Sebio A, El-Khoueiry RE, Pasquini G, Marmorino F, Schirripa M, Inoshita N, Ishikawa Y, Ueno M, Mizunuma N, Lenz HJ.. Association of the prognostic role of CXCR4/CXCL12 polymorphism with treatment outcomes after bevacizumab-based chemotherapy in metastatic colorectal cancer.. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

23. Ning Y, Zhang W, Yang D, Stintzing S, Sunakawa Y, Stremitzer S, Sebio A, Yamauchi S, Matsusaka S, Zoratto F, Loupakis F, El-Khoueiry RE, Barzi A, El-Khoueiry AB, Kahn M, Lenz HJ.. Genetic variants of CBP and SOX9 to predict clinical outcome in metastatic colorectal cancer (mCRC) patients (pts) treated with first-line FOLFIRI and bevacizumab (FOLFIRI/BEV).. American Society of Clinical Oncology (ASCO) Annual Meeting 2014 2014.06 Chicago (USA)

24. Kobayashi H. Chair: Case reports, Gastrointestinal.. The International College of Surgeons The 60th Annual Congress of Japan Section 2014.06.14

25. Kojima K, Inokuchi M, Kato K, Sugita H, Otsuki S.. Purely laparoscopic gastrectomy. . 14th World Congress of Endoscopic Surgery 2014.06.26 Paris

26. Inokuchi M, Kato K, Sugita H, Otsuki S, Sato Y, Yoshimitsu Y, Kojima K.. Impact of comobidities on postoperative complications and overall survival in patients undergoing laparoscopy-assisted gastrectomy for gastric cancer. . 14th World Congress of Endoscopic Surgery 2014.06.26 Paris

27. Higuchi K, Kojima K, Inokuchi M, Kato K, Sugita H, Otsuki S, Kamiya A, Sato Y, Nakagawa M, Yanaka H, Kobayashi K, Sugihara K. Assessment of copper metabolism after laparoscopic gastrectomy with Roux-en-Y reconstruction for gastric cancer. . 14th World Congress of Endoscopic Surgery 2014.06.26 Paris

28. Kobayashi K, Kojima K, Inokuchi M, Kato K, Sugita S, Otsuki S, Kamiya A, Sato Y, Nakagawa M, Yanaka H.. Double tract reconstraction after proximal gastrectomy; procedure and early clinical results. . 14th World Congress of Endoscopic Surgery 2014.06.26 Paris

29. Sato Y, Inokuchi M, Kato K, Sugita H, Otsuki S, Kamiya A, Nakagawa M, Yanaka H, Kobayashi K, Kojima K.. Clinical outcome of laparoscopic proximal gastrectomy compared with total gastrectomy. . 14th World Congress of Endoscopic Surgery 2014.06.27 Paris

30. Kojima K.. Laparoscopic gastrectomy.. 3rd Latin American Symposium 2014.08.11 Chile

31. Kojima K.. Current status and future prospects for gastric cancer laparoscopic surgery.. 3rd Latin American Symposium 2014.08.11 Chile

32. Ishiguro M, Nakatani E, Kotake K, Nishimura G, Tomita N, Ichikawa W, Takahashi K, Watanabe T, Furuhata T, Kondo K, Mori M, Kakeji Y, Kanazawa A, Kobayashi M, Okajima M, Hyodo I, Tanaka S, Sugihara K.. Tumor location and histological type related to intratumoral expression of 5-FU metabolizing enzymes in stage Ⅲ colon cancer:A multicenter,prospective cohort study [B-CAST study] .. European Society of Medical Oncology (ESMO) 2014 Annual Meeting 2014.09.29 Madrid (Spain)

33. Ishikawa T, Uetake H, Murotani K, Kobunai T, Ishiguro M, Matsui S, Sugihara K.. Correlation between DNA copy number and clinicopathological features: Biomarker search using genome-wide analysis of DNA copy number alterations in a phase Ⅲ study of postoperative adjuvant chemotherapy for stage Ⅲ colon cancer (ACTS-CC trial).. European Society of Medical Oncology (ESMO) 2014 Annual Meeting 2014.09.29 Madrid (Spain)

34. Kobayashi H.. Chair: Laparoscopic low anterior resection.. The 1st KSELS International Master Class-Laparoscopic Colorectal Surgery. 2014.11.22

35. Kobayashi H. Anatomy for laparoscopic low anterior resection.. The 1st KSELS International Master Class-Laparoscopic Colorectal Surgery. 2014.11.22

Cardiovascular Medicine

Professor	Mitsuaki Isobe
Clinical Professor	Kenzo Hirao
Associate Professor	Takashi Ashikaga, Tetsuo Sasano (Graduate School of Health Care Sciences, Biofunctional Informatics)
Junior Associate Professor	Masahiko Goya
Assistant Professor	Mihoko Kawabata, Yasuhiro Maejima, Ryoko Azuma, Yusuke Ebana (Medical Research Institute, Bio-informational Pharmacology), Shunji Yoshikawa, Takeshi Sasaki, Taro Sasaoka, Yu Hatano, Daisuke Tezuka, Susumu Tao
Graduate Student	Yusuke Ito, Koji Sugiyama, Kentaro Takahashi, Natsuko Tamura, Ryo Watabe, Tetsuo Ohmi, Masahiko Setoguchi, Tomoko Manno, Daisuke Ueshima, Tomoyo Sugiyama, Kei Takayama, Chisato Takamura, Ryota Iwatsuka, Yuji Konishi, Toru Miyazaki, Yoko Kato, Yoichi Otaki, Masaaki Takigawa, Atsuhiko Yagishita, Tatsuya Fujinami, Osamu Inaba, Masahito Suzuki, Naoyuki Miwa, Rena Nakamura, Riri Watanabe, Masahiro Yamazoe, Tomoyuki Umemoto, Norifumi Murai, Shunsuke Hirose, Tetsuo Yamaguchi, Hironori Sato, Maki Ohno, Keiichi Hishikari, Takashi Nakagawa, Hidetsugu Nomoto, Yasuaki Tanaka, Tetsumin Lee, Yukihiro Inamura, Mie Seya, Tomomasa Takamiya, Kensuke Hirasawa

(1) Research

The purposes of our investigation are to reveal the etiology and pathophysiology of cardiovascular diseases, thereby developing novel technologies for diagnosis and treatment. For that purpose we investigate clinical cases and experimental animal models. Our faculty members pursue a wide variety of basic research, ranging from investigations on the molecular mechanism of heart failure to the development of novel interventional devices for patients with angina pectoris. Current strengths of the program include innovation of the next-generation drug-eluting balloon for percutaneous coronary intervention by the Chief of this Department, Mitsuaki Isobe MD, and molecular cardiology under Yasuhiro Maejima MD, PhD. We also actively investigate immunocardiology, the molecular mechanism of pulmonary hypertension and periodontitis-associated cardiovascular diseases.

1) Clinical study of gene therapy for coronary artery disease (Isobe)
2) Clinical study for treatment of acute coronary syndrome (Isobe, Ashikaga, Yoshikawa)
3) Molecular mechanism and treatment of myocardial ischemia and reperfusion injury (Isobe)
4) Molecular mechanism and treatment of coronary restenosis and vascular disease (Isobe)
5) Gene therapy of myocarditis and cardiac chronic rejection (Isobe, Suzuki)
6) Cardiac rejection and immunological tolerance (development of safe immunosuppressive therapy) (Isobe, Suzuki)
7) Treatment of heart failure and cardiomyopahty by myocardial regeneration (Isobe, Maejima)
8) Regulation of arteriosclerosis by targeting transcription factors (Isobe, Maejima)
9) Gene therapy of vascular disease (Isobe)
10) Diagnostic imaging of aortitis (Isobe)

11) Molecular mechanism and treatment of aortitis (Isobe, Maejima)
12) Assessment of vascular endothelial dysfunction in vasculitis, heart failure and arrhythmia (Isobe)
13) Application in gene therapy for heart failure and cardiomyopathy (Isobe, Maejima)
14) Molecular system of myocardial remodeling in heart failure and ventricular hypertrophy (Isobe)
15) Therapy of sleep apnea syndrome with heart failure (Isobe)
16) Assessment by imaging of coronary artery and cardiac function (Isobe, Tezuka)
17) System of origin with tachyarrhythmias (particularly supraventricular tachycardia) (Hirao)
18) Medical therapy and ablation for tachyarrhythmias (Hirao)
19) Research for the conduction of atrio-ventricular node (Hirao)
20) Research and Therapy for arrhythmia by using cardioendoscopy (Hirao)
21) Research of atrial fibrillation from origin of pulmonary vein (Hirao)
22) Research of genetic factor with atrial fibrillation (Hirao)
23) Research of ablation for atrial fibrillation (Hirao, Goya)

There are many fruitful collaborative efforts between our department and other departments with the TMDU, such as the Department of Bio-informational Pharmacology, Medical Research Institute. Collaborations with other institutions are also common. Especially, we closely collaborate with the Department of Advanced Clinical Science and Therapeutics, University of Tokyo (Junichi Suzuki MD, PhD). Our cardiologists continuously contribute to establish evidence-based cardiovascular medicine through clinical researches. So far, we are engaged in over ten clinical studies. The targets of our clinical research include heart failure, ischemic heart disease, arrhythmia, cardiac imaging and Takayasu arteritis.

(2) Education

The Department of Cardiovascular Medicine at Tokyo Medical and Dental University (TMDU) primarily aims at offering patient-centered care for every person who suffer from cardiovascular diseases, including ischemic heart diseases, arrhythmia, heart failure, valvular disorders and vasculitis. Our cardiologists are experts in electrophysiology, interventional cardiology, heart failure, and cardiac imaging who make full use of state-of-the-art diagnostic tests and therapeutic procedures to provide high-quality care for every patient. We also actively engage in basic and clinical research to elucidate the mechanism of heart & vessel disorders for providing novel therapeutic strategies to the patients of cardiovascular diseases. In addition to high-quality patient care and innovative research, our faculty members are vigorously involved in the education and training to the young physicians and researchers specializing in cardiovascular medicine. Thus, we are continuously making every effort to serve the highest quality of patient care, education and innovative research of cardiovascular medicine.

(3) Clinical Services & Other Works

Our clinical training program provides the trainee with outstanding skills in clinical cardiology. The trainees will develop their clinical knowledge, clinical judgment, procedural skills and interpersonal skills required as a specialist in cardiovascular diseases. The program provides clinical cardiology training not only at the University Hospital but also at our outstanding affiliate hospitals (N=22), including Kameda General Hospital, Musashino Red-Cross Hospital, Tsuchiura Kyodo Hospital and Yokosuka Kyosai Hospital. Our training program for research emphasizes developing academic cardiologists who will become leaders in cardiovascular research. The program offers training of basic, clinical and translational researches not only at the Graduate School of our department but also at other departments with the TMDU and at other institutions described above.

(4) Publications

[Original Articles]

1. Jun-ichi Suzuki, Yasushi Imai, Mieko Aoki, Daishi Fujita, Norio Aoyama, Yuko Tada, Kouji Wakayama, Hiroshi Akazawa, Yuichi Izumi, Mitsuaki Isobe, Issei Komuro, Ryozo Nagai, Yasunobu Hirata. Periodontitis in cardiovascular disease patients with or without Marfan syndrome–a possible role of Prevotella intermedia. PLoS ONE. 2014; 9(4); e95521

2. Takeshi Nakatani, Norihide Fukushima, Minoru Ono, Yoshikatsu Saiki, Hikaru Matsuda, Ryohei Yozu, Mitsuaki Isobe. The registry report of heart transplantation in Japan (1999-2013). Circ. J.. 2014; 78(11); 2604-2609

3. Masateru Takigawa, Atsushi Takahashi, Taishi Kuwahara, Yoshihide Takahashi, Kenji Okubo, Emiko Nakashima, Yuji Watari, Jun Nakajima, Katsumasa Takagi, Kazuya Yamao, Tadashi Fujino, Tomoyo Sugiyama, Shigeki Kimura, Hiroyuki Hikita, Takashi Irioka, Kenzo Hirao, Mitsuaki Isobe. Late-phase thromboembolism after catheter ablation for paroxysmal atrial fibrillation. Circ. J.. 2014; 78(10); 2394-2401

4. Shigeki Kimura, Hiroshi Inagaki, Go Haraguchi, Tomoyo Sugiyama, Toru Miyazaki, Yu Hatano, Shunji Yoshikawa, Takashi Ashikaga, Mitsuaki Isobe. Relationships of elevated systemic pentraxin-3 levels with high-risk coronary plaque components and impaired myocardial perfusion after percutaneous coronary intervention in patients with ST-elevation acute myocardial infarction. Circ. J.. 2014; 78(1); 159-169

5. Masato Shimizu, Mitsuhiro Nishizaki, Noriyoshi Yamawake, Hiroyuki Fujii, Harumizu Sakurada, Mitsuaki Isobe, Masayasu Hiraoka. J wave and fragmented QRS formation during the hyperacute phase in Takotsubo cardiomyopathy. Circ. J.. 2014; 78(4); 943-949

6. Manabu Kurabayashi, Kaoru Okishige, Daisuke Ueshima, Kojiro Yoshimura, Tsukasa Shimura, Hidetoshi Suzuki, Asano Mitsutoshi, Hideshi Aoyagi, Yoichi Otani, Mitsuaki Isobe. Diagnostic utility of unenhanced computed tomography for acute aortic syndrome. Circ. J.. 2014; 78(8); 1928-1934

7. Yu Hatano, Ken-ichi Nakahama, Mitsuaki Isobe, Ikuo Morita. Tumor associated osteoclast-like giant cells promote tumor growth and lymphangiogenesis by secreting vascular endothelial growth factor-C. Biochem. Biophys. Res. Commun.. 2014.03; 446(1); 149-154

8. Takigawa M, Takahashi A, Kuwahara T, Okubo K, Takahashi Y, Watari Y, Takagi K, Fujino T, Kimura S, Hikita H, Tomita M, Hirao K, Isobe M. Long-term follow-up after catheter ablation of paroxysmal atrial fibrillation: the incidence of recurrence and progression of atrial fibrillation. Circ Arrhythm Electrophysiol. 2014.04; 7(2); 267-273

9. Jun-Ichi Suzuki, Norio Aoyama, Mieko Aoki, Yuko Tada, Kouji Wakayama, Hiroshi Akazawa, Kunihiro Shigematsu, Katsuyuki Hoshina, Yuichi Izumi, Issei Komuro, Tetsuro Miyata, Yasunobu Hirata, Mitsuaki Isobe. Incidence of periodontitis in Japanese patients with cardiovascular diseases: a comparison between abdominal aortic aneurysm and arrhythmia. Heart Vessels. 2014.04;

10. Dominic P Del Re, Takahisa Matsuda, Peiyong Zhai, Yasuhiro Maejima, Mohit Raja Jain, Tong Liu, Hong Li, Chiao-Po Hsu, Junichi Sadoshima. Mst1 promotes cardiac myocyte apoptosis through phosphorylation and inhibition of Bcl-xL. Mol. Cell. 2014.05; 54(4); 639-650

11. Yasuhiro Maejima, Soichiro Usui, Peiyong Zhai, Masayuki Takamura, Shuichi Kaneko, Daniela Zablocki, Mitsuhiro Yokota, Mitsuaki Isobe, Junichi Sadoshima. Muscle-specific RING finger 1 negatively regulates pathological cardiac hypertrophy through downregulation of calcineurin A. Circ Heart Fail. 2014.05; 7(3); 479-490

12. Keiichi Hishikari, Taishi Yonetsu, Tetsumin Lee, Kenji Koura, Tadashi Murai, Toshiyuki Iwai, Takamitsu Takagi, Mitsuaki Isobe, Yoshito Iesaka, Tsunekazu Kakuta. Intracoronary electrocardiogram ST-segment elevation in patients with non-ST-segment elevation myocardial infarction and its association with culprit lesion location and myocardial injury. EuroIntervention. 2014.05; 10(1); 105-112

13. Hirofumi Zempo, Yoichiro Sugita, Masahito Ogawa, Ryo Watanabe, Jun-Ichi Suzuki, Mitsuaki Isobe. A P2X7 receptor antagonist attenuates experimental autoimmune myocarditis via suppressed myocardial CD4(+) T and macrophage infiltration and NADPH oxidase 2/4 expression in mice. Heart Vessels. 2014.05;

14. Masahiko Setoguchi, Yuji Hashimoto, Taro Sasaoka, Takashi Ashikaga, Mitsuaki Isobe. Risk factors for rehospitalization in heart failure with preserved ejection fraction compared with reduced ejection fraction. Heart Vessels. 2014.06;

15. Sinner MF, Tucker NR, Lunetta KL, Ozaki K, Smith JG, Trompet S, Bis JC, Lin H, Chung MK, Nielsen JB, Lubitz SA, Krijthe BP, Magnani JW, Ye J, Gollob MH, Tsunoda T, Müller-Nurasyid M, Lichtner P, Peters A, Dolmatova E, Kubo M, Smith JD, Psaty BM, Smith NL, Jukema JW, Chasman DI, Albert

CM, Ebana Y, Furukawa T, Macfarlane PW, Harris TB, Darbar D, Dörr M, Holst AG, Svendsen JH, Hofman A, Uitterlinden AG, Gudnason V, Isobe M, Malik R, Dichgans M, Rosand J, Van Wagoner DR; METASTROKE Consortium; AFGen Consortium, Benjamin EJ, Milan DJ, Melander O, Heckbert SR, Ford I, Liu Y, Barnard J, Olesen MS, Stricker BH, Tanaka T, Kääb S, Ellinor PT.. Integrating Genetic, Transcriptional, and Functional Analyses to Identify Five Novel Genes for Atrial Fibrillation. Circulation. 2014.08;

16. Tomoyo Sugiyama, Shigeki Kimura, Daiki Akiyama, Keiichi Hishikari, Naohiko Kawaguchi, Tetsuo Kamiishi, Hiroyuki Hikita, Atsushi Takahashi, Mitsuaki Isobe. Quantitative assessment of tissue prolapse on optical coherence tomography and its relation to underlying plaque morphologies and clinical outcome in patients with elective stent implantation. Int. J. Cardiol.. 2014.09; 176(1); 182-190

[Misc]

1. Yasuhiro Maejima, Junichi Sadoshima. SUMOylation: A Novel Protein Quality Control Modifier in the Heart. Circ. Res.. 2014.09; 115(8); 686-689

[Conference Activities & Talks]

1. Seya M, Sasaoka T, Tao S, Kurihara K, Sasaki T, Yosikawa S, Yokoyama Y, Asikaga T, Hirao K, Isobe M. Clinical characteristics of cardiac sarcoidosis;Low ejection fraction is related to ventricular tachycardia. HEART FAILURE 2014 2014.05

2. Sasaoka T, Seya M, Tao S, Kurihara K, Sasaki T, Yoshikawa S, Yokoyama Y, Ashikaga T, Hirao K, Isobe M. Long-term renal protective value of low dose carperitide (alpha-hANP) administration in patients with heart failure. HEART FAILURE 2014 2014.05

3. Setoguchi M, Noda M, Ichikawa K, Usui M, Isobe M. Sleeping pills increase the risk of cardiovascular events in heart failure patients with preserved ejection fraction. HEART FAILURE 2014 2014.05

4. Maejima Y, Adachi S, Isobe M. Synergistic Salutary Effects of HMG-CoA Reductase Inhibitor and Angiotensin II Receptor Blocker on Load-induced Heart Failure. Basic Cardiovascular Sciences 2009 Scientific Sessions of American Heart Association 2014.07 Las Vegas, NV, U.S.A.

5. Yasuhiro Maejima, Narayani Nagarajan, Peiyong Zhai, Mitsuaki Isobe, Junichi Sadoshima. Mst1 plays a protective role in response to ischemia in the heart by promoting C/EBP-β activation. American Heart Association Scientific Sessions 2012 2014.11.17 Chicago, IL, USA

6. Yasuhiro Maejima, Natsuko Tamura, Mitsuaki Isobe. Mutation of MLX gene plays an important role in the pathogenesis of Takayasu Arteritis by promoting inflammasome formation. American Heart Association Scientific Sessions 2014 2014.11.18 Chicago, IL, USA

7. Yasuhiro Maejima, Junichi Sadoshima, Mitsuaki Isobe. Suppression of autophagy by Mst1 exacerbates cardiac dysfunction by deteriorating protein quality control in the Heart . The 31st annual meeting of the International Society for Heart Research Japanese Section 2014.11.29

Anesthesiology

Professor: Koshi Makita
Associate Professor: Tokujiro Uchida
Junior Associate Professor:Jiro Kurata, Seiji Ishikawa,
Satoshi Toyama
Assistant Professor: Maiko Satomoto, Akio Masuda, Mamoru Yamamoto
Takashi Hakusui, Yusuke Ito, Akihiro Haramo, Tetsuo Koyanagi,
Akiko Kitajo, Izumi Ebana
Staff: Sonomi Tanaka,Sayomi Nagai, Takeshi Kasuga, Manami Tanaka
Yohei Tetsuyuki, Atsushi Ito
Resident: Tsubasa Akune, Tomoe Tajiri
Postgraduate Student:Fukami Nakajima,Yutaka Miura,
Yuzuru Inatomi,Hiroyuki Ito, Hiroyuki Kobinata, Eri Ikeda,
Tomoko Ishibashi, Hiroto Yamamoto, Yudai Yamamoto, Yu Qi,
Zhang Shuo, ZhongLiang Sun
Research Student:Tianjao Li, Suet May Chan

(1) Outline

A comprehensive understanding of research trends, research methods, and analysis of results by introducing the latest papers published in prestigious journals related to anesthesiology.

(2) Research

1)Discovering most effective ventilation methods for injury lungs.
2) Therapeutic mechanism of mesenchymal stem cell for lung injury (rat and mouse model)
3) Studies on the central nervous system effects of general anesthetics by human electrocorticogram and functional neuroimaging.
4) Studies on the mechanisms of cerebral pain processing and pain chronification by human functional magnetic resonance imaging and positron emission tomography.
5) Studies on the effects of protective one-lung ventilation on ventilatory mechanics.
6) Epidemiologic studies to identify incidence of, and risk factors for postoperative acute kidney injury in patients undergoing liver resection.
7) Studies on the effect of anesthetics on the developing brain.

(3) Publications

[Original Articles]

1. Toyama S, Shimoyama M, Ishida Y, Koyasu T, Szeto HH. Characterization of acute and chronic neuropathies induced by oxaliplatin in mice and differential effects of a novel mitochondria-targeted antioxidant on the neuropathies Anesthesiology. 2014.02; 120; 459-473

2. Tokujiro Uchida, Hiroyuki Ito, Hiroto Yamamoto, Nagara Ohno, Miho Asahara, Yoshitsugu Yamada, Osamu Yamaguchi, Makoto Tomita, Koshi Makita. Elevated Levels of Angiopoietin-2 as a Biomarker for

Respiratory Failure After Cardiac Surgery. J. Cardiothorac. Vasc. Anesth.. 2014.07;

3. Seiji Ishikawa, Donald E G Griesdale, Jens Lohser. Acute kidney injury within 72 hours after lung transplantation: incidence and perioperative risk factors. J. Cardiothorac. Vasc. Anesth.. 2014.08; 28(4); 943-947
4. Izumi Kawagoe, Eiichi Inada, Seiji Ishikawa, Takeshi Matsunaga, Kazuya Takamochi, Shiaki Oh, Kenji Suzuki. Perioperative management of carinal pneumonectomy: a retrospective review of 13 patients. J Anesth. 2014.10;
5. Mitaka C, Si M, Tulafu M, Qi Y, Uchida T, Abe S, Kitagawa M, Ikeda S, Eishi Y, Tomita M. Effects of atrial natriuretic peptide on inter-organ crosstalk among the kidney, lung, and heart in a rat model of renal ischemia-reperfusion injury Intensive Care Medicine Experimental. 2014.11; 2(1); 28
6. Kunio Suzuki, Sonomi Tanaka, Tokujiro Uchida, Koichi Nakazawa, Koshi Makita. Catecholamine release induces elevation in plasma lactate levels in patients undergoing adrenalectomy for pheochromocytoma. J Clin Anesth. 2014.12; 26(8); 616-622
7. Maiko Satomoto1, Akiko Suzuki1, tokujiro Uchida1, Yutaka Miyawaki2, Tatsuyuki Kawano2, Koshi Makita. Potential Influence of pre and Intraoperative factors on Postoperative Recurrence and Survival In Patients with Complete Resection of Esophageal Cancer Masui. 2014.12; 63(12); 1344-1349

[Books etc]

1. Jiro Kurata. Evidence Based Neuroanesthesia Q&A - State of the Art -. Sogo Igaku Sha, Co., Ltd., 2014.04 (ISBN : 978-4-88378-870-5)
2. Jiro Kurata. Key Points in Pain Medicine. Bunkodo, Co., Ltd., 2014.05 (ISBN : 978-4-8306-2837-5)
3. Lohser J, Ishikawa S. Chapter 6, Clinical management of one-lung ventilation. Slinger P Ed., Principles and practice of anesthesia for thoracic surgery. Springer, 2011, pp 83-101..
4. Lohser J, Ishikawa S. Chapter 5, Physiology of the lateral decubitus position, open chest, and one-lung ventilation. Slinger P Ed., Principles and practice of anesthesia for thoracic surgery. Springer, 2011, pp 71-82..

[Misc]

1. Jiro Kurata. I'm a Body Builder Journal of Clinical Anesthesia (Japan). 2014.06; 38(6); 923
2. Jiro Kurata. "See, here's your pain in the brain" - a dialogue at the Pain-Imaging Clinic Journal of Japan Society of Pain Clinicians. 2014.06; 21(3); 299
3. Jiro Kurata. Clinical applicaiton of multimodal magnetic resonance imaging to explore cerebral biomarkers of chronic pain Masui - Japanese Journal of Anesthesiology. 2014.07; 63(7); 737-742
4. Jiro Kurata. Anesthesiology 2014 Journal of Clinical Anesthesia (Japan). 2014.12; 38(12); 1745-1747

[Conference Activities & Talks]

1. Jiro Kurata. Chronic Pain Brain: Insights from Functional Neuroimaging. 2014 Annual Meeting of Chinese Association of Anesthesiologists 2014.04.19 Shanghai
2. Angiopoietin-1 and -2 as biomarkers for vascular hyperpermeability after cardiac surgery. 2014.05.15
3. Eri Ikeda, Hiroyuki Kobinata, Shuo Zhang, Tianjiao Li, Koshi Makita, Jiro Kurata. Offset analgesia is not affected by preceding thermal hyperalgesia. 2014.05.16 Yokohama
4. Hiroyuki Kobinata, Eri Ikeda, Shuo Zhang, Tianjiao Li, Koshi Makita, Jiro Kurata. Evaluation of sensory adaptation to thermal stimulation at varied rates. The 61st Annual Meeting of the Japanese Society of Anesthesiologists 2014.05.16 Yokohama
5. Shuo Zhang, Koshi Makita, Yoshitaka Kobayashi, Shinichi Konno, Jiro Kurata. Functional magnetic resonance imaging profiles of low back pain-related cerebral activity in chronic low back pain patients and healthy volunteers. The 61st Annual Meeting of the Japanese Society of Anesthesiologists 2014.05.16 Yokohama

6. Jiro Kurata. Minding the mind of subconscious self. The 9th International Symposium on Memory and Awareness in Anesthesia 2014.07.21 Tokyo

7. Jiro Kurata. Subconscious processing and chronification of pain. The 9th International Symposium on Memory and Awareness in Anesthesia 2014.07.23 Tokyo

8. Hideaki Kaneko, Shuo Zhang, Miho Sekiguchi, Jiro Kurata, Shinichi Konno. The difference of nucleus accumbens activation between chronic low back pain with or without psychiatric problems. The 9th International Symposium on Memory and Awareness in Anesthesia 2014.07.23 Tokyo

9. Jiro Kurata. "See, here's your pain in the brain" - a dialogue at the Pain-Imaging Clinic. The 48th Annual Meeting of the Japan Society of Pain Clinicians 2014.07.26 Tokyo

10. Yusuke Ito, Yudai Yamamoto, Satoshi Toyama, Seiji Ishikawa, Jiro Kurata, Koshi Makita. A case of sudden cardiac arrest due to a giant intraatrial thrombus detected by transesophageal echocardiography. The 19th Annual Meeting of the Japanese Society of Cardiovascular Anesthesiologists 2014.09.20 Suita City

11. Mariko Senda, Wei Fan, Koichi Nakazawa, Koshi Makita. Effects of inhaled aerosolized insulin on acutely injured lungs under normoglycemia: insulin may contribute to enhance alveolar liquid clearance through epithelial sodium channel expression.. 27th Annual congress of European Society of Intensive Care Medicine 2014.10.01 Barcellona, Spain

12. Mayumi Suzuki, Jiro Kurata, Koshi Makita. Succesful anesthetic management of electroconvulsive theray for a patient with severe pulmonary hypertention using a continuous infusion of remifentanil. American society of Anesthesiologists Annual Meeting 2014 2014.10.11 New Orleans

13. Manami Tanaka, Seiji Ishikawa, Fumi Maruyama, Arisa Tomozawa, Nobuhiro Shiota, Koshi Makita. Dose postoperative acute kidney injury after liver resection surgery worsen the outcome after hospital discharge?. American Society of Anesthesiologists Annual Meeting 2014 2014.10.12 New Orleans

14. Shuo Zhang, Tianjiao Li, Yoshitaka Kobayashi, Shin-ichi Konno, Koshi Makita, Jiro Kurata. Enhanced activation of the affective and reward systems in chronic low back pain patients: a functional magnetic resonance imaging study. Anesthesiology 2014 2014.10.13 New Orleans

15. Kaoru Yoshimatsu, Takashi Hakusui, Jiro Kurata, Koshi Makita. Anesthetic Management of Ovariectomy in 3 Patients with Anti-N-methyl-D-aspartate Receptor Encephalitis. Anesthesiology 2014 2014.10.13 New Orleans

16. Eri Ikeda, Hiroyuki Kobinata, Shuo Zhang, Tianjiao Li, Koshi Makita, Jiro Kurata. Thermal hyperalgesia is offset by top-down inhibition in offset analgesia. Neuroscience 2014 2014.11.16 Washington, D.C.

17. Jiro Kurata. Antidepressants benefit "chronic pain brain" - mechanistic insights from functional neuroimaging. Joint Congress of the 24th Congress of the Japanese Society of Clinical Neuropsychopharmacology (JSCNP) and the 44th Annual Meeting of the Japanese Society of Neuropsychopharmacology (JSNP) 2014.11.21 Nagoya

Cardiovascular Surgery

Professor Hirokuni ARAI
Associate Professor Tomohiro MIZUNO
Junior Associate Professor Keiji OI
Assistant Professor Masafumi YASHIMA, Tsuyoshi HACHIMARU,Shogo SAKURAI, Kenji SAKAI, Tatsuki FUJIWARA,Masashi TAKESHITA
Graduate Student Hidehito KUROKI, Taiju WATANABE
Hospital Staff 2

(1) Research

1) Developing safe and high quality surgical strategy in coronary artery bypass grafting surgery.

2) Developing new surgical technique for ischemic heart disease

3) Developing new surgical technique for beating mitral valve surgery

4) Clinical research for artificial heart

5) Research for new regenerative therapy for failing heart to recover cardiac function

(2) Education

Cardiovascular Surgery is a branch of surgery which deals with heart and vascular (mainly aortic) disease. Main objective of our department in the graduate course is to provide medical students an opportunity to study surgical anatomy, pathophysiology, pharmacology, and advanced surgical treatment for heart and aortic disease. Students are also taught basic research for the surgical treatment for heart and aortic disease. We also provide clinical training program for young surgeon to obtain Japanese cardiovascular surgical board.

(3) Clinical Performances

Our department provides well-advanced surgical treatment of heart and aortic surgery. We perform off-pump coronary artery bypass grafting for more than 90% of patients with coronary artery disease, mitral valve repair, not valve replacement, for almost all patients with mitral valve regargitation. New surgical reconstruction technique is provided for patients with functional mitral regurgitation due to severe heart failure. For elderly patients, we offer minimally invasive aortic surgery such as thoracic endovascular aortic repair (TEVAR) and hybrid aortic surgery without cardiopulmonary bypass for aortic arch and thoracoabdominal aortic disease.

(4) Publications

[Original Articles]

1. Eiki Nagaoka, Hirokuni Arai, Kiyoshi Tamura, Satoru Makita, Naoto Miyagi. Prevention of atrial fibrillation with ultra-low dose landiolol after off-pump coronary artery bypass grafting. Ann Thorac Cardiovasc Surg. 2014; 20(2); 129-134

2. Mizuno Tomohiro, Mihara Akane, Arai Hirokuni. Intracardiac and intravascular leiomyomatosis associated with a pelvic arterio-venous fistula. Ann Transl Med. 2014.05; 2(5); 48

3. Satoru Wakasa, Yoshiro Matsui, Tadashi Isomura, Shuichiro Takanashi, Atsushi Yamaguchi, Tatsuhiko Komiya, Yasunori Cho, Junjiro Kobayashi, Hitoshi Yaku, Kiyokazu Kokaji, Hirokuni Arai, Yoshiki Sawa. Risk scores for predicting mortality after surgical ventricular reconstruction for ischemic cardiomyopathy: results of a Japanese multicenter study. J. Thorac. Cardiovasc. Surg.. 2014.06; 147(6); 1868-74, 1874.e1

4. Taiju Watanabe, Hirokuni Arai, Keiji Oi, Tsuyoshi Hachimaru, Hidehito Kuroki, Tatsuki Fujiwara, Tomohiro Mizuno. Detection of internal thoracic artery dissection at coronary anastomosis using intraoperative 15-MHz high-frequency epicardial ultrasound. Circulation. 2014.06; 129(22); e513-e515

5. Taiju Watanabe, Hirokuni Arai. Leakage test during mitral valve repair. Gen Thorac Cardiovasc Surg. 2014.11; 62(11); 645-650

6. Taiju Watanabe, Hirokuni Arai, Eiki Nagaoka, Keiji Oi, Tsuyoshi Hachimaru, Hidehito Kuroki, Tatsuki Fujiwara, Tomohiro Mizuno. Influence of procedural differences on mitral valve configuration after surgical repair for functional mitral regurgitation: in which direction should the papillary muscle be relocated? J Cardiothorac Surg. 2014.12; 9(1); 185

7. Committee for Scientific Affairs, The Japanese Association for Thoracic Surgery, Munetaka Masuda, Hiroyuki Kuwano, Meinoshin Okumura, Jun Amano, Hirokuni Arai, Shunsuke Endo, Yuichiro Doki, Junjiro Kobayashi, Noboru Motomura, Hiroshi Nishida, Yoshikatsu Saiki, Fumihiro Tanaka, Kazuo Tanemoto, Yasushi Toh, Hiroyasu Yokomise. Thoracic and cardiovascular surgery in Japan during 2012 : annual report by The Japanese Association for Thoracic Surgery. Gen Thorac Cardiovasc Surg. 2014.12; 62(12); 734-764

[Conference Activities & Talks]

1. Arai H. Intra-operative Imaging for CABG and Beyond. 4th CDI International Heart Symposium 2014.03.01 Thailand

2. Arai H. Anterior Papillary Muscle Relocation: Rationale and Techniques. 4th CDI International Heart Symposium 2014.03.01 Thailand

3. Sakai K, Mizuno T, Oi K, Hachimaru T, Watanabe T, Sakurai S, Arai H.. Intraoperative Accidental Acute Type A Aortic Dissection. 22nd Annual Meeting of Asian Society for Cardiovascular and Thoracic Surgery 2014.04.04 Istanbul, Turkey

4. Sakurai S, Mizuno T, Oi K, Hachimaru T, Kuroki H, Fujiwara T, Sakai K, Arai H. Which Graft is Better for Right Coronary Artery Gastroepiploic Artery or Saphenous Vein Graft a Propensity Score Matched Long Term Analysis.. 22nd Annual Meeting of Asian Society for Cardiovascular and Thoracic Surgery 2014.04.04

5. Mizuno T, Hachimaru T, Oi K, Watanabe T, Kuroki H, Fujiwara T, Sakurai S, Sakai K, Arai H. . Hybrid Repair for Complex Aortic Arch Disease: How to Prevent Cerebrovascular Complication in Total Debranching TEVAR.. ISMICS(International Society for Minimally Invasive Cardiothoracic Surgery) 2014 Annual Scientific Meeting 2014.05.29 Boston, USA

6. Watanabe T, Arai H, Oi K, Hachimaru T, Kuroki H, Fujiwara T, Mizuno. New Strategy Using High Frequency Epicardial Ultrasound in Cardiac Surgery. ISMICS(International Society for Minimally Invasive Cardiothoracic Surgery) 2014 Annual Scientific Meeting, 2014.05.30 Boston, USA,

7. Fujiwara T, Arai H, Mizuno T, Oi K, Yashima M, Hachimaru T, Kuroki H, Watanabe T, Sakurai S, Takeshita M, Kinoshita R.. The Clinical Experience of using MERA Monopivot Centrifugal Blood Pump as an Extracorporeal Left Ventricular Assist Device.. 22nd Congress of the International Society of Rotary Blood Pumps (ISRBP 2014) 2014.09.27 San Francisco, USA

8. Arai H. Detection of Internal Thoracic Artery Dissection at Coronary Anastomosis Using Intraoperative 15-MHz High-Frequency Epicardial Ultrasound. EACTS 2014 2014.10.13 Italy

9. Arai H. Quality Assurance During CABG-Gimmick or Necessity. 24th Annual Congress of the Association of Thoracic and Cardiovascular Surgeons of Asia(ATCSA) 2014.11.06 Vietnam

10. Arai H, Watanabe T, Mizuno T. Impact of Intraoperative Imaging during Cardiac surgery using High Frequency Epicardial Ultrasound. 24th Annual Congress of the Association of Thoracic and Cardiovascular Surgeons of Asia(ATCSA) 2014.11.06 Vietnam

Nephrology

Professor	Shinichi UCHIDA
Associate Professor	Tatemitsu RAI
	Tomokazu OKADO (Dept. of Blood Purification)
	Naofumi YUI (Dept. of Chronic Kidney Disease)
Junior Associate Professor	Eisei SOHARA
Assistant Professor	Hitoshi KUWANA (Dept. of Life Science and Bioethics Research Center)
	Shotaro NAITO (Dept. of Blood Purification)
	Naohiro NOMURA
	Koichiro SUSA (Dept. of Blood Purification)
Medical fellow	Takayasu MORI
Project Assistant Professor	Soichiro IIMORI
	Yuichi INOUE
Graduate Student	Eriko KIKUCHI, Daiei TAKAHASHI, Moko ZENIYA
	Yuya ARAKI, Yutaro MORI, Humiaki ANDO
	Yuki YOSHIZAKI, Yohei ARAI, Yuri KASAGI
	Emi SASAKI, Shintaro MANDAI, Sayaka YOSHIDA
	Genryu Ou
Hospital Staff	Wakana SHODA, Seishi WATANABE, Seiko ISHIKAWA
	Hiroaki KIKUCHI, Megumi OWADA, Tamami FUJIKI
Technician	Chieko Iizima, Motoko CHIGA
Secretary	Asa MURANO, Yukiko ITO

(1) Outline

The policy of the Department of Nephrology is to accomplish trustworthy medicine and to educate excellent academic scientists and nephrologists. Our department is one of the initial institutes that started the hemodialysis therapy in Japan, and thus, has a long experience of clinical practice of kidney diseases. Recently through comprehensive genetic analysis using next generation sequencing (NGS) technology, we have been accepting a lot of genetic analyses from any institutes regardless of whether they are in or out of the country. We are now investigating mechanisms of various diseases based on genetic data and are taking a proactive stance in developing innovative therapy. We hope new young scientists and physicians join us for future science and nephrology.

(2) Research

The theme of our study is "to investigate the mechanisms of maintaining blood pressure and body fluids homeostasis regulated by the kidney and to clear the pathophysiology caused by their failure, and to develop novel strategies for their treatment." This would lead to the development of kidney disease therapy itself and would also lead to studying for multiple organ failure caused by chronic kidney disease (CKD).
In 2014, our 10 presentations were adopted in the annual meeting of American society of nephrology (ASN KIDNEY WEEK), and the articles written by Koichiro Susa, assistant professor, was accepted by Human Molecular Genetics journal. Moreover all the three articles written by Yuichi Inoue, assistant professor, and by Eriko Kikuchi, graduate student, and by Moko Zeniya, graduate student, respectively, were all accepted by the Journal of the American Society of Nephrology (IF: 9.47), which is the highest journal in the nephrology field.

All of them were presented in "press release". In addition to them, a lot of our members have got prizes in various medical meetings regardless of whether they are in or out of the country. Further, comprehensive diagnosis of inherited kidney diseases using NGS is now on track and is contributing to various genetic diagnosis of many patients. CKD-ROUTE study, which is the clinical cohort study with 1,000 subjects we take the initiative have been finished the observation period of 3 years, and useful knowledge would be expected to be obtained.

(3) Education

"Undergraduate education"
(Systematic lecture)
For the third grade of medical students, we are conducting lectures in the block form with urology and pathology section together. Under the name of "body fluid control and urology" block, the students learn intensively about kidney and urologic diseases over a period of three weeks. We are planning that they would be able to study independently and bidirectionally with the use of PBL (problem-based learning) and lectures held by actual patients.
(Project semester)
We accept 4 or 5 students every year in the project semester, and they would be expected to participate in the forefront research with graduate students together.
(Clinical clerkship)
For fifth grade students who finished the systematic lectures and project semester, we perform the lecture of pre-clinical clerkship (PCC) for three months that is more practical and comprehensive than that held in the classroom. After that, through clinical clerkship (CC), they would transfer to the training at the hospital ward and would actually take charge of patients, and study about kidney diseases while developing their clinical skills. They are in charge of one new inpatient in each week, and they would make a presentation about the inpatient at the medical conference every week, and they would be expected to learn more deeply about the pathophysiology of various kidney disease.
"Postgraduate education"
After initial training of two years after graduation, they perform clinical training as nephrologist at the University or affiliated hospitals as a senior trainee, and during this period, we teach them as they can aware about the unsolved clinical problem. We are planning to bring up them as an “academic doctor”.
Research activities at the graduate school is quite active, and by carrying out the state-of-the-art research as described above, we are performing the training of doctors who excel in both basic and clinical works.

(4) Clinical Services & Other Works

Our department is one of the initial institutes that started the hemodialysis therapy in Japan, and thus, has a long experience of clinical practice of kidney diseases. We have close coordination with affiliated hospitals, and are performing CKD-ROUTE clinical cohort study stated above in cooperation with 15 of hospitals and we are coping with revealing the pathophysiology of CKD patients.
We have been actively adopting the “educational admission” for CKD patients and it has been showing the significant inhibitory effect on progression of kidney disease. For end-stage renal disease patients, vascular access surgery, peritoneal dialysis-related surgery, and induction of dialysis are consistently carried out in our department. The total number of newly started dialysis and that of blood purification in our department has been within 3rd place among 42 hospitals belonging to national universities.

(5) Publications

[Original Articles]

1. Takahashi Yuji, Fujii Takuto, Fujita Kyosuke, Shimizu Takahiro, Higuchi Taiga, Tabuchi Yoshiaki, Sakamoto Hisato, Naito Ichiro, Manabe Koji, Uchida Shinichi, Sasaki Sei, Ikari Akira, Tsukada Kazuhiro, Sakai Hideki. Functional coupling of chloride-proton exchanger ClC-5 to gastric H+,K+-ATPase. Biol Open. 2014; 3(1); 12-21

2. Takahashi Daiei, Mori Takayasu, Nomura Naohiro, Khan Muhammad Zakir Hossain, Araki Yuya, Zeniya Moko, Sohara Eisei, Rai Tatemitsu, Sasaki Sei, Uchida Shinichi. WNK4 is the major WNK positively regulating NCC in the mouse kidney. Biosci Rep. 2014; 34(3);

3. Ihara Katsuhito, Naito Shotaro, Yamaguchi Wakaba, Mori Yutaro, Toda Takayuki, Rai Tatemitsu, Uchida Shinichi, Sasaki Sei, Matsui Noriaki. Hepatic cyst infection in an autosomal dominant polycystic kidney disease patient diagnosed by right pleural effusion. Intern Med. 2014; 53(12); 1355-1359

4. Hiroaki Kikuchi, Makoto Aoyagi, Kiyotaka Nagahama, Yu Yajima, Chisato Yamamura, Yohei Arai, Suguru Hirasawa, Shota Aki, Naoto Inaba, Hiroyuki Tanaka, Teiichi Tamura. Nephrotic-range proteinuria and interstitial nephritis associated with the use of a topical loxoprofen patch. Intern. Med.. 2014; 53(11); 1131-1135

5. Hiroaki Kikuchi, Makoto Aoyagi, Kiyotaka Nagahama, Chisato Yamamura, Yohei Arai, Suguru Hirasawa, Shota Aki, Naoto Inaba, Hiroyuki Tanaka, Teiichi Tamura. IgA-dominant postinfectious glomerulonephritis associated with Escherichia coli infection caused by cholangitis. Intern. Med.. 2014; 53(22); 2619-2624

6. Kuwahara Michio, Hasumi Syoko, Mandai Shintaro, Tanaka Tomomi, Shikuma Satomi, Akita Wataru, Mori Yoshihiro, Sasaki Sei. Rate of ankle-brachial index decline predicts cardiovascular mortality in hemodialysis patients. Ther Apher Dial. 2014.02; 18(1); 9-18

7. Yohei Arai, Eiichiro Kanda, Hiroaki Kikuchi, Chisato Yamamura, Suguru Hirasawa, Shota Aki, Naoto Inaba, Makoto Aoyagi, Hiroyuki Tanaka, Teiichi Tamura, Sei Sasaki. Decreased mobility after starting dialysis is an independent risk factor for short-term mortality after initiation of dialysis. Nephrology (Carlton). 2014.04; 19(4); 227-233

8. Hiroaki Kikuchi, Takanobu Yoshimoto, Hiroyuki Tanaka, Kazutaka Tsujimoto, Chisato Yamamura, Yohei Arai, Suguru Hirasawa, Shota Aki, Naoto Inaba, Makoto Aoyagi, Yoshihiro Ogawa, Teiichi Tamura. Periodic hypokalemia associated with cyclic Cushing' s syndrome CEN case reports. 2014.05; 3(1); 80-85

9. Ohkubo Atsushi, Okado Tomokazu, Kurashima Naoki, Maeda Takuma, Miyamoto Satoko, Nakamura Ayako, Seshima Hiroshi, Iimori Soichiro, Sohara Eisei, Uchida Shinichi, Rai Tatemitsu. Removal kinetics of antibodies against glutamic acid decarboxylase by various plasmapheresis modalities in the treatment of neurological disorders. Ther Apher Dial. 2014.06; 18(3); 231-237

10. Ohsawa Masato, Tamura Kouichi, Wakui Hiromichi, Maeda Akinobu, Dejima Toru, Kanaoka Tomohiko, Azushima Kengo, Uneda Kazushi, Tsurumi-Ikeya Yuko, Kobayashi Ryu, Matsuda Miyuki, Uchida Shinichi, Toya Yoshiyuki, Kobori Hiroyuki, Nishiyama Akira, Yamashita Akio, Ishikawa Yoshihiro, Umemura Satoshi. Deletion of the angiotensin II type 1 receptor-associated protein enhances renal sodium reabsorption and exacerbates angiotensin II-mediated hypertension. Kidney Int. 2014.09; 86(3); 570-581

11. Susa Koichiro, Sohara Eisei, Rai Tatemitsu, Zeniya Moko, Mori Yutaro, Mori Takayasu, Chiga Motoko, Nomura Naohiro, Nishida Hidenori, Takahashi Daiei, Isobe Kiyoshi, Inoue Yuichi, Takeishi Kenta, Takeda Naoki, Sasaki Sei, Uchida Shinichi. Impaired degradation of WNK1 and WNK4 kinases causes PHAII in mutant KLHL3 knock-in mice. Hum Mol Genet. 2014.10; 23(19); 5052-5060

12. Kuwahara Michio, Hasumi Syoko, Mandai Shintaro, Tanaka Tomomi, Shikuma Satomi, Akita Wataru, Mori Yoshihiro, Sasaki Sei. Effects of three kinds of erythropoiesis-stimulating agents on renal anemia in Japanese non-dialysis chronic kidney disease patients. Clin Exp Nephrol. 2014.10; 18(5); 755-762

13. Naohiro Nomura, Paula Nunes, Richard Bouley, Anil V Nair, Stanley Shaw, Erica Ueda, Nutthapoom Pathomthongtaweechai, Hua A Jenny Lu, Dennis Brown. High-throughput chemical screening identifies AG-490 as a stimulator of aquaporin 2 membrane expression and urine concentration. Am. J. Physiol., Cell Physiol.. 2014.10; 307(7); C597-C605

14. Kikuchi Eriko, Mori Takayasu, Zeniya Moko, Isobe Kiyoshi, Ishigami-Yuasa Mari, Fujii Shinya, Kagechika Hiroyuki, Ishihara Tomoaki, Mizushima Tohru, Sasaki Sei, Sohara Eisei, Rai Tatemitsu, Uchida Shinichi. Discovery of Novel SPAK Inhibitors That Block WNK Kinase Signaling to Cation Chloride Transporters. J Am Soc Nephrol. 2014.11;

15. Shintaro Mandai, Yuri Kasagi, Keita Kusaka, Satomi Shikuma, Wataru Akita, Michio Kuwahara. Helicobacter cinaedi kidney cyst infection and bacteremia in a patient with autosomal dominant polycystic kidney disease J Infect Chemother. 2014.11; 20(11); 732-734

16. Inoue Yuichi, Sohara Eisei, Kobayashi Katsuki, Chiga Motoko, Rai Tatemitsu, Ishibashi Kenichi, Horie Shigeo, Su Xuefeng, Zhou Jing, Sasaki Sei, Uchida Shinichi. Aberrant Glycosylation and Localization of Polycystin-1 Cause Polycystic Kidney in an AQP11 Knockout Model. J Am Soc Nephrol. 2014.12; 25(12); 2789-2799

17. Ishigami Junichi, Iimori Soichiro, Kuwahara Michio, Sasaki Sei, Tsukamoto Yusuke. Diagnostic value of B-type natriuretic peptide for estimating left atrial size and its usefulness for predicting all-cause mortality and cardiovascular events among chronic haemodialysis patients. Nephrology (Carlton). 2014.12; 19(12); 777-783

[Misc]

1. Uchida Shinichi, Sohara Eisei, Rai Tatemitsu, Sasaki Sei. Regulation of with-no-lysine kinase signaling by Kelch-like proteins. Biol Cell. 2014.02; 106(2); 45-56

2. Sasaki Sei, Yui Naofumi, Noda Yumi. Actin directly interacts with different membrane channel proteins and influences channel activities: AQP2 as a model. Biochim Biophys Acta. 2014.02; 1838(2); 514-520

3. Uchida Shinichi. Regulation of blood pressure and renal electrolyte balance by Cullin-RING ligases. Curr Opin Nephrol Hypertens. 2014.09; 23(5); 487-493

[Conference Activities & Talks]

1. Yuichi Inoue, Eisei Sohara, Katsuki Kobayashi, Tatemitsu Rai,Kenichi Ishibashi, Shigeo Horie, Shinichi Uchida, Sei Sasaki.. Aberrant Glycosylation and Localization of Polycystin-1 Cause Polycystic Kidney in AQP11 Knockout Mice.. The 24th annual meeting of AVP INSTITUTE. 2014.01.11 Tokyo

2. Yuichi Inoue, Eisei Sohara, Katsuki Kobayashi, Motoko Chiga, Tatemitsu Rai, Kenichi Ishibashi, Shigeo Horie, Xuefeng Su, Jing Zhou, Sei Sasaki, Shinichi Uchida. Aberrant glycosylation and localization of polycystin-1 cause polycystic kidney in AQP11-knockout mice.. The 14th Asian Pacific Congress of Nephrology 2014.05.17 Tokyo

3. Inoue Yuichi, Sohara Eisei, Kobayashi Katsuki, Rai Tatemitsu, Ishibashi Kenichi, Horie Shigeo, Sasaki Sei, Uchida Shinichi . Aberrant Glycosylation and Localization of Polycystin-1 Cause Polycystic Kidney in AQP11 Knockout Mice.. 2014.09.06 Tokyo

4. Yuki Yoshizaki. Phosphorylation of KLHL3 in the kelch-repeat regulates its binding ability to WNK4. The 47th Annual Meeting of American Society of Nephrology 2014.11 Philadelphia

5. Takayasu Mori, Kazuyoshi Hosomichi, Eisei Sohara, Tatemitsu Rai, Sei Sasaki, Ituro Inoue, Shinichi Uchida.. Comprehensive diagnosis of hereditary kidney diseases by a customized diagnostic panel of targeted exome sequencing.. The 47th Annual Meeting of the American Society of Nephrology 2014.11 Philadelphia

6. Wakaba Yamaguchi, Naofumi Yui, Toshikage Nagao, Haruna Azetsu, Soichiro Iimori, Eisei Sohara, Tomokazu Okado, Tatemitsu Rai, Sei Sasaki, Shinichi Uchida . BJP lambda-Type Multiple Myeloma Successfully Withdrawn from Maintenance Hemodialysis after Long-Term Continuous Bortezomib and Dexamethasone Therapy. American Society of Nephrology 2014.11.13 Philadelphia

7. Yuichi Inoue, Eisei Sohara, Katsuki Kobayashi, Tatemitsu Rai, Kenichi Ishibashi, Shigeo Horie, Xuefeng Su, Jing Zhou, Sei Sasaki, Shinichi Uchida. Elongated ciliary length of proximal tubules in a PKD model AQP11 knockout mouse. . The 47th Annual Meeting of American Society of Nephrology 2014.11.14 Philadelphia

8. Moko Zeniya, Nobuhisa Morimoto, Daiei Takahashi, Yutaro Mori, Takayasu Mori, Fumiaki Ando, Yuya Araki, Yuki Yoshizaki, Yuichi Inoue, Kiyoshi Ishobe, Naohiro Nomura, Katsuyuki Oi, Hidenori Nishida, Sei Sasaki, Eisei Sohara, Tatemitsu Rai, Shinichi Uchida. KLHL2 mediates angiotensin II-WNK3 singaling involved in the regulation of vascular tonus. The 47th Annual Meeting of American Society of Nephrology 2014.11.15 Philadelphia

9. Naofumi Yui, Sei Sasaki, Shinichi Uchida. Increased Phosphorylation of Ser-269 Is Not Sufficient for Regulated AQP2 Apical Accumulation. American Society of Nephrology 2014.11.15 Philadelphia

10. Koichiro Susa, Eisei Sohara, Tatemitsu Rai, Moko Zeniya, Yutaro Mori, Takayasu Mori, Motoko Chiga, Daiei Takahashi, Yuichi Inoue, Kiyoshi Isobe, Naoki Takeda, Sei Sasaki, Shinichi Uchida. Molecular Pathogenesis of PHAII in KLHL3R528H/+ Knock-In Mice. The 47th Annual Meeting of American Society of Nephrology 2014.11.15 Philadelphia

11. Yutaro Mori, Mai Wakabayashi, Takayasu Mori, Moko Zeniya, Eisei Sohara, Tatemitsu Rai, Sei Sasaki, Shinichi Uchida. p62-mediated selective autophagy is involved in KLHL3-dependent WNK4 degradation . The 47th Annual Meeting of American Society of Nephrology 2014.11.15 Philadelphia

[Awards & Honors]

1. APSselect (Naohiro Nomura, Paula Nunes, Richard Bouley, Anil V. Nair, Stanley Shaw, Erica Ueda, Nutthapoom Pathomthongtaweechai, Hua A. Jenny Lu, Dennis Brown), The American Physiological Society, 2014.11

Comprehensive Reproductive Medicine

Professor : Toshiro KUBOTA
Associate Professor : Satoshi OBAYASHI
Project Professor : Naoyuki MIYASAKA
Junior Associate Professor : Naoyuki YOSHIKI, Tatsuya HARADA
Project Associate Professor : Masakazu TERAUCHI
Project Junior Associate Professor: Akira WAKABAYASHI
Assistant Professor : Akira WAKABAYASHI, Kimio WAKANA, Tomonori ISHIKAWA, Mikayo TOBA, Rie OI, Makiko EGAWA, Yuki IWAHARA, Noriko OSHIMA- SUDO, Shiro HIRAMITSU, Masato YAMANAKA, Asami HIRATA, Yoshinori OKURA
Hospital Staff : Takeru ICHIMURA, Masaomi WAKAMATSU, Takanori YOSHIDA, Yukiko FUSE, Akiko FURUSAWA, Mayumi ONIZUKA
Graduate Student : Yoshinori OKURA, Reiko SHIRAI, Atsushi YAMAMOTO, Makoto IIZUKA, Kiyotaka TAKAGI, Izumi HONDA, Aiko TAKATA, Asuka HIROSE, Takashi NAKASUJI, Kazuki SAITO, Akiko FURUSAWA, Takuto MATSUURA, Mikiko YAMADA

(1) Research

Research divisions :
1) Research in physiology, endocrinology and metabolism in the reproductive medicine
2) Research of female physical and mental change with aging
3) Pathophysiological examination of gynecological malignant tumor
4) Clinical research and basic research in perinatal medicine

Available scientific procedures :
1, Cell culture technique of ovarian granulosa cells, endometrial cells, malignant cells, osteoblast and so on.
2, Determination of intracellular calcium (by Fura 2 method and patch clump)
3, Measurement of intra-cellular IP3
4, Hormonal assay in plasma, urine, follicular fluid (RIA & EIA)
5, Immunohistochemistry with ABC method
6, Analysis of micro-structure with electrical microscopy
7, Determination with molecular biological technique.
8, Physiological determination with isometric tension change
9, Determination of cerebral blood flow with MRI in cerebral infarction
10, Analysis of protein expression with flow cytometry

(2) Education

CRM (OB/GY) department has an obligation to offer medical services, education, research as one of the clinical departments in national graduate school, and has duty on making a mutual cooperation with local gynecological institutions.
Our main objectives are
1, Investigation for a new progress in treatment technique

2, Acquisition of medical knowledge and procedure
3, Providing systemic lecture about women' s physiological and pathological change during adolescence through senescence.
Aims of research works are focusing on reproductive medicine, perinatal medicine and oncology.
Educational intention in medical doctor course and nursing course includes systemic lectures, clinical conferences and special lecture by many extramural speakers. During Bed-Side Learning period, students should be treated as one of medical stuffs, attend all of deliveries and be present at gynecological procedure. Several OB/GY institutions will be provided as an extramural drills.

(3) Clinical Performances

For intractable sterilization, satisfactory results are obtained with endoscopic examinations and IVF-ET methods. Health care unit for menopausal women was established , where inspections for atherosclerosis, osteoporosis (DEXA), autonomic nervous system are performed, and postmenopausal managements are provided including HRT, mental care and counseling.
After construction of LDR(labor, delivery, recovery) unit, cure for complicated pregnancies is now carried out, and cases of deliveries are rising now.
Malignant gynecological tumor is also an important aim of this department, for which surgery, chemotherapy and radiotherapy with complete cure are applied to patients. For benign tumor and endometriosis, laparoscopic operations are aggressively performed, whose number is now increasing.

(4) Publications

[Original Articles]

1. Uno M, Saitoh Y, Mochida K, Tsuruyama E, Kiyono T, Imoto I, Inazawa J, Yuasa Y, Kubota T, Yamaoka S. NF-κ B Inducing Kinase, a Central Signaling Component of the Non-Canonical Pathway of NF-κ B, Contributes to Ovarian Cancer Progression. PLoS ONE. 2014; 9(2); e88347

2. Masakazu Terauchi, Shiro Hiramitsu, Mihoko Akiyoshi, Yoko Owa, Kiyoko Kato, Satoshi Obayashi, Eisuke Matsushima, Toshiro Kubota. Effects of the kampo formula tokishakuyakusan on headaches and concomitant depression in middle-aged women. Evid Based Complement Alternat Med. 2014; 2014; 593560

3. Tsukamoto Satoshi, Hara Taichi, Yamamoto Atsushi, Kito Seiji, Minami Naojiro, Kubota Toshiro, Sato Ken, Kokubo Toshiaki. Fluorescence-based visualization of autophagic activity predicts mouse embryo viability. Sci Rep. 2014; 4; 4533

4. Mitsuhiro Kishino, Naoyuki Miyasaka, Yuko Takeguchi, Isamu Ohashi. Retrograde transvenous obliteration for uterine arteriovenous malformation. Obstet Gynecol. 2014.02; 123(2 Pt 2 Suppl 2); 427-430

5. Ichiro Yamada, Keigo Hikishima, Naoyuki Miyasaka, Yutaka Tokairin, Eisaku Ito, Tatsuyuki Kawano, Daisuke Kobayashi, Yoshinobu Eishi, Hideyuki Okano. Esophageal carcinoma: Evaluation with q-space diffusion-weighted MR imaging ex vivo. Magn Reson Med. 2014.06;

6. Nakasuji Takashi, Saito Hidekazu, Araki Ryuichiro, Nakaza Aritoshi, Kuwahara Akira, Ishihara Osamu, Irahara Minoru, Kubota Toshiro, Yoshimura Yasunori, Sakumoto Tetsuro. Validity for assisted hatching on pregnancy rate in assisted reproductive technology: analysis based on results of Japan Assisted Reproductive Technology Registry System 2010. J Obstet Gynaecol Res. 2014.06; 40(6); 1653-1660

7. Yamada I, Hikishima K, Miyasaka N, Kawano T, Tokairin Y, Ito E, Kobayashi D, Eishi Y, Okano H. Esophageal carcinoma: ex vivo evaluation with diffusion-tensor MR imaging and tractography at 7 T. Radiology. 2014.07; 272(1); 164-173

8. Umetani Michihisa, Ghosh Pritam, Ishikawa Tomonori, Umetani Junko, Ahmed Mohamed, Mineo Chieko, Shaul Philip W. The cholesterol metabolite 27-hydroxycholesterol promotes atherosclerosis via proinflammatory processes mediated by estrogen receptor alpha. Cell Metab. 2014.07; 20(1); 172-182

9. Nakasuji Takashi, Saito Hidekazu, Araki Ryuichiro, Nakaza Aritoshi, Nakashima Akira, Kuwahara Akira, Ishihara Osamu, Irahara Minoru, Kubota Toshiro, Yoshimura Yasunori, Sakumoto Tetsuro. The incidence of monozygotic twinning in assisted reproductive technology: analysis based on results from the 2010 Japanese ART national registry. J Assist Reprod Genet. 2014.07; 31(7); 803-807

10. Yamamoto Atsushi, Mizushima Noboru, Tsukamoto Satoshi. Fertilization-induced autophagy in mouse embryos is independent of mTORC1. Biol Reprod. 2014.07; 91(1); 7

11. Yamada I, Hikishima K, Miyasaka N, Tokairin Y, Kawano T, Ito E, Kobayashi D, Eishi Y, Okano H, Shibuya H. Diffusion-tensor MRI and tractography of the esophageal wall ex vivo. J Magn Reson Imaging. 2014.09; 40(3); 567-576

12. Masakazu Terauchi, Noe Horiguchi, Asuka Kajiyama, Mihoko Akiyoshi, Yoko Owa, Kiyoko Kato, Toshiro Kubota. Effects of grape seed proanthocyanidin extract on menopausal symptoms, body composition, and cardiovascular parameters in middle-aged women: a randomized, double-blind, placebo-controlled pilot study. Menopause. 2014.09; 21(9); 990-996

13. Naoyuki Miyasaka, Mihoko Akiyoshi, Toshiro Kubota. Relationship between autonomic nervous system activity and bone mineral density in non-medicated perimenopausal women. J. Bone Miner. Metab.. 2014.09; 32(5); 588-592

14. Honda I, Taki A, Morioka C, Oshima N, Toba M, Komaki M, Morio T, Miyasaka N, Kubota T, Morita I. A novel rat model of intra-uterine infection using lipopolysaccharide: evaluation of placental and neonatal complications. Placenta . 2014.10; 35(10); A13

15. Masakazu Terauchi, Asuka Hirose, Mihoko Akiyoshi, Yoko Owa, Kiyoko Kato, Toshiro Kubota. Subgrouping of Japanese middle-aged women attending a menopause clinic using physical and psychological symptom profiles: a cross-sectional study BMC Women's Health. 2014.11; 14(1); 148

16. Takata Aiko, Terauchi Masakazu, Hiramitsu Shiro, Uno Masaya, Wakana Kimio, Kubota Toshiro. Dkk-3 Induces Apoptosis Through Mitochondrial and Fas Death Receptor Pathways in Human Mucinous Ovarian Cancer Cells. Int J Gynecol Cancer. 2014.12;

17. Noji A, Sugiyama M, Minowa H, Kushiro W, Yuhki M, Ono Y, Kubota T, Obayashi S, Aso T. [A study on nursing and health promotion for menopausal women. Development and evaluation of systematic style modification support at a menopause clinic] Kango Kenkyu. 30(3); 193-202

[Conference Activities & Talks]

1. Yamamoto A, Tsukamoto S, Harada T, Mizushima N, Kubota T. Fertilization-induced autophagy in mouse embryos is independent of mTORC1. . 53rd Annual Congress of TAOG 2014.03.08 Taipei

2. Oshima-Sudo N , Honda I, Nakahama K, Kubota T, Morita I. Tissue engineered lymphatic microvessels using cell-printing technology.. 18th International Vascular Biology Meeting 2014.04.14 Kyoto

3. Ohkura Y, Obayashi S, Yamada M, Yamada K, Ueno T , Uchiyama S, Kubota T. Increased Nitric Oxide Production in S-equol treated Rat Thoracic Aorta.. 18th International Vascular Biology Meeting 2014.04.14 Kyoto

4. Iiduka M, Miyasaka N, Egawa M, Oi R, Toba M, Kubota T. Relationship among arterial diameter,vascular endothelial function and autonomic nervous activity during pregnancy.. 18th International Vascular Biology Meeting 2014.04.14 Kyoto

5. Honda I, Morioka C, Taki A, Oshima-Sudo N , Komaki M, Kubota T, Morita I. Assessment of placental and neonatal complication in rat intra-uterine inflamm ation model.. 18th International Vascular Biology Meeting 2014.04.14 Kyoto

6. Yamamoto A, Tsukamoto S, Harada T, Mizushima N, Kubota T. Fertilization-induced autophagy in mouse embryos is independent of mTORC1. . 66th Annual Congress of the Japan Society of Obstetrics and Gynecology 2014.04.18 Tokyo

7. Rie OI. Timing of isthmic effacement associates with preterm delivery.. 24th World Congress on Ultrasound in Obstetrics and Gynecology in Barcelona 2014.09.14 Spain

8. Iiduka M, Miyasaka N, Egawa M, Oi R, Toba M, Kubota T. Autonomic nervous activity during pregnancy Are there any differences between nulliparous and multiparous?.. 46th International Congress on Pathophysiology of pregnancy 2014.09.18 Tokyo

9. Masakazu Terauchi, Asuka Hirose, Mihoko Akiyoshi, Yoko Owa, Kiyoko Kato, Toshiro Kubota. Prevalence and Determinants of Lower Urinary Tract Symptoms in Peri- and Postmenopausal Women. North American Menopause Society 25th Annual Meeting 2014.10.16 Washington DC

10. Asuka Hirose, Masakazu Terauchi, Mihoko Akiyoshi, Yoko Owa, Kiyoko Kato, Toshiro Kubota. Low-dose isoflavone aglycone supplement alleviates menopausal symptoms :a randomized, double-blind, placebo-controlled study. North American Menopause Society 25th Annual Meeting 2014.10.16 Washington DC

11. Asuka Hirose, Masakazu Terauchi, Moe Tamura, Mihoko Akiyoshi, Yoko Owa, Kiyoko Kato, Toshiro Kubota. Tomato juice intake lowers serum triglycerides and blood pressure in midlife women. North American Menopause Society 25th Annual Meeting 2014.10.16 Washington DC

12. Asuka Hirose, Masakazu Terauchi, Moe Tamura, Mihoko Akiyoshi, Yoko Owa, Kiyoko Kato, Toshiro Kubota. Oxidative stress is associated with depression in midlife women. North American Menopause Society 25th Annual Meeting 2014.10.16 Washington DC

13. Saito K, Yoshida A, Kobori Y, Tanaka Y, Katsumi M, Miyado M, Ogata T, Kubota T, Saito H, Fukami M, Okada H. Genomic variation in the AZF region associated with the risk of azoospermia. . The ASRM 2014 Annual Meeting 2014.10.22 Hawaii

14. Furusawa A, Uno M, Mori M, Kino N, Ozaki Y, Kubota T, Yasugi T. Clinical benefits of secondary debulking surgery for recurrent ovarian cancer.. 15th Biennial Meeting of the International Gynecologic Cancer Society 2014.11.08 Melbourne

15. Toba M, Miyasaka N, Oshima-Sudo N, Wakana K, Wakabayashi A, Kubota T. Differences in apparent diffusion coefficients between malignant and low malignant potential solid ovarian tumors.. 15th Biennial Meeting of the International Gynecologic Cancer Society 2014.11.08 Melbourne

16. Oshima-Sudo N, Furusawa A, Wakana K, Wakabayashi A, Terauchi M, Obayashi S, Kubota T. Effect of herbal medicine Daikenchuto for the prevention of postoperative ileus in gynecologic cancers.. 15th Biennial Meeting of the International Gynecologic Cancer Society 2014.11.08 Melbourne

17. Takagi K. The gene expression of the mammalian pre-implantation embryos. 67th Korean Society for Reproductive Medicine (KSRM) 2014.11.29 Seoul

[Awards & Honors]

1. NAMS New Intestigator Travel Awards (Asuka Hirose), 2014.01

Urology

Professor and Chairman: Kazunori Kihara
Associate Professor: Yasuhisa Fujii
Lecturer: Kazutaka Saito, Noboru Numao (-November, December- Department of Insured Medical Care Management), Yoh Matsuoka(December-), Junichiro Ishioka (Center for Minimally Invasive Surgery)
Assistant Professor: Yoh Matsuoka(-November), Minato Yokoyama (April-), Soichiro Yoshida, Manabu Tatokoro (April-), Masaya Ito (October-), Toshiki Kijima (-February), Yasukazu Nakanishi (-March)
Hospital Staff: Naoko Kawamura (July-), Hideki Takeshita (-April), Masaya Ito (-September), Masaharu Inoue, Hajime Tanaka (July-), Takayuki Nakayama, Shingo Moriyama, Yuma Waseda (November-), Saori Araki (-March), Makoto Kagawa (April-October), Yudai Ishikawa (-March), Yusuke Uchida (-October)
Graduate Student Naoko Kawamura, Naotaka Fukui (-March), Sachi Kitayama, Toshihiro Kanda, Masaya Ito (-March), Masaharu Inoue, Hajime Tanaka, Takayuki Nakayama, Saori Araki, Yosuke Yasuda (April-), Sho Uehara (April-)

(1) Outline

Our mission is to establish and provide the best urological care to all patients in the super aging society which all over the world is facing. Besides offering urological practices of the international standard, we are making a continuous effort to improve daily practices based on the evidences of the clinical and translational research which we commit under the concept of "Bed to Bench, Feedback to Bed". The continuous commitment to clinical and translational research is reflected to publications in international journals, presentations at international meetings and awards.

(2) Research

Clinical Research
1) Innovation and establishment of a minimally invasive surgery, RoboSurgeon gasless single port access urological surgery
2) Development of optimal MRI-ultrasonography fusion prostate needle biopsy
3) Sequential combination therapy to prolong survival of advanced prostate cancer patients
4) Development and establishment of curative and minimally invasive bladder preservation using low-dose chemoradiotherapy plus RoboSurgeon gasless single port access partial cyctectomy
5) Development and establishment of RoboSurgeon gasless single port access nonischemic nephron-sparing surgery against kidney cancer
6) Development and establishment of focal therapy using hemiablative brachytherapy against prostate cancer
7) Sequential combination therapy to prolong survival of advanced kidney cancer patients, starting with immunotherapy combined with multiple molecular targeted agents
8) Application of diffusion-weighed MRI to diagnosis, assessment of therapeutic effects and monitoring of relapse in urological cancer
9) Application of serum C-reactive protein as a prognostic biomarker of urological malignancies and as a marker for surgical invasiveness
10) Development of prognostic prediction model for non-muscle invasive bladder cancer
Translational Research
1) Development of differentiation-inducing therapy against hormone-resistant prostate carcinomas
2) Investigation on molecular mechanisms, in particular deregulation of the NO system, underlying voiding and erectile dysfunction to develop rational therapy

3) Overcoming therapeutic resistance to chemo- and/or radiotherapy against urological malignancies using novel molecular targeted agents
4) Investigation on functional roles of p63 protein in urothelial carcinomas

(3) Lectures & Courses

Our top priority is to establish the best urological practice in the super aging society which all over the world is facing. We are committed to offering educational programs to facilitate the development of outstanding academic urologists of the next generation. We believe that one of our missions is to educate students, residents and fellows in the art and science of urology and thereby to train the future leaders in the field. The continuous commitment to clinical and translational research is reflected to publications in international journals, presentations at international meetings and awards.

(4) Clinical Performances

Our mission is to provide the best urological care to all patients. Besides offering urological practices of the international standard, we are making a continuous effort to improve daily practices. The RoboSurgeon gasless single port access urological surgery, which we have innovated its concept and developed surgical techniques specific to all urological organs, has been officially approved as medical services provided by the Japanese Governmental Health Insurance System in April 2008. These minimally invasive surgical techniques can be fundamentally applied to all patients having urological malignancies, even those having locally advanced disease and previous histories of abdominal surgery.

(5) Publications

[Original Articles]

1. Yachida Yuki, Yoshida Soichiro, Takeshita Hideki, Sawamura Chigusa, Tanaka Hiroshi, Satoh Shiro, Uchida Yusuke, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Koga Fumitaka, Saito Kazutaka, Fujii Yasuhisa, Kihara Kazunori. Bone abnormal signal incidentally found in pre-biopsy diffusion-weighted MRI for suspected prostate cancer: what does it reflect? Urol Int. 2014; 93(2); 170-175

2. Ishioka J, Kihara K, Higuchi S, Nakayama T, Takeshita H, Yoshida S, Nakanishi Y, Kijima T, Matsuoka Y, Numao N, Saito K, Fujii Y.. New head-mounted display system applied to endoscopic management of upper urinary tract carcinomas. Int Braz J Urol. 2014; 40(6); 842-845

3. Kobayashi Shuichiro, Fujii Yasuhisa, Koga Fumitaka, Yokoyama Minato, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Masuda Hitoshi, Kihara Kazunori. Impact of bladder neck involvement on progression in patients with primary non-muscle invasive bladder cancer: a prospective validation study. Urol Oncol. 2014.01; 32(1); 38.e29-38.e36

4. Kobayashi Shuichiro, Koga Fumitaka, Kajino Kohei, Yoshita Soichiro, Ishii Chikako, Tanaka Hiroshi, Saito Kazutaka, Masuda Hitoshi, Fujii Yasuhisa, Yamada Tetsuo, Kihara Kazunori. Apparent diffusion coefficient value reflects invasive and proliferative potential of bladder cancer. J Magn Reson Imaging. 2014.01; 39(1); 172-178

5. Urakami Shinji, Fujii Yasuhisa, Yamamoto Shinya, Yuasa Takeshi, Kitsukawa Shinichi, Sakura Mizuaki, Yano Akihiro, Saito Kazutaka, Masuda Hitoshi, Yonese Junji, Fukui Iwao. Phase II trial of first-line chemotherapy with gemcitabine, etoposide, and cisplatin for patients with advanced urothelial carcinoma. Urol Oncol. 2014.01; 32(1); 35.e1-35.e7

6. Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Tanaka Hiroshi, Kumagai Jiro, Yoshida Soichiro, Koga Fumitaka, Masuda Hitoshi, Kawakami Satoru, Fujii Yasuhisa, Kihara Kazunori. Combination of diffusion-weighted magnetic resonance imaging and extended prostate biopsy predicts lobes without significant cancer: application in patient selection for hemiablative focal therapy. Eur Urol. 2014.01; 65(1); 186-192

7. Jibiki Masatoshi, Inoue Yoshinori, Kudo Toshifumi, Toyofuku Takahiro, Saito Kazutaka, Kihara Kazunori, Kudo Atsushi, Ban Daisuke, Arii Shigeki. Combined resection of a tumor and the inferior vena cava: report of two cases. Surg Today. 2014.01; 44(1); 166-170

8. Fujii Yasuhisa, Yamamoto Shinya, Yonese Junji, Masuda Hitoshi, Urakami Shinji, Kitsukawa Shinichi, Sakura Mizuaki, Yuasa Takeshi, Kihara Kazunori, Fukui Iwao. The processus vaginalis transection method to prevent postradical prostatectomy inguinal hernia: long-term results. Urology. 2014.01; 83(1); 247-252

9. Mollapour Mehdi, Bourboulia Dimitra, Beebe Kristin, Woodford Mark R, Polier Sigrun, Hoang Anthony, Chelluri Raju, Li Yu, Guo Ailan, Lee Min-Jung, Fotooh-Abadi Elham, Khan Sahar, Prince Thomas, Miyajima Naoto, Yoshida Soichiro, Tsutsumi Shinji, Xu Wanping, Panaretou Barry, Stetler-Stevenson William G, Bratslavsky Gennady, Trepel Jane B, Prodromou Chrisostomos, Neckers Len. Asymmetric Hsp90 N domain SUMOylation recruits Aha1 and ATP-competitive inhibitors. Mol Cell. 2014.01; 53(2); 317-329

10. Ishioka Junichiro, Saito Kazutaka, Kijima Toshiki, Nakanishi Yasukazu, Yoshida Soichiro, Yokoyama Minato, Matsuoka Yoh, Numao Noboru, Koga Fumitaka, Masuda Hitoshi, Fujii Yasuhisa, Sakai Yasuyuki, Arisawa Chizuru, Okuno Tetsuo, Nagahama Katsuhi, Kamata Shigeyoshi, Sakura Mizuaki, Yonese Junji, Morimoto Shinji, Noro Akira, Tsujii Toshihiko, Kitahara Satoshi, Gotoh Shuichi, Higashi Yotsuo, Kihara Kazunori. Risk stratification for bladder recurrence of upper urinary tract urothelial carcinoma after radical nephroureterectomy. BJU Int. 2014.02;

11. Nakayama Takayuki, Saito Kazutaka, Ishioka Junichiro, Kawano Keizo, Morimoto Shinji, Matsuoka Yoh, Okuno Tetsuo, Moriyama Shingo, Takeshita Hideki, Noro Akira, Fujii Yasuhisa, Kihara Kazunori. External validation of TNM-C score in three community hospital cohorts for clear cell renal cell carcinoma. Anticancer Res. 2014.02; 34(2); 921-926

12. Nakayama T, Saito K, Ishioka J, Kawano K, Morimoto S, Matsuoka Y, Okuno T, Moriyama S, Takeshita H, Noro A, Fujii Y, Kihara K. External validation of TNM-C score in three community hospital cohorts for clear cell renal cell carcinoma. Anticancer Res. 2014.02; 34(2); 921-926

13. Yokoyama Minato, Fujii Yasuhisa, Takeshita Hideki, Kawamura Naoko, Nakayama Takayuki, Iimura Yasumasa, Sakura Mizuaki, Ishioka Junichiro, Saito Kazutaka, Koga Fumitaka, Masuda Hitoshi, Noro Akira, Arisawa Chizuru, Kitahara Satoshi, Kihara Kazunori. Renal function after radical nephrectomy: development and validation of predictive models in Japanese patients. Int J Urol. 2014.03; 21(3); 238-242

14. Bae Hyeyeol, Yoshida Soichiro, Matsuoka Yoh, Nakajima Hiroshi, Ito Eisaku, Tanaka Hiroshi, Oya Miyako, Nakayama Takayuki, Takeshita Hideki, Kijima Toshiki, Ishioka Junichiro, Numao Noboru, Koga Fumitaka, Saito Kazutaka, Akashi Takumi, Fujii Yasuhisa, Kihara Kazunori. Apparent diffusion coefficient value as a biomarker reflecting morphological and biological features of prostate cancer. Int Urol Nephrol. 2014.03; 46(3); 555-561

15. Matsuoka Yoh. Editorial Comment to Soft coagulation in partial nephrectomy without renorrhaphy: feasibility of a new technique and early outcomes. Int J Urol. 2014.03; 21(3); 248

16. Takeshita Hideki, Kawakami Satoru, Numao Noboru, Sakura Mizuaki, Tatokoro Manabu, Yamamoto Shinya, Kijima Toshiki, Komai Yoshinobu, Saito Kazutaka, Koga Fumitaka, Fujii Yasuhisa, Fukui Iwao, Kihara Kazunori. Diagnostic performance and safety of a three-dimensional 14-core systematic biopsy method. BJU Int. 2014.04;

17. Moriyama Shingo, Takeshita Hideki, Adachi Akiko, Arai Yoshiaki, Higuchi Saori, Tokairin Takuo, Chiba Koji, Nakagawa Koji, Noro Akira. Simultaneous bilateral testicular metastases from renal clear cell carcinoma: A case report and review of the literature. Oncology Letters. 2014.04; 7(4); 1273-1275

18. Koga Fumitaka, Kobayashi Shuichiro, Fujii Yasuhisa, Ishioka Junichiro, Yokoyama Minato, Nakanishi Yasukazu, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Masuda Hitoshi, Kihara Kazunori. Significance of positive urine cytology on progression and cancer-specific mortality of non–muscle-invasive bladder cancer. Clin Genitourin Cancer. 2014.06; 12(3); e87-e93

19. Yamamoto Shinya, Fujii Yasuhisa, Masuda Hitoshi, Urakami Shinji, Saito Kazutaka, Kozuka Takuyo, Oguchi Masahiko, Fukui Iwao, Yonese Junji. Longitudinal change in health-related quality of life after intensity-modulated radiation monotherapy for clinically localized prostate cancer. Qual Life Res. 2014.06; 23(5); 1641-1650

20. Fukui Naotaka, Kageyama Yukio, Higashi Yotsuo, Kihara Kazunori, Kizaka-Kondoh Shinae, Hiraoka Masahiro, Shinojima Toshiaki, Suzuki Kenjiro, Oya Mototsugu. Development of a novel interferon-alpha2b gene construct with a repetitive hypoxia-inducible factor binding site and its suppressive effects on human renal cell carcinoma cell lines in vitro. Int J Clin Oncol. 2014.06; 19(3); 497-504

21. Takayuki Nakayama, Kazutaka Saito, Yasuhisa Fujii, Shiho Abe-Suzuki, Yasukazu Nakanishi, Toshiki Kijima, Soichiro Yoshida, Junichiro Ishioka, Yoh Matsuoka, Noboru Numao, Fumitaka Koga, Kazunori Kihara. Pre-operative risk stratification for cancer-specific survival in patients with renal cell carcinoma with venous involvement who underwent nephrectomy. Jpn. J. Clin. Oncol. 2014.08; 44(8); 756-761

22. Yoshida Soichiro, Kihara Kazunori, Takeshita Hideki, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa. Head-Mounted Display for a Personal Integrated Image Monitoring System: Ureteral Stent Placement. Urol Int. 2014.08;

23. Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Tanaka Hiroshi, Kumagai Jiro, Yoshida Soichiro, Ishioka Junichiro, Koga Fumitaka, Masuda Hitoshi, Kawakami Satoru, Fujii Yasuhisa, Kihara Kazunori. Candidate selection for quadrant-based focal ablation through a combination of diffusion-weighted magnetic resonance imaging and prostate biopsy. BJU Int. 2014.08;

24. Takeshita Hideki, Kihara Kazunori, Yoshida Soichiro, Higuchi Saori, Ito Masaya, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa. Clinical application of a modern high-definition head-mounted display in sonography. J Ultrasound Med. 2014.08; 33(8); 1499-1504

25. Kagawa Makoto, Takeshita Hideki, Moriyama Shingo, Adachi Akiko, Chiba Koji, Noro Akira.. IgG4-related prostatitis impairs objective urinary function in a manner similar to benign prostate hyperplasia and can be successfully treated with transurethral resection: A case report. Low Urin Tract Symptoms. 2014.09; 6(3); 187-189

26. Yoshida Soichiro, Kihara Kazunori, Takeshita Hideki, Fujii Yasuhisa. Instructive head-mounted display system: pointing device using a vision-based finger tracking technique applied to surgical education. Wideochir Inne Tech Malo Inwazyjne. 2014.09; 9(3); 449-452

27. Junichiro Ishioka, Hitoshi Masuda, Toshiki Kijima, Manabu Tatokoro, Soichiro Yoshida, Minato Yokoyama, Yoh Matsuoka, Noboru Numao, Fumitaka Koga, Kazutaka Saito, Yasuhisa Fujii, Yasuyuki Sakai, Chizuru Arisawa, Tetsuo Okuno, Katsuhi Nagahama, Shigeyoshi Kamata, Junji Yonese, Yukio Kageyama, Akira Noro, Shinji Morimoto, Toshihiko Tsujii, Satoshi Kitahara, Shuichi Gotoh, Kazunori Kihara. Bimodal pattern of the impact of body mass index on cancer-specific survival of upper urinary tract urothelial carcinoma patients. Anticancer Res.. 2014.10; 34(10); 5683-5688

28. Inoue Masaharu, Koga Fumitaka, Yoshida Soichiro, Tamura Tomoki, Fujii Yasuhisa, Ito Eisaku, Kihara Kazunori. Significance of ERBB2 overexpression in therapeutic resistance and cancer-specific survival in muscle-invasive bladder cancer patients treated with chemoradiation-based selective bladder-sparing approach. Int J Radiat Oncol Biol Phys. 2014.10; 90(2); 303-311

29. Ishioka J, Masuda H, Kijima T, Tatokoro M, Yoshida S, Yokoyama M, Matsuoka Y, Numao N, Koga F, Saito K, Fujii Y, Sakai Y, Arisawa C, Okuno T, Nagahama K, Kamata S, Yonese J, Kageyama Y, Noro A, Morimoto S, Tsujii T, Kitahara S, Gotoh S, Kihara K. Bimodal pattern of the impact of body mass index on cancer-specific survival of upper urinary tract urothelial carcinoma patients. Anticancer Res. 2014.10; 34(10); 5683-5688

30. Uchida Y, Yoshida S, Kobayashi S, Koga F, Ishioka J, Satoh S, Ishii C, Tanaka H, Matsuoka Y, Numao N, Saito K, Masuda H, Fujii Y, Kihara K. Diffusion-weighted MRI as a potential imaging biomarker reflecting the metastatic potential of upper urinary tract cancer. Br J Radiol. 2014.10; 87(1042); 20130791

31. Ishioka Junichiro, Kihara Kazunori, Higuchi Saori, Nakayama Takayuki, Takeshita Hideki, Yoshida Soichiro, Nakanishi Yasukazu, Kijima Toshiki, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa. New head-mounted display system applied to endoscopic management of upper urinary tract carcinomas. Int Braz J Urol. 2014.11; 40(6); 842-845

32. Fukushima Hiroshi, Saito Kazutaka, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Koga Fumitaka, Masuda Hitoshi, Fujii Yasuhisa, Sakai Yasuyuki, Arisawa Chizuru, Okuno Tetsuo, Yonese Junji, Kamata Shigeyoshi, Nagahama Katsushi, Noro Akira, Morimoto Shinji, Tsujii Toshihiko, Kitahara Satoshi, Gotoh Shuichi, Higashi Yotsuo, Kihara Kazunori. Equivalent survival and improved preservation of renal function after distal ureterectomy compared with nephroureterectomy in patients with urothelial carcinoma of the distal ureter: a propensity score-matched multicenter study. Int J Urol. 2014.11; 21(11); 1098-1104

33. Kondo Tsunenori, Nakazawa Hayakazu, Oya Mototsugu, Kimura Go, Fujii Yasuhisa, Hatano Takashi, Kawata Nozomu, Kume Haruki, Morita Masashi, Nakajima Koichi, Ohno Yoshio, Okegawa Takatsugu, Takahashi Shunji, Wakumoto Yoshiaki, Horie Shigeo. Clinical efficacy and prognostic factors of tumor progression in Japanese patients with advanced renal cell carcinoma treated with sorafenib. Jpn J Clin Oncol. 2014.11;

34. Fujii Yasuhisa, Kihara Kazunori, Yoshida Soichiro, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka. A three-dimensional head-mounted display system (RoboSurgeon system) for gasless laparoendoscopic single-port partial cystectomy. Wideochir Inne Tech Malo Inwazyjne. 2014.12; 9(4); 638-643

35. Kihara Kazunori, Saito Kazutaka, Komai Yoshinobu, Fujii Yasuhisa. Integrated image monitoring system using head-mounted display for gasless single-port clampless partial nephrectomy. Wideochir Inne Tech Malo Inwazyjne. 2014.12; 9(4); 634-637

36. Matsuoka Yoh, Kihara Kazunori, Kawashima Kenji, Fujii Yasuhisa. Integrated image navigation system using head-mounted display in "RoboSurgeon" endoscopic radical prostatectomy. Wideochir Inne Tech Malo Inwazyjne. 2014.12; 9(4); 613-618

37. Yoshida Soichiro, Kihara Kazunori, Takeshita Hideki, Fujii Yasuhisa. A head-mounted display-based personal integrated-image monitoring system for transurethral resection of the prostate. Wideochir Inne Tech Malo Inwazyjne. 2014.12; 9(4); 644-649

38. Yamamoto Shinya, Kawakami Satoru, Yonese Junji, Fujii Yasuhisa, Urakami Shinji, Kitsukawa Shinichi, Masuda Hitoshi, Ishikawa Yuichi, Kozuka Takuyo, Oguchi Masahiko, Kohno Atsushi, Fukui Iwao. Long-term oncological outcome in men with T3 prostate cancer: radical prostatectomy versus external-beam radiation therapy at a single institution. Int J Clin Oncol. 2014.12; 19(6); 1085-1091

39. Takeshita Hideki, Moriyama Shingo, Chiba Koji, Noro Akira. A simple technique for evacuating air bubbles with scum from the bladder dome during transurethral resection of bladder tumor. Wideochir Inne Tech Malo Inwazyjne. 2014.12; 9(4); 619-622

[Books etc]

1. Yoshida S, Masuda H, Koga F, Tanaka H, Kihara K.. Functional Imaging in Oncology.. Springer, 2014

[Misc]

1. Yoshida Soichiro, Koga Fumitaka, Kobayashi Shuichiro, Tanaka Hiroshi, Satoh Shiro, Fujii Yasuhisa, Kihara Kazunori. Diffusion-weighted magnetic resonance imaging in management of bladder cancer, particularly with multimodal bladder-sparing strategy. World J Radiol. 2014.06; 6(6); 344-354

2. Yoshida Soichiro, Koga Fumitaka, Masuda Hitoshi, Fujii Yasuhisa, Kihara Kazunori. Role of diffusion-weighted magnetic resonance imaging as an imaging biomarker of urothelial carcinoma. Int J Urol. 2014.12; 21(12); 1190-1200

[Conference Activities & Talks]

1. Yoshida Soichiro, Kihara Kazunori, Takeshita Hideki, Inoue Masaharu, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa. A head-mounted display-based personal integrated-image monitoring system for transurethral resection of the prostate: HMD-based PIM System. (Yoshida Soichiro, Kihara Kazunori, Takeshita Hideki, Inoue Masaharu, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa). The 102nd Annual Meeting of Japanese Urological Association 2014

2. Yoshida Soichiro, Ito Masaya, Tatokoro Manabu, Yokoyama Minato, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa, Kihara Kazunori. Initial experience of diffusion-weighted magnetic resonance imaging to assess therapeutic response to induction chemoradiotherapy against muscle-invasive bladder cancer. (Yoshida Soichiro, Ito Masaya, Tatokoro Manabu, Yokoyama Minato, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa, Kihara Kazunori). The 79th Annual Meeting of the Eastern Section of Japanese Urological Association. 2014

3. Saito Kazutaka. Update on the targeted therapy. The 29th Annual Congress of the European Association of Urology 2014.04.11 Stockholm, Sweden

4. Takeshita H, Kihara K, Masuda H, Koga F, Nakanishi Y, Kijima T, Yoshida S, Ishioka J, Matsuoka Y, Numao N, Saito K, Fujii Y.. Favourable quality of life and urinary functions after bladder preservation in muscle-invasive bladder cancer patients treated with induction chemoradiotherapy plus partial cystectomy with pelvic lymph node dissection. (Takeshita H, Kihara K, Masuda H, Koga F, Nakanishi Y, Kijima T, Yoshida S, Ishioka J, Matsuoka Y, Numao N, Saito K, Fujii Y.). 29th annual EAU congress 2014.04.12 Stockholm, Sweden

5. Masaharu Inoue, Fumitaka Koga, Soichiro Yoshida, Toshiki Kijima, Yasukazu Nakanishi, Jun-ichiro Ishioka, Yoh Matsuoka, Noboru Numao, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara. ErbB2 overexpression predicts chemoradiotherapy resistance and worse prognosis in muscle-invasive bladder cancer patients treated with induction chemoradiotherapy followed by partial or radical cystectomy. the 29th Annual EAU Congress 2014.04.13

6. Yoshida Soichiro, Kihara Kazunori, Takeshita Hideki, Inoue Masaharu, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa. Head-mounted display-based personal integrated-image monitoring system for TURP. (Yoshida Soichiro, Kihara Kazunori, Takeshita Hideki, Inoue Masaharu, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa). The 29th Annual Congress of the European Association of Urology 2014.04.13 Stockholm, Sweden

7. Matsuoka Y, Numao N, Saito K, Tanaka H, Kijima T, Nakanishi Y, Yoshida S, Ishioka J, Fujii Y, Kihara K. Topographical risk stratification of undertreatment in focal therapy for prostate cancer: Mid-apical biopsy compensates for MRI underdiagnosis. The 29th Annual Congress of the European Association of Urology 2014.04.13 Stockholm

8. Kihara K, Fujii Y, Saito K, Masuda H, Koga F, Numao N, Ishioka J, Matsuoka Y. New 3-dimensional head-mounted display system (RoboSurgeon System) applied to gasless, two-port access total nephroureterectomy. (5. Kihara K, Fujii Y, Saito K, Masuda H, Koga F, Numao N, Ishioka J, Matsuoka Y.). 29th annual EAU congress 2014.04.13 Stockholm, Sweden

9. Koga F., Inoue M., Kijima T., Yoshida S., Ishioka J., Matsuoka Y., Numao N., Saito K., Masuda H., Fujii Y., Kihara K.. Pre-therapeutic risk stratification of muscle-invasive bladder cancer patients treated with chemoradiation-based selective bladder-sparing approach. (6. Koga F., Inoue M., Kijima T., Yoshida S., Ishioka J., Matsuoka Y., Numao N., Saito K., Masuda H., Fujii Y., Kihara K.) . 29th annual EAU congress 2014.04.13 Stockholm, Sweden

10. Masaharu Inoue, Noboru Numao, Masaya Ito, Hideki Takeshita, Toshiki Kijima, Yasukazu Nakanishi, Soichiro Yoshida, Jun-ichiro Ishioka, Yoh Matsuoka, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara. Impact of androgen deprivation therapy on cardiovascular disease in patients with non-metastatic high-risk prostate cancer. the 29th Annual EAU Congress 2014.04.14

11. Noboru Numao, Yoh Matsuoka, Masaya Ito, Soichiro Yoshida, Yudai Ishikawa, Yusuke Uchida, Masahiro Toide, Saori Higuchi, Takayuki Nakayama, Masaharu Inoue, Hideki Takeshita, Toshiki Kijima, Yasukazu Nakanishi, Junichiro Ishioka, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara. Direct comparison of the ability to detect significant prostate cancer and assess cancer characteristics between magnetic resonance imaging targeted biopsy and systematic 14-core biopsy, including anterior samplings (Noboru Numao, Yoh Matsuoka, Masaya Ito, Soichiro Yoshida, Yudai Ishikawa, Yusuke Uchida, Masahiro Toide, Saori Higuchi, Takayuki Nakayama, Masaharu Inoue, Hideki Takeshita, Toshiki Kijima, Yasukazu Nakanishi, Junichiro Ishioka, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara). The 29th Annual Congress of the European Association of Urology 2014.04.14 Stockholm

12. Ishioka J., Kihara K., Fujii Y., Saito K., Masuda H., Koga F., Numao N., Matsuoka Y., Yoshida S., Takeshita H., Higuchi S., Nakayama T. New head-mounted display system applied to endoscopic management of urothelial cancers (Ishioka J., Kihara K., Fujii Y., Saito K., Masuda H., Koga F., Numao N., Matsuoka Y., Yoshida S., Takeshita H., Higuchi S., Nakayama T). 29th annual EAU congress 2014.04.14 Stockholm, Sweden

13. Ishikawa Y, Numao N, Ishii C, Kijima T, Nakanishi Y, Yoshida S, Ishioka J, Matsuoka Y, Saito K, Fujii Y, Kihara K.. Potential of prebiopsy MRI to reduce biopsies in men with suspected clinically localized

prostate cancers in the repeat biopsy setting (3. Ishikawa Y, Numao N, Ishii C, Kijima T, Nakanishi Y, Yoshida S, Ishioka J, Matsuoka Y, Saito K, Fujii Y, Kihara K.). 29th annual EAU congress 2014.04.14

14. Yoshida Soichiro, Koga Fumitaka, Tanaka Hiroshi, Satoh Shiro, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kasutaka, Fujii Yasuhisa, Kihara Kazunori. Diffusion-weighted MRI for assessing the response of muscle-invasive bladder cancer to chemoradiotherapy. (Yoshida Soichiro, Koga Fumitaka, Tanaka Hiroshi, Satoh Shiro, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kasutaka, Fujii Yasuhisa, Kihara Kazunori). The 108th annual meeting of the American Urological Association 2014.05.17 Orlando, USA

15. Kihara K, Saito K, Nakanishi Y, Kijima T, Yoshida S, Ishioka J, Mastuoka Y, Numao N, Koga F, Masuda H, Fujii Y. Favorable outcomes of gasless single-port clampless partial nephrectomy using new three dimensional head-mounted display system (RoboSurgeon system). (Kihara K, Saito K, Nakanishi Y, Kijima T, Yoshida S, Ishioka J, Mastuoka Y, Numao N, Koga F, Masuda H, Fujii Y). The 108th annual meeting of the American Urological Association 2014.05.17 Orlando, USA

16. Higuchi S, Kijima T, Nakanishi Y, Ishioka J, Matsuoka Y, Numao N, Saito K, Fujii Y, Kihara K.. Antimicrobial prophylaxis is avoidable in minimally invasive nephroureterectomy with negative urine culture. (Higuchi S, Kijima T, Nakanishi Y, Ishioka J, Matsuoka Y, Numao N, Saito K, Fujii Y, Kihara K.). The 108th annual meeting of the American Urological Association 2014.05.17 Stockholm, Sweden

17. Masaharu Inoue, Fumitaka Koga, Soichiro Yoshida, Toshiki Kijima, Yasukazu Nakanishi, Junichiro Ishioka, Yoh Matsuoka, Noboru Numao, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara. ErbB2 overexpression is relevant to therapeutic resistance and poor prognosis in muscle-invasive bladder cancer patients treated with chemoradiation-based bladder-sparing protocol. AUA 2014 annual meeting 2014.05.18

18. Noboru Numao, Yoh Matsuoka, Masaya Ito, Soichiro Yoshida, Yudai Ishikawa, Yusuke Uchida, Masahiro Toide, Saori Higuchi, Takayuki Nakayama, Masaharu Inoue, Hideki Takeshita, Toshiki Kijima, Yasukazu Nakanishi, Junichiro Ishioka, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara. Potential of additional magnetic resonance imaging (MRI)-targeted prostate biopsy to avoid underestimation of systematic 14-core biopsy (Noboru Numao, Yoh Matsuoka, Masaya Ito, Soichiro Yoshida, Yudai Ishikawa, Yusuke Uchida, Masahiro Toide, Saori Higuchi, Takayuki Nakayama, Masaharu Inoue, Hideki Takeshita, Toshiki Kijima, Yasukazu Nakanishi, Junichiro Ishioka, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara). The 108th annual meeting of the American Urological Association 2014.05.18

19. Noboru Numao, Yoh Matsuoka, Masaya Ito, Soichiro Yoshida, Yudai Ishikawa, Yusuke Uchida, Masahiro Toide, Saori Higuchi, Takayuki Nakayama, Masaharu Inoue, Hideki Takeshita, Toshiki Kijima, Yasukazu Nakanishi, Junichiro Ishioka, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara. Potential of additional magnetic resonance imaging (MRI)-targeted prostate biopsy to avoid underestimation of systematic 14-core biopsy (Noboru Numao, Yoh Matsuoka, Masaya Ito, Soichiro Yoshida, Yudai Ishikawa, Yusuke Uchida, Masahiro Toide, Saori Higuchi, Takayuki Nakayama, Masaharu Inoue, Hideki Takeshita, Toshiki Kijima, Yasukazu Nakanishi, Junichiro Ishioka, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara). American Urology Association Annual Meeting 2014 2014.05.18 Orlando

20. Fukushima Hiroshi, Yoshida Soichiro, Koga Fumitaka, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa, Kihara Kazunori. Reduced TRAP1 expression is associated with poor prognosis in upper urinary tract urothelial carcinoma patients: its implications for tumor invasion (Fukushima Hiroshi, Yoshida Soichiro, Koga Fumitaka, Nakanishi Yasukazu, Kijima Toshiki, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa, Kihara Kazunori). The 108th annual meeting of the American Urological Association 2014.05.18 Orlando

21. Kihara Kazunori, Saito Kazutaka, Nakanishi Yasukazu, Kijima Toshiki, Yoshida Soichiro, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Koga Fumitaka, Masuda Hitoshi, Fujii Yasuhisa. Favorable outcomes of gasless single-port clampless partial nephrectomy using new three dimensional head-mounted display system (RoboSurgeon system) (Kihara Kazunori, Saito Kazutaka, Nakanishi Yasukazu, Kijima Toshiki, Yoshida Soichiro, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Koga Fumitaka, Masuda Hitoshi, Fujii Yasuhisa). AUA2014 annual meeting 2014.05.18 Orlando, USA

22. Kijima T, Kihara K, Fujii Y, Koga F, Nakanishi Y, Yoshida S, Ishioka J, Matsuoka Y, Numao N, Saito K, Masuda H. Selective bladder-sparing protocol consisting of induction low-dose chemoradiotherapy and consolidative partial cystectomy in muscle invasive bladder cancer patients with synchronous or metachronous

multifocality. (Kijima T, Kihara K, Fujii Y, Koga F, Nakanishi Y, Yoshida S, Ishioka J, Matsuoka Y, Numao N, Saito K, Masuda H). The 108th annual meeting of the American Urological Association 2014.05.19

23. Takeshita Hideki, kihara Kazunori, Masuda Hitoshi, Koga Fumitaka, Nakanishi Yasukazu, Kijima Toshiki, Yoshida Soichiro, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa . Bladder-Sparing Therapy in Muscle-Invasive Bladder Cancer by Induction Chemoradiotherapy plus Partial Cystectomy with Pelvic Lymph Node Dissection: Assessments of Quality of Life and Urinary Functions (Takeshita Hideki, kihara Kazunori, Masuda Hitoshi, Koga Fumitaka, Nakanishi Yasukazu, Kijima Toshiki, Yoshida Soichiro, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Fujii Yasuhisa) . AUA2014 annual meeting 2014.05.19 Orlando

24. Kijima Toshiki, Kihara Kazunori, Nakanishi Yasukazu, Yoshida Soichiro, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Koga Fumitaka, Saito Kazutaka, Fujii Yasuhisa. Selective bladder-sparing protocol consisting of induction low-dose chemoradiotherapy and consolidative partial cystectomy in muscle invasive bladder cancer patients with synchronous or metachronous multifocality (Kijima Toshiki, Kihara Kazunori, Nakanishi Yasukazu, Yoshida Soichiro, Ishioka Junichiro, Matsuoka Yoh, Numao Noboru, Koga Fumitaka, Saito Kazutaka, Fujii Yasuhisa) . AUA2014 annual meeting 2014.05.19 Orlando

25. Masaya Ito, Noboru Numao, Yasukazu Nakanishi, Toshiki Kijima, Soichiro Yoshida, Junichiro Ishioka, Yoh Matsuoka, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara. Biopsy Gleason score 3+4 may be included as criteria for active surveillance after 2005 International Society of Urological Pathology consensus (Masaya Ito, Noboru Numao, Yasukazu Nakanishi, Toshiki Kijima, Soichiro Yoshida, Junichiro Ishioka, Yoh Matsuoka, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara). American Urology Association Annual Meeting 2014 2014.05.20 Orlando

26. Kihara Kazunori. Gasless Single-Port RoboSurgeon Surgery in Urology (Kihara Kazunori). 12th Severance Urology Symposium 2014.08.08 Seoul

27. Yasuhisa Fujii, Kazunori Kihara. Gasless Single-port RoboSurgeon Surgery in Urology(Yasuhisa Fujii, Kazunori Kihara). TUDU CLS(Clinica Las Condes) joint meeting 2014.09.29 Santiago, Chile

28. Moriyama S, Takeshita H, Kagawa M, Chiba K, Yokoyama M, Ishioka J, Numao N, Saito K, Fujii Y, Kihara K, Owada F, Noro A. Favorable renal function after distal ureterectomy for lower ureteral cancer: One–year postoperative renal functional result (Moriyama S, Takeshita H, Kagawa M, Chiba K, Yokoyama M, Ishioka J, Numao N, Saito K, Fujii Y, Kihara K, Owada F, Noro A). 2014.10

29. Uchida Yusuke, Yoshida Soichiro, Kobayashi Shuichiro, Koga Fumitaka, Ishioka Junichiro, Satoh Shiro, Ishii Chikako, Tanaka Hiroshi, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Masuda Hitoshi, Fujii Yasuhisa, Kihara Kazunori. The potential of diffusion-weighted magnetic resonance imaging as an imaging biomarker reflecting the metastatic propensity of upper urinary tract cancer (Uchida Yusuke, Yoshida Soichiro, Kobayashi Shuichiro, Koga Fumitaka, Ishioka Junichiro, Satoh S, Ishii Chikako, Tanaka Hiroshi, Matsuoka Yoh, Numao Noboru, Saito Kazutaka, Masuda Hitoshi, Fujii Yasuhisa, Kihara Kazunori). 34th congress of the SIU 2014.10.12 Glasgow

30. Yokoyama Minato, Fujii Yasuhisa, Inoue Masaharu, Takeshita Hideki, Yoshida Soichiro, Ishioka Junichiro, Numao Noboru, Matsuoka Yoh, Koga Fumitaka, Saito Kazutaka, Masuda Hitoshi, Kihara Kazunori.. Does anatomical tumor complexity affect renal function after clampless partial nephrectomy? A functional analysis using renal scintigraphy. (Yokoyama Minato, Fujii Yasuhisa, Inoue Masaharu, Takeshita Hideki, Yoshida Soichiro, Ishioka Junichiro, Numao Noboru, Matsuoka Yoh, Koga Fumitaka, Saito Kazutaka, Masuda Hitoshi, Kihara Kazunori.). 34th congress of the SIU 2014.10.13 Glasgow, UK

31. Masaya Ito, Junichiro Ishioka, Shingo Moriyama, Soichiro Yoshida, Yoh Mastuoka, Noboru Numao, Kazutaka Saito, Hitoshi Masuda, Yasuhisa Fujii, Kazunori Kihara. High detection rate of the prostate cancer in Japanese men with the B blood group. (Masaya Ito, Junichiro Ishioka, Shingo Moriyama, Soichiro Yoshida, Yoh Mastuoka, Noboru Numao, Kazutaka Saito, Hitoshi Masuda, Yasuhisa Fujii, Kazunori Kihara). 34th Congress of the Societe Internationale d'Urologie 2014.10.13 Glasgow

32. Masaya Ito, Noboru Numao, Shingo Moriyama, Yasukazu Nakanishi, Soichiro Yoshida, Yoh Mastuoka, Kazutaka Saito, Hitoshi Masuda, Yasuhisa Fujii, Kazunori Kihara. Direct comparison of the ability to predict final Gleason score between magnetic resonance imaging based targeted prostate biopsy and systematic 14-core biopsy. (Masaya Ito, Noboru Numao, Shingo Moriyama, Yasukazu Nakanishi, Soichiro Yoshida, Yoh Mastuoka, Kazutaka Saito, Hitoshi Masuda, Yasuhisa Fujii, Kazunori Kihara). 34th Congress of the Societe Internationale d'Urologie 2014.10.13 Glasgow

33. Masashi Nagata, Yasuyoshi Ishiwata, Masato Yasuhara, Kazutaka Saito, Yasuhisa Fujii, Kazunori Kihara. PK-PD modeling of sunitinib-induced thrombocytopenia in patients with renal cell carcinoma.. 2014 AAPS Annual Meeting and Exposition 2014.11 San Diego

[Awards & Honors]

1. IJU Reviewers of the Year 2013, International Journal of Urology, 2014.04
2. Outstanding Poster Presentation, The 108th annual meeting of the American Urological Association, 2014.05

Esophageal and General Surgery

Professor
Tatsuyuki KAWANO
Project Professor
Masahiro TSUBAKI
Associate Professor
Yasuaki NAKAJIMA
Junior Associate Professor
Yoshinori INOUE, Toshifumi KUDO
Assistant Professor
Kagami NAGAI, Kenro KAWADA, Yutaka TOKAIRIN, Takuya OKADA, Takahiro TOYOFUKU
Project Assistant Professor
Yutaka MIYAWAKI
Graduate Student
Shinya KOIZUMI, Kimihiro IGARI, Tairo RYOTOKUJI, Naoto FUJIWARA, Masato NISHIZAWA, Katsumasa SAITO, Hisashi FUJIWARA, Sotaro KATSUI, Masafumi OKUDA, Taichi OGO, Yuichiro KUME, Masahiro NAKAMURA, Yutaka NAKAJIMA, Toshihiro MATSUI, Yohei YAMAMOTO, Tuerxun REXIATI, Ablimitie ZYNUR, Mora ANDRES

(1) Research

1) Development of esophageal surgery.
2) Development of vascular surgery.

(2) Education

The history of the department started as the First Department of Surgery of TMDU, and many surgeons and researchers in various specialties have gathered and have been keeping a high level of activities. Our main purposes of education are to make the post-graduate physicians grown up to excellent surgeons and to contribute in development of medical/surgical sciences. Surgeons with high-level medical knowledge and techniques are expected to grow up in this department. Moreover, making surgeons with matured humanity is one of the purposes. The department has a peaceful atmosphere and stands for active work in solving difficult problems.

(3) Clinical Performances

Main clinical services are diagnosis and treatment for esophageal and vascular diseases. Post-graduate students learn and study general surgery and sub-specialty, e.g. esophageal surgery, vascular surgery. The territory of clinics is wide and the department provides a full spectrum of standard and special technologies such as minimally invasive surgery and extended radical surgery for malignancies.

(4) Publications

[Original Articles]

1. Kawada K, Okada T, Sugimoto T, Kishimoto S, Kawano T. Intraoropharyngeal U-turn method using transnasal esophagogastroduodenoscopy Endoscopy. 2014; 46; E137-138
2. Endoscopic diagnosis for carcinoma of Barrett's esophagus using transnasal endoscopy 2014; 26; 523-531
3. Kumagai Y, Kawada K, Higashi M, Ishiguro T, Sobajima J, Fukuchi M, Ishibashi K, Baba H, Mochiki E, Aida J, Kawano T, Ishida H, Takubo K. Endocytoscopic observation of various esophageal lesions at x600: can nuclear abnormality be recognized? Dis Eso accept in press. 2014;
4. Kumagai Y, Ishiguro T, Haga N, Kuwabara K, Kawano T, Ishida H. Hemodynamics of the reconstructed gastric tube during esophagectomy: assessment of outcomes using indocyanine green fluorescence. World J Surg. 2014; 38; 138-143
5. Kumagai Y, Sobajima J, Higashi M, Ishiguro T, Fukuchi M, Ishibashi K, Baba H, Mochiki E, Yakabi K, Kawano T, Tamaru J, Ishida H. Angiogenesis in Superficial Esophageal Squamous Cell Carcinoma: Assessment of Microvessel Density Based on Immunostaining for CD34 and CD105. Jpn J Clin Oncol. 2014; 44; 526-533
6. Kumagai Y, Tajima Y, Ishiguro T, Haga N, Imaizumi H, Suzuki O, Kuwabara K, Matsuzawa. Production of intraperitoneal interleukin-6 following open or laparoscopic assisted distal gastrectomy. Int Surg. 2014; 99; 812-818
7. Hoshino A, Kawada K, Nakajima Y, Nagai K, Sugimoto T, Kawano T. Vocal cord assessment with transnasal endoscopy in intubated patients after esophagectomy J Med Dent Sci. 2014; 61; 17-22

[Misc]

1. Kumagai Y, IshiguroT, Kuwabara K, Sobajima J, Fukuchi M, Ishibashi K, Baba H, Mochiki E, Aida J, Takemoto A, Kawano T, Takubo K, Ishida H. Primary mucoepidermoid carcinoma of the esophagus: Review of the literature 2014; 11; 81-88
2. Endoscopic classification for esophageal cancer 2014.01; 26; 20-23

[Conference Activities & Talks]

1. Fujiwara N, Inoue J, Kawano T, Kozaki K, Inazawa J. MicroRNA-634 induces caspase-dependent apoptosis by targeting anti-apoptotic and mitochondria-related genes in human cancer cells. AACR annual meeting 2014.04.09
2. early diagnosis and treatment for postcricoid subsite of pharyngeal cancer . 2014.06.14
3. Kawada K, Sugimoto T, Fujiwara H, T.Ogo, T.Matsui, M.Okuda, K.Saito, T.Okada, Y.Miyawaki, Y.Tokairin, Y.Nakajima, Y.Kiyokawa, T.Kawano. Endoscopic Laryngo Pharyngeal Surgery(ELPS) using transnasal ultrathin endoscope for superficial Head and Neck squamous cell carcinoma. 5th World Congress of IFHNOS & Annual Meeting of the AHNS 2014.07.14
4. Kawada K, Sugimoto T, Fujiwara H, T.Ogo, T.Matsui, M.Okuda, K.Saito, T.Okada, Y.Miyawaki, Y. Tokairin, Y.Nakajima, Y.Kiyokawa, T.Kawano. Endoscopic Laryngo Pharyngeal Surgery(ELPS) using transnasal ultrathin endoscope for superficial Head and Neck squamous cell carcinoma. 5th World Congress of IFHNOS & Annual Meeting of the AHNS 2014.07.29
5. Nakajima Y, Kawada K, Tokairin Y, Miyawaki Y, Okada T, Ryotokuji T, Fujiwara N, Saito K, Fujiwara H, Ogo T, Okuda M, Nagai K, Kawano T.. The evaluation of the clinical validity of "Salvage CRT": A therapeutic strategy for locally advanced esophageal carcinoma diagnosed to be unresectable based on the intraoperative findings.. 14th World Congress of the International Society for Diseases of the Esophagus 2014.09.22 Vancouver
6. Ryotokuji T, Kawada K, Nakajima Y,Tokairin Y, Miyawaki Y,Okada T, Fujiwara N, Fujiwara H, Saito K, Ogo T, Okuda M, Nagai K, Kawano T, Ito T, Kawachi H, Eishi Y. A Case of Superficial Verrucous Carcinoma of the Esophagus Treated with Endoscopic Submucosal Dissection. 14th World Congress of International Society for Disease of the Esophagus(ISDE) 2014.09.22

7. Miyawaki Y, Matsui T, Okuda M, Ogo T, Fujiwara H, Saito K, Fujiwara N, Ryotokuji T, Ohta S, Okada T, Tokairin Y, Kawada K, Nakajima Y, Kawano T. Efficacy of Docetaxel, Cisplatin and 5-fluorouracil chemotherapy for superficial esophageal squamous cell carcinoma. . 14th World Cogress of ISDE 2014.09.23

8. Hisashi Fujiwara, Yasuaki Nakajima, Kenro Kawada, Yutaka Tokairin, Masafumi Okuda, Taichi Ogo, Katsumasa Saito, Naoto Fujiwara, Tairou Ryoutokuji, Takuya Okada, Yutaka Miyawaki, Youichi Kumagai, Kagami Nagai, Tatsuyuki Kawano. . Efficacy of endoscopy for evaluating esophago-gastric anastomosis on post-esophagectomy day 1. . 14th World Congress of the International Society for Diseases of the Esophagus

Thoracic Surgery

Professor Kenichi Okubo
Junior Associate Professor Hironori Ishibashi
Assistant Professor Masashi Kobayashi
Graduate Student Chihiro Takasaki
Graduate Student Sachiko Kumazawa

(1) Outline

Department of Thoracic Surgery deal with clinical management, basic and clinical research, and education of thoracic surgery, which includes surgical diagnosis and treatment of respiratory diseases.

(2) Research

· Minimally invasive surgery for lung cancer
· Multimodal treatments for thoracic malignancies
· Surgery for metastatic lung tumors
· Clinico-pathological studies on lung cancer

(3) Education

Department of Thoracic Surgery has a mission to educate medical post-graduates for expert thoracic surgeons. Thoracic surgeon requires the Board of Surgery and the Board of Thoracic Surgery to perform clinical cares as a specialist. We provide clinical specialty course for thoracic surgery and graduate course for thoracic surgery, and support to obtain the boards.

(4) Clinical Services & Other Works

Out-patient Clinic: Tuesday, Thursday
Operative Day: Monday, Wednesday, Thursday, Friday
Clinical Conference: Monday
Chest Conference : Monday
Clinico-pathological Conference: Wednesday
Medical Round: every morning
Professor's Round: Tuesday
Journal Club: Tuesday (every other week)
Mortality & Morbidity Conference: Tuesday (every other week)
Lab Meeting: Tuesday (monthly)
Scientific Meeting: Japan Surgical Society, Japanese Association for Chest Surgery, Japanese Association for Thoracic Surgery, Japan Lung Cancer Society, Japan Society for Respiratory Endoscopy

(5) Clinical Performances

Thoracic Surgery deal with surgical treatment for lung, mediastinum, pleura and chest wall. We provide high-grade medical care as a university hospital. We offer less invasive surgery for early-stage lung cancers or benign diseases, and multimodality treatment for locally advanced thoracic malignancies.

(6) Publications

[Original Articles]

1. Sonobe M, Okubo K, Teramukai S, Yanagihara K, Sato M, Sato T, Chen F, Sato K, Fujinaga T, Shoji T, Omasa M, Sakai H, Miyahara R, Bando T, Date H. . Phase II study of adjuvant vinorelbine and cisplatin in Japanese patients with completely resected stage II and III non-small cell lung cancer. Cancer Chemother Pharmacol. . 2014; 74(6); 1199-1206

2. Hironori Ishibashi, MD, Ken Takahashi, Sachiko Kumazawa, and Kenichi Okubo,. Successful Excision of a Giant Mediastinal Vagal Schwannoma Causing Severe Tracheal Stenosis Through a Median Sternotomy. Ann Thorac Surg . 2014; 98; 336-338

3. Kenichi Okubo. Surgery treatment and multidisciplinary treatment of a bad pleura mesothelioma Special number and bad mesothelioma 2014; 80; 30-33

4. Ryo Wakeshima,Hironori Ishibashi,Chihiro Takasaki,Naoyuki Fujiwara,Kenichi Ookubo. The example which could be healed in an antibiotic pill and thoracoscopic souhajutsu to haizentekinochi bronchus stump rou thoracic empyema 2014; 28; 927-932

5. Fujimoto M, Sumiyoshi S, Yoshizawa A, Sonobe M, Kobayashi M, Moriyoshi K, Kido A, Tanaka C, Koyanagi I, Date H, Haga H.. SALL4 immunohistochemistry in non-small-cell lung carcinomas. Histopathology.. 2014.01; 64(2); 309-311

6. Sumiyoshi S, Yoshizawa A, Sonobe M, Kobayashi M, Sato M, Fujimoto M, Tsuruyama T, Date H, Haga H. . Non-terminal respiratory unit type lung adenocarcinoma has three distinct subtypes and is associated with poor prognosis. Lung Cancer. . 2014.06; 84(3); 281-288

7. Sato T, Watanabe A, Kondo H, Kanzaki M, Okubo K, Yokoi K, Matsumoto K, Marutsuka T, Shinohara H, Teramukai S, Kishi K, Ebina M, Sugiyama Y, Meinoshin O, . Japanese Association for Chest Surgery. Long-term results and predictors of survival after surgical resection of patients with lung cancer and interstitial lung diseases. J Thorac Cardiovasc Surg.. 2014.09;

8. Yoshizawa A, Sumiyoshi S, Sonobe M, Kobayashi M, Uehara T, Fujimoto M, Tsuruyama T, Date H, Haga H. . HER2 status in lung adenocarcinoma: a comparison of immunohistochemistry, fluorescence in situ hybridization (FISH), dual-ISH, and gene mutations. Lung Cancer.. 2014.09; 85(3); 373-378

[Books etc]

1. TNM malignant tumor classification color atlas (the 2nd edition of original) 2014. Maruzen publication, 2014

Igakuken Disease-oriented Molecular Biology

Visiting Professor Takahiko Hara
Visiting Professor Masanari Itokawa
Visiting Professor Masato Hasegawa
Visiting Professor Haruo Okado
Graduate Student Kazuya Miyashita, Ayami Takahashi,
Takahiko Sugimoto(April~),
Seiji Kanzaki(April~)

(1) Research

[Takahiko Hara] We attempt to elucidate how tissue stem cells (hematopoietic stem cells, skeletal muscle stem cells, etc.) are developed in embryos and maintained in adults by utilizing *in vitro* differentiation systems of ES/iPS cells and conditional KO mouse strains. In addition, we advance the molecular biology of CXCL14, which is involved in obesity-induced diabetes, carcinogenesis, feeding behavior, etc.

[Masanari Itokawa] Our research focuses on unraveling the pathophysiology of mental illnesses using molecular biology tools. Our ultimate goal is to identify new disease mechanisms, leading to the development of novel and more efficacious therapies. We perform genetic association studies, as well as metabolomics studies using samples from patients with mental disorders. Any abnormalities identified from patient samples are investigated further, using *in vitro* and *in vivo* systems, such as, cell culture assays to highlight functional alterations and behavioral studies in gene knockout mouse models.

[Masato Hasegawa] We investigate the molecular pathogenesis and progression of neurodegenerative diseases including Alzheimer's disease, Parkinson's disease and amyotrophic lateral sclerosis. We use biochemistry, immunohistochemistry and molecular biology in all our work of in vitro, cellular and animal models to find effective ways for clinical therapy.

[Haruo Okado] To discover the fundamental cause of various nervous diseases, e.g., brain tumors, brain malformations, and neurodevelopmental disorders, we will study the molecular mechanisms for the regulation of neural development in the cerebral cortex using gene-targeted mice, primary cultures, viral vectors, in-utero electroporation, real-time imaging of slice culture, immunohistochemistry, and transcription analysis.

(2) Education

We will educate students for the purpose that they could investigate molecular mechanisms of life-threatening diseases such as cancer, diabetes, schizophrenia, amyotrophic lateral sclerosis, and brain malformations. Trained students will eventually help us to develop novel therapeutic strategies against them. In addition, they must learn the importance of good animal models (including genetically engineered mice), which faithfully reproduce symptom and progression of the diseases.

(3) Publications

[Original Articles]

1. T. Suzuki, Y. Kazuki, M. Oshimura, and T. Hara. A novel system for simultaneous or sequential integration of multiple gene-loading vectors into a defined site of a human artificial chromosome. ***PLoS ONE,*** 9: e110404, 2014.
2. Y. Kodaka, K. Tanaka, K. Kitajima, K. Tanegashima, R. Matsuda, and T Hara. LIM homeobox transcription factor Lhx2 inhibits skeletal muscle differentiation in part via transcriptional activation of Msx1 and Msx2. ***Exp. Cell Res.,*** Published on November 24, 2014 as doi:10.1016/j.yexcr.2014.11.009.
3. F. N. Bangel, K. Yamada, M. Arai, Y. Iwayama, S. Balan, T. Toyota, Y. Iwata, K. Suzuki, M. Kikuchi, T. Hashimoto, N. Kanahara, N. Mori, M. Itokawa, O. Stock, and T. Yoshikawa. Genetic analysis of the

glyoxalase system in schizophrenia. ***Prog. Neuropsychopharmacol. Biol. Psychiatry.*** pii: S0278-5846(15)00015-9, 2015.

4. M. Miyashita, M. Arai, A. Kobori, T. Ichikawa, K. Toriumi, K. Niizato, K. Oshima, Y. Okazaki, T. Yoshikawa, N. Amano, T. Miyata, and M. Itokawa. Clinical features of schizophrenia with enhanced carbonyl stress. ***Schizophr. Bull.,*** 40(5): 1040-1046, 2014.
5. M. Arai, M. Miyashita, A. Kobori, K. Toriumi, Y. Hoiuchi, and M. Itokawa. Carbonyl stress and schizophrenia. ***Psychiatry and Clinical Neuroscience 2014*** 68: 655-665, 2014.
6. M, Itokawa, M. Miyashita, M. Arai, and T. Miyata. Carbonyl stress in schizophrenia. ***Biochem. Soc. Trans.,*** 42(2): 468-472, 2014.
7. M. Arai, N. Nihonmatsu-Kikuchi, M. Itokawa, N. Rabbani, P. J. Thornalley. Measurement of glyoxalase activities. ***Biochem. Soc. Trans.,*** 42(2): 491-494, 2014.
8. D. Nishizawa, K. Fukuda, S. Kasai, J. Hasegawa, Y. Aoki, A. Nishi, N. Saita, Y. Koukita, M. Nagashima, R. Katoh, Y. Satoh, M. Tagami, S. Higuchi, H. Ujike, N. Ozaki, T. Inada, N. Iwata, I. Sora, M. Iyo, N. Kondo, M. J. Won, N. Naruse, K. Uehara-Aoyama, M. Itokawa, M. Koga, T. Arinami, Y. Kaneko, M. Hayashida, and K. Ikeda. Genome-wide association study identifies a potent locus associated with human opioid sensitivity. ***Mol. Psychiatry,*** 19(1): 55-62, 2014.
9. M. Miyashita, M. Arai, H. Yuzawa, K. Niizato, K. Oshima, I. Kushima, R. Hashimoto, M. Fukumoto, S. Koike, T. Toyota, H. Ujike, T. Arinami, K. Kasai, M. Takeda, N. Ozaki, Y. Okazaki, T. Yoshikawa, N. Amano, T. Miyata, and M. Itokawa. Replication of enhanced carbonyl stress in a subpopulation of schizophrenia. ***Psychiatry Clin. Neurosci.,*** 68(1): 83-84, 2014.
10. M. Masuda-Suzukake, T. Nonaka, M. Hosokawa, M. Kubo, A. Shimozawa, H. Akiyama, and M. Hasegawa. Pathological alpha-synuclein propagates through neural networks. ***Acta. Neuropathol. Commun.,*** 2: 88, 2014.
11. M. Yamashita, T. Nonaka, S. Hirai, A. Miwa, H. Okado, T. Arai, M. Hosokawa, H. Akiyama, and M. Hasegawa. Distinct pathways leading to TDP-43-induced cellular dysfunctions. ***Hum. Mol. Genet.,*** 23: 4345-4356, 2014.
12. S. Yamashita, N. Sakashita, T. Yamashita, N. Tawara, M. Tasaki, K. Kawakami, Y. Komohara, Y. Fujiwara, M. Kamikawa, T. Nakagawa, T. Hirano, Y. Maeda, M. Hasegawa, M. Takeya, and Y. Ando. Concomitant accumulation of α-synuclein and TDP-43 in a patient with corticobasal degeneration. ***J. Neurol.,*** 2014 in press. Sep 11. [Epub ahead of print]
13. I. Kawakami, M. Hasegawa, T. Arai, K. Ikeda, K. Oshima, K. Niizato, N. Aoki, K. Omi, S. Higashi, M. Hosokawa, Y. Hirayasu, and H. Akiyama. Tau accumulation in the nucleus accumbens in tangle-predominant dementia. ***Acta. Neuropathol. Commun.,*** 2: 40, 2014.
14. A. Baborie, T. D. Griffiths, E. Jaros, R. Perry, I. G. McKeith, D. J. Burn, M. Masuda-Suzukake, M. Hasegawa, S. Rollinson, S. Pickering-Brown, A. C. Robinson, Y. S. Davidson, and D. M. Mann. Accumulation of dipeptide repeat proteins predates that of TDP-43 in Frontotemporal Lobar Degeneration associated with hexanucleotide repeat expansions in C9ORF72 gene. ***Neuropathol. Appl. Neurobiol.,*** 2014 in press. doi: 10.1111/nan.12178.
15. Y. S. Davidson, H. Barker, A. C. Robinson, J. C. Thompson, J. Harris, C. Troakes, B. Smith, S. Al-Saraj, C. Shaw, S. Rollinson, M. Masuda-Suzukake, M. Hasegawa, S. Pickering-Brown, J. S. Snowden, and D. M. Mann. Brain distribution of dipeptide repeat proteins in frontotemporal lobar degeneration and motor neurone disease associated with expansions in C9ORF72. ***Acta. Neuropathol. Commun.,*** 2: 70, 2014.
16. T. Konno, M. Tada, A. Shiga, A. Tsujino, H. Eguchi, M. Masuda-Suzukake, M. Hasegawa, M. Nishizawa, O. Onodera, K. Kakita, and H. Takahashi. C9ORF72 repeat-associated non-ATG-translated polypeptides are distributed independently of TDP-43 in a Japanese patient with c9ALS. ***Neuropathol. Appl. Neurobiol.,*** 40: 783–788, 2014.
17. A. Asada, R. Yamazaki, Y. Kino, T. Saito, T. Kimura, M. Miyake, M. Hasegawa, N. Nukina, and S. Hisanaga. Cyclin-dependent kinase 5 phosphorylates and induces the degradation of ataxin-2. ***Neurosci. Lett.,*** 563: 112-117, 2014.
18. M. Hosokawa, T. Arai, M. Yamashita, H. Tsuji, T. Nonaka, M. Masuda-Suzukake, A. Tamaoka, M. Hasegawa, and H. Akiyama. Differential diagnosis of amyotrophic lateral sclerosis from Guillain-Barré syndrome by quantitative determination of TDP-43 in cerebrospinal fluid. ***Int. J. Neurosci.,*** 124: 344-349, 2014.
19. M. Hasegawa, S. Watanabe, H. Kondo, H. Akiyama, D. M. Mann, Y. Saito, and S. Murayama. 3R and 4R tau isoforms in paired helical filaments in Alzheimer's disease. ***Acta. Neuropathol.,*** 127: 303-305, 2014.

[Review Articles]

1. T. Hara and K. Tanegashima. CXCL14 antagonizes the CXCL12-CXCR4 signaling axis. ***BioMol. Concepts,*** 5: 167-173, 2014.
2. M. Itokawa. Respecting the Legacy and Future Development of Glyoxalase Research and the Emergence of Dicarbonyl Stress. ***IMARS Highlight,*** 9(1): 25, 2014.

[Conference Activities & Talks]

1. K. Kitajima, M. Kawaguchi, K. Miyashita, M. Iacovino, M. Kyba, and T. Hara. In vitro generation of functional hematopoietic cells from mouse embryonic stem cells. 2014 YONSEI BK21PLUS-IGAKUKEN Joint Symposium, 2014.6.19-20, Seoul, Korea.
2. M. Itokawa, M. Miyashita, K. Toriumi, A. Kobori, and M. Arai. A novel concept of mental illness: Carbonyl stress induced schizophrenia – a Glyoxalase I deficit pedigree with psychosis. 2014 YONSEI BK21PLUS-IGAKUKEN Joint Symposium, 2014.6.19-20, Seoul, Korea.
3. M. Hasegawa. Prion-like mechanism in propagation of Lewy body disease. 55th Annual Meeting of the Japanese Society of Neurology, Symposium: Propagation and Transmission of Misfolded Proteins and Pathologies in Prion Disease and Other Protein-Misfolding Disorders, 2014.5.24, Hakata.
4. M. Hasegawa. Prion-like propagation of pathological proteins in neurodegenerative diseases. 2014 YONSEI BK21PLUS-IGAKUKEN Joint Symposium, 2014.6.19-20, Seoul, Korea.
5. M. Hasegawa. Pathological alpha-synuclein spreading explains the disease progression. Neuroscience 2014. Joint Symposium of the Japan Neuroscience Society and the Korean Society of Brain and Neuroscience: Molecular Mechanisms underlying Parkinson Disease. 2014.9.12, Yokohama.
6. M. Hasegawa M. Prion-like features in alpha-synucleinopathies. XVIIIth International Congress of Neuropathology 2014. W3: Prion-like mechanisms in neurodegenerative disorders. 2014.9.15, Rio de Janeiro, Brazil.

Clinical Anatomy

Professor Keiichi AKITA
Junior Associate Professor Akimoto NIMURA
Kumiko YAMAGUCHI
(Department of Professional Development in Health Science)
Assistant Professor Masayo HARADA
Research Technician Hisayo NASU, Kiyomi SAIKAWA, Sadaaki HEIMA
Graduate Student Atsushi TASAKI(～ March), Yasuo NAKAJIMA,
Kazuhiro SAKAMOTO, Kazuhito SEKIZAWA, Masataka NAKAZAWA,
Hitomi FUJISHIRO, Keiko OKUMURA, Tatsuya TAMAKI,
Sachiyuki TUKADA, Ryuhei OKADA, Eiichirou KAGAWA,
Motoki TANAKA, Kotaro EGUCHI(April ～),
Nobuaki KAWAI(April ～), Saya HORIUCHI(April ～),
Pawaree Nonthasaen(April ～), Natnicha Kampan(April ～)

(1) Outline

Department of Clinical Anatomy supports clinical medicine through formulation of human anatomical and developmental biological bases of diagnoses and surgical procedures. We handle the whole body in human anatomical researches. We think it is classic but important to represent human morphology for exactly what they are based on meticulous observations of human body structures regardless of diagnostic technics and surgical procedures. Our researches are aimed to share languages among all clinicians based on clinical anatomy by describing the results of observations in an accessible way for clinicians. In addition, we perform analyses using experimental embryological approaches and developmental biological approaches, because we think it is important to consider how human structures are constructed.

(2) Research

1) Clinical anatomic study of the shoulder joint and rotator cuff.
2) Clinical anatomic study of the anal region for the rectoanal surgery.
3) Cadaveric study of the female pelvis for the gynecologic oncology and colposcopy
4) Analyses of the lamination in the masticatory muscles with special reference of nerve supply
5) Embryological study of the differentiation of cloaca and surrounding muscles.

(3) Education

Clinical anatomy is generally considered as the practical application of anatomical knowledge to diagnosis and treatment, however we think that this course is a part of pure anatomical science based on the findings of the morphological observations of the human bodies. Main objective of Clinical anatomy in the graduate course is to make detailed anatomical data to answer the questions developed from clinical fields especially by surgeons and radiologists. We collaborate with many clinicians: ENT, orthopedics, gynecology, thoracic surgery, radiology and so on, and our projects have been broad areas. Students are expected to get fine dissection techniques of human bodies and also learn techniques of histology and embryological experiments. By using these techniques,

we study the spatial relationships of organs, vessels nerves, and also try to examine their developmental processes in various projects.

(4) Lectures & Courses

Theories and hypotheses of morphogenesis derived from descriptive anatomy and descriptive biology have been confirmed and modified by experimental biology. Furthermore, progresses of developmental biology identified molecules and signaling pathways involved in the morphogenesis. Progresses in the developmental biology also verified morphological hypotheses, and added revisions to the morphological models. The postulates of the morphological models which are currently investigated were built and completed by Anatomy. However, we find Anatomy is still not completed and has many obscure issues through careful dissection of human body. It might be thought that everything was done and there could be no new finding in the human anatomical field anymore because the anatomy employs the classic procedures such as the gross anatomy. However, there are still a lot of unclear anatomical topics, because they had not been focused and not investigated with their clinical significances.

(5) Publications

[Original Articles]

1. Akimoto Nimura, Hitomi Fujishiro, Yoshiaki Wakabayashi, Junya Imatani, Hiroyuki Sugaya, Keiichi Akita. Joint capsule attachment to the extensor carpi radialis brevis origin : an anatomical study with possible implications regarding the etiology of lateral epicondylitis. J Hand Surg Am. 2014.02; 39(2); 219-225

2. Tomoyuki Mochizuki, Hitomi Fujishiro, Akimoto Nimura, Pasuk Mahakkanukrauh, Kazunori Yasuda, Takeshi Muneta, Keiichi Akita. Anatomic and histologic analysis of the mid-substance and fan-like extension fibres of the anterior cruciate ligament during knee motion, with special reference to the femoral attachment. Knee Surg Sports Traumatol Arthrosc. 2014.02; 22(2); 336-344

3. Haruhiko Shimura, Yoshiaki Wakabayashi, Akimoto Nimura. A novel closed reduction with extension block and flexion block using Kirschner wires and microscrew fixation for mallet fractures. J Orthop Sci. 2014.03; 19(2); 308-312

4. Sachiyuki Tsukada, Hitomi Fujishiro, Kentaro Watanabe, Akimoto Nimura, Tomoyuki Mochizuki, Mahakkanukrauh Pasuk, Kazunori Yasuda, Keiichi Akita. Anatomic variations of the lateral intercondylar ridge : relationship to the anterior margin of the anterior cruciate ligament. Am J Sports Med. 2014.05; 42(5); 1110-1117

5. Shinichi Miyagawa, Masayo Harada, Daisuke Matsumaru, Kazuki Tanaka, Chie Inoue, Chiaki Nakahara, Ryuma Haraguchi, Shoko Matsushita, Kentaro Suzuki, Naomi Nakagata, Roy Chun-Laam Ng, Keiichi Akita, Vincent Chi-Hung Lui, Gen Yamada. Disruption of the temporally regulated cloaca endodermal β-catenin signaling causes anorectal malformations. Cell Death Differ. 2014.06; 21(6); 990-997

6. Akiko Omori, Shinichi Miyagawa, Yukiko Ogino, Masayo Harada, Kenichiro Ishii, Yoshiki Sugimura, Hajime Ogino, Naomi Nakagata, Gen Yamada. Essential roles of epithelial bone morphogenetic protein signaling during prostatic development. Endocrinology. 2014.07; 155(7); 2534-2544

7. Tomoyuki Yano, Mutsumi Okazaki, Kumiko Yamaguchi, Keiichi Akita. Anatomy of the middle temporal vein : implications for skull-base and craniofacial reconstruction using free flaps. Plast Reconstr Surg. 2014.07; 134(1); 92e-101e

8. Tatsuya Tamaki, Kazuhiro Oinuma, Hideaki Shiratsuchi, Keiichi Akita, Satoshi Iida. Hip dysfunction-related urinary incontinence : a prospective analysis of 189 female patients undergoing total hip arthroplasty. Int J Urol. 2014.07; 21(7); 729-731

9. Satoru Muro, Kumiko Yamaguchi, Yasuo Nakajima, Kentaro Watanabe, Masayo Harada, Akimoto Nimura, Keiichi Akita. Dynamic intersection of the longitudinal muscle and external anal sphincter in the layered structure of the anal canal posterior wall. Surg Radiol Anat. 2014.08; 36(6); 551-559

10. Juri Kiyokawa, Kumiko Yamaguchi, Ryuhei Okada, Taketoshi Maehara, Keiichi Akita. Origin, course and distribution of the nerves to the posterosuperior wall of the external acoustic meatus. Anat Sci Int. 2014.09; 89(4); 238-245

11. Ryuzo Arai, Akimoto Nimura, Kumiko Yamaguchi, Hideya Yoshimura, Hiroyuki Sugaya, Takahiko Saji, Shuichi Matsuda, Keiichi Akita. The anatomy of the coracohumeral ligament and its relation to the subscapularis muscle. J Shoulder Elbow Surg. 2014.10; 23(10); 1575-1581

12. Tatsuya Tamaki, Akimoto Nimura, Kazuhiro Oinuma, Hideaki Shiratsuchi, Satoshi Iida, Keiichi Akita. An anatomic study of the impressions on the greater trochanter : bony geometry indicates the alignment of the short external rotator muscles. J Arthroplasty. 2014.12; 29(12); 2473-2477

[Books etc]

1. Hideyuki Koga, Tomoyuki Mochizuki, Tomohiki Tateishi, Keiichi Akita, Ichiro Sekiya, Takeshi Muneta. The Patellofemoral Joint. Springer-Verlag Berlin Heidelberg, 2014 (ISBN : 978-3-642-54965-6)

[Conference Activities & Talks]

1. Akimoto Nimura, Tomoyuki Mochizuki, Hitomi Fujishiro, Junya Imatani, Hiroyuki Sugaya, Takeshi Muneta, Keiichi Akita. Initiation Of Tennis Elbow; Anatomic Findings Of Origin Of Extensor Carpi Radialis Brevis And Joint Capsule. The 2014 Annual Meeting of the American Academy of Orthopaedic Surgeons 2014.03.11 New Orleans, LO, USA

2. Akimoto Nimura, Keiichi Akita. Lateral Epicondylitis Originates At The Anterior Side Of The Articular Capsule Underlying The Extensor Carpi Radialis Brevis. The Orthpaedic Research Society 2014.03.15 New Orleans, LO, USA

3. Tomomi Sakaguchi, Hitomi Fujishiro, Shimazaki K, Ono T, Keiichi Akita. Anatomical study about the condylar process and the lateral pterygoid muscle. 36th Annual Scientific Conference on Dental Research 2014.03.31 Ho Chi Minn City, Vietnam

4. Akimoto Nimura, Taiki Nozaki, Tomoyuki Mochizuki, Keiichi Akita. Anatomic relationship between lateral impression of greater tuberosity of humerus and insertion of infraspinatus tendon. 16th European Society of Sports Traumatology, Knee Surgery and Arthroscopy Congress 2014.05.13 Amsterdam, Netherland

5. Motoki Tanaka, Akimoto Nimura, Hiroyuki Sugaya, Keiichi Akita. Arthroscopic Evaluation of Delaminated Rotator Cuff Tears : A Morphological Analysis. 16th European Society of Sports Traumatology, Knee Surgery and Arthroscopy Congress 2014.05.14 Amsterdam, Netherland

6. Sachiyuki Tsukada, Hitomi Fujishiro, Kentaro Watanabe, Akimoto Nimura, Tomoyuki Mochizuki, Mahakkanukrauh P, Kazunori Yasuda, Keiichi Akita. The lateral intercondlylar ridge : Anatomic variations and relationship to the anterior margin of the anterior cruciate ligament. 16th European Society of Sports Traumatology, Knee Surgery and Arthroscopy Congress 2014.05.14 Amsterdam, Netherland

7. Tomomi Sakaguchi, Hitomi Fujishiro, Nao Hayashi, Kumiko Yamaguchi, Shimazaki K, Ono T, Keiichi Akita. Positional relationship between articular disc and condylar process. 31st Annual Meeting American Association of Clinical Anatomists 2014.07.08 Orlando, America

8. Tatsuya Tamaki, Kazuaki Matsumoto, Kazuhiro Oinuma, Ryutaku Kaneyama, Hidetaka Higashi, Yoko Miura, Kurato Jonishi, Xiangfeng Li, Sadayuki Takayama, Hiroyuki Yoshii, Hideaki Shiratsuchi. Damage to Muscle Insertions during a Femoral Procedure in Total Hip Arthroplasty : Evaluation using a 3-D Template. SOFJO 2014.09.06 Fukuoka, Japan

9. Tatsuya Tamaki, Kazuhiro Oinuma, Ryutaku Kaneyama, Hidetaka Higashi, Yoko Miura, Kurato Jonishi, Xiangfeng Li, Sadayuki Takayama, Hiroyuki Yoshii, Hideaki Shiratsuchi. Direct Anterior Total Hip Arthroplasty Using a Curved Short Stem. SOFJO 2014.09.06 Fukuoka, Japan

10. Nobuaki Kawai, Hiroyuki Sugaya, Norimasa Takahashi. A comparison of clinical outcome, strength recovery and repair integrity after standard double-row repair and suture bridging fixation for large to massive rotator cuff tears which involve subscapularis tear. The 25th Congress of the European Society for Surgery of Shoulder and Elbow 2014.09.16 Istanbul, Turkey

11. Tatsuya Tamaki, Kazuhiro Oinuma, Ryutaku Kaneyama, Yoko Miura, Kurato Jonishi, Hiroyuki Yoshii, Hideaki Shiratsuchi. A Curved Short Stem Preserves the Tendon Attachments on the Greater Trochanter in Direct Anterior Total Hip Arthroplasty. ISTA 2014.09.24 Kyoto, Japan

12. Natnicha Kampan, Apichat Sinthubua, Pasuk Mahakkanukrauh. Age Estimation from Ectocranial Suture Closure Using New Methods in a Thai Population. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

13. Pawaree Nonthasaen, Pasuk Mahakkanukrauh, Chot Nisung. A Descriptive Anatomical Study and Variations of the Lumbar Plexus with Clinical Implication. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

14. Ryuzaburo Kagawa, Keiichi Akita K, Kumiko Yamaguchi. Relationship between the structure of the anal sphincters and extension of an ischiorectal fistula tract. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

15. Hitomi Fujishiro, Sachiyuki Tsukada, Tomomasa Nakamura, Akimoto Nimura, Keiichi Akita. Anatomic relationship between lateral meniscus and anterior cruciate ligament. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

16. Nao Hayashi, Tomomi Sakaguchi, Hitomi Fujishiro, Kumiko Yamaguchi, Keiichi Akita. Insertion areas of the lateral pterygoid muscle and the temporalis on the condylar process of the mandible. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

17. Masataka Nakazawa, Akimoto Nimura, Masahiro Koizumi, Tatsuo Sato, Keiichi Akita. Posterior bundle of the acromioclavicular ligament plays a role in joint stabilization. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

18. Itsuko Okuda, Keiichi Akita, Yasuo Nakajima. Basic Consideration of the Facial Aging：Anatomic and Imaging Analysis for the Nasolabial Folds. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

19. Tomoyuki Yano, Mutsumi Okazaki, Kumiko Yamaguchi, Keiichi Akita. Anatomy of the distal branch of trigeminal nerve II：A feasibility study on direct cross nerve anastomosis for trigeminal nerve II palsy patients. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

20. Tatsuya Tamaki, Kazuhiro Oinuma, Hideaki Shiratsuchi, Akimoto Nimura, Keiichi Akita. The attachments of the short external rotator tendons can be visualized using preoperative 3D-CT. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

21. Motoki Tanaka, Akimoto Nimura, Nobuaki Kawai, Tomoyuki Mochizuki, Norimasa Takahashi, Hiroyuki Sugaya, Keiichi Akita. Arthroscopic Evaluation of Delaminated Rotator Cuff Tears:A Morphological Analysis. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

22. Daisuke Ban, Keiichi Akita, Hiroki Ueda, Atsushi Ooba, Akimoto Nimura, Kumiko Yamaguchi, Hisayo Nasu, Satoshi Matsumura, Arihiro Aihara, Takumi Irie, Takanori Ochiai, Atsushi Kudo, Shinji Tanaka, Minoru Tanabe. Anatomy of Mesopancreas and Pancreatic uncus. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

23. Yutaka Tokairin, Kagami Nagai, Hisashi Fujiwara, Taichi Ogo, Masafumi Okuda, Yasuaki Nakajima, Kenrou Kawada, Hisayo Nasu, Keiichi Akita, Tatsuyuki Kawano. Mediastinoscopic subaortic and tracheobronchial lymph node dissection with a new cervico-hiatal crossover approach in Thiel-embalmed cadavers. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.09 Tokyo, Japan

24. Yuichiro Tsukada, Masaaki Ito, Keiichi Akita, Kumiko Yamaguchi, Motohiro Kojima, Norio Saito. An association between levator ani muscle and the distal rectum. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.09 Tokyo, Japan

25. Tomoyasu Kato, Ryohei Yamamoto, Mayumi Kobayashi, Satoru Muroo, Kumiko Yamaguchi, Keiichi Akita. An investigation of vesical branches in the vesicouterine ligament using cadavers embalmed by Thiel's method. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.09 Tokyo, Japan

26. Tatsuya Tamaki, Kazuhiro Oinuma, Hideaki Shiratsuchi, Keiichi Akita. Hip Dysfunction Related Urinary Incontinence：An Anatomical Relationship between the Hip Joint and the Pelvic Floor. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.09 Tokyo, Japan

27. Motoki Tanaka, Akimoto Nimura, Hiroyuki Sugaya, Keiichi Akita. Arthroscopic Evaluation of Delaminated Rotator Cuff Tears：A Morphological Analysis. Academic Congress of the Asian Shoulder Association 2014.11.25 Ceb City, Philippines

28. Hitomi Fujishiro, Sachiyuki Tsukada, Akimoto Nimura, Keiichi Akita. An anatomic study of spatial relationships between the anterior cruciate ligament and the lateral meniscus. 11th Australian and New Zealand Association of Clinical Anatomy 2014.12.03 Otago, Newzealand

29. Nao Hayashi, Tomomi Sakaguchi, Hitomi Fujishiro, Kumiko Yamaguchi, Keiichi Akita. Positional relationships between the muscle bundle of the temporalis and the lateral pterygoid muscle. 11th Australian and New Zealand Association of Clinical Anatomy 2014.12.03 Otago, Newzealand

Systems BioMedicine

Professor Hiroshi ASAHARA
Junior Associate Professor Masahiro SHINOHARA
Project Junior Associate Professor Masaki MORI
Assistant Professor Yoshiaki ITO, Satoshi YAMASHITA
Meical Fellow Takahide MATSUSHIMA
Project Researcher Tomoki CHIBA
Project Assistant Professor Yoko TANAKA
Graduate Students
Takeshi SAITO, Kentaro ABE, Kensuke KATAOKA, Shoya KITADA, Soichi FURUKAWA, Yohei MATSUBARA, Naoki KODA, Hidetsugu SUZUKI, Takashi NAKASUJI, Hiroto YAMAMOTO, Ryo NAKAMICHI, Tomohiro KAYAMA, Masashi NAITO, Yusuke MOCHIZUKI

(1) Research

· The function of non-coding RNA in development and diseases will be examined.
· Development and regeneration using genome editing technologies, such as TALEN and CRISPR/Cas9 will be analyzed.
· Genome dynamics during embryogenesis will be monitored by new techniques.
· Novel systems approaches will be established and applied for developmental biology and medicine.

(2) Education

Under Graduate:
Conducting "Molecular Genetics", which is a series of lectures to understand the gene expression machinery and human genetics and their application to current medicine and biology. Under graduate students can join the lab works to learn the skills for molecular biology and pathology.
Graduate School:
Organizing "Development and Regeneration" lecture series to understand the basis for regenerative medicine and reproduction at the level of molecular genetics.
Students can join the Lab to perform researches using various experimental techniques, such as microarray, cell-based high throughput screening etc. Using these techniques, core molecular network for tissue development and inflammatory diseases will be examined, which forms the basis of systems biomedicine.

(3) Publications

[Original Articles]

1. Yohei Matsubara, Tomoki Chiba, Kenichi Kashimada, Tomohiro Morio, Shuji Takada, Shuki Mizutani, Hiroshi Asahara. Transcription activator-like effector nuclease-mediated transduction of exogenous gene into IL2RG locus. Sci Rep. 2014; 4; 5043

2. Inui Masafumi, Miyado Mami, Igarashi Maki, Tamano Moe, Kubo Atsushi, Yamashita Satoshi, Asahara Hiroshi, Fukami Maki, Takada Shuji. Rapid generation of mouse models with defined point mutations by the CRISPR/Cas9 system. Sci Rep. 2014; 4; 5396

3. Onizuka Naoko, Ito Yoshiaki, Inagawa Masayo, Nakahara Hiroyuki, Takada Shuji, Lotz Martin, Toyama Yoshiaki, Asahara Hiroshi. The Mohawk homeobox transcription factor regulates the differentiation of tendons and volar plates. J Orthop Sci. 2014.01; 19(1); 172-180

4. Akasaki Y, Hasegawa A, Saito M, Asahara H, Iwamoto Y, Lotz M K. Dysregulated FOXO transcription factors in articular cartilage in aging and osteoarthritis. Osteoarthritis Cartilage. 2014.01; 22(1); 162-170

5. Shinohara Masahiro, Chang Betty Y, Buggy Joseph J, Nagai Yusuke, Kodama Tatsuhiko, Asahara Hiroshi, Takayanagi Hiroshi. The orally available Btk inhibitor ibrutinib (PCI-32765) protects against osteoclast-mediated bone loss. Bone. 2014.03; 60; 8-15

6. Kei Takasawa, Kenichi Kashimada, Emanuele Pelosi, Masatoshi Takagi, Tomohiro Morio, Hiroshi Asahara, David Schlessinger, Shuki Mizutani, Peter Koopman. FOXL2 transcriptionally represses Sf1 expression by antagonizing WT1 during ovarian development in mice. FASEB J.. 2014.05; 28(5); 2020-2028

7. Shinohara M, Takayanagi H. Analysis of NFATc1-centered transcription factor regulatory networks in osteoclast formation Methods in Molecular Biology. 2014.05; (1164); 171-176

8. Miyata Kohei, Miyata Tomoko, Nakabayashi Kazuhiko, Okamura Kohji, Naito Masashi, Kawai Tomoko, Takada Shuji, Kato Kiyoko, Miyamoto Shingo, Hata Kenichiro, Asahara Hiroshi. DNA methylation analysis of human myoblasts during in vitro myogenic differentiation: de novo methylation of promoters of muscle-related genes and its involvement in transcriptional down-regulation. Hum Mol Genet. 2014.09; 24(2); 410-423

9. Nagata Eiko, Kano Hiroki, Kato Fumiko, Yamaguchi Rie, Nakashima Shinichi, Takayama Shinichiro, Kosaki Rika, Tonoki Hidefumi, Mizuno Seiji, Watanabe Satoshi, Yoshiura Koh-Ichiro, Kosho Tomoki, Hasegawa Tomonobu, Kimizuka Mamori, Suzuki Atsushi, Shimizu Kenji, Ohashi Hirofumi, Haga Nobuhiko, Numabe Hironao, Horii Emiko, Nagai Toshiro, Yoshihashi Hiroshi, Nishimura Gen, Toda Tatsushi, Takada Shuji, Yokoyama Shigetoshi, Asahara Hiroshi, Sano Shinichiro, Fukami Maki, Ikegawa Shiro, Ogata Tsutomu. Japanese founder duplications/triplications involving BHLHA9 are associated with split-hand/foot malformation with or without long bone deficiency and Gollop-Wolfgang complex. Orphanet J Rare Dis. 2014.10; 9(1); 125

10. Miyata Kohei, Yotsumoto Fusanori, Nam Sung Ouk, Odawara Takashi, Manabe Sadao, Ishikawa Toyokazu, Itamochi Hiroaki, Kigawa Junzo, Takada Shuji, Asahara Hiroshi, Kuroki Masahide, Miyamoto Shingo. Contribution of transcription factor, SP1, to the promotion of HB-EGF expression in defense mechanism against the treatment of irinotecan in ovarian clear cell carcinoma. Cancer Med. 2014.10; 3(5); 1159-1169

[Conference Activities & Talks]

1. Koji Otabe, Hiroyuki Nakahara, Akihiko Hasegawa, Martin K. Lotz, Hiroshi Asahara. Homeobox Mohawk Gene Induces Tenogenic Differentiation Of Bone Marrow Mesenchymal Stem Cells. Orthopaedic Research Society 2014.03.16 Louisiana

2. Ryo Nakamichi, Naoko Onizuka, Yoshiaki Ito, Tomohiro Kayama, Naoki Kouda, Toshihumi Ozaki, Hiroshi Asahara. Transcription Factor Mohawk is essential in Intervertebral Dic Maintenance. Orthopaedic Research Society 2014.03.17 Louisiana

3. Hiroshi Asahara. Genome editing technology for arthritis pathophysiology. INTERNATIONAL FORUM OF THE UNIVERSITY SCIENCE-2014 In conjunction with THE 2nd BIO RHEUMATOLOGY INTERNATIONAL CONGRESS(BRIC2014) THE 9th GLOBAL ARTHRITIS RESEARCH NETWORK(GRAN) 2014 MEETING MOSCOW 2014.06.06 Moscow

4. Hiroshi Asahara. Analysis of miRNAs in cartilage by TALEN/CRISPR genome editing techniques. 7th International Conference on Osteoporosis and Bone Research,2014 2014.10.16 Hangzhou

Comprehensive Pathology

Professor Masanobu KITAGAWA
Assistant Professor Morito KURATA(on administrative leave)
Kouhei YAMAMOTO, Shinya ABE,Shiho ABE,
Laboratory Technician Miori INOUE
Technical Assistant Sachiko ISHIBASHI
Graduate Students Susumu KIRIMURA, Yuko KINOWAKI,
Atsushi KIHARA,Kenichi MIYAMOTO,
Kazuhito SUZUKI, Masafumi INOUE,
Kenichiro KATO, Xiao Hai JIN
Momoko Yamada, Takuya Maeda,
Miu katsuyama,Abudushalamu Muyashaer,
Vilayvong Sulideyh,Luangxay Thitsamay,
Masae Yanai,Mariko Muto,
Sumito Shingaki

(1) Outline

Main objective of comprehensive pathology in the graduate course is to acquire the technique of clinical and basic pathology. This course provides students opportunity to study clinical pathology (for example, histological and cytological diagnosis, autopsy, clinico-pathologic conference) and also basic pathology (molecular pathology and molecular biology).

(2) Research

1) Clinico-pathological study by morphological findings, immunohistochemistry, and electron microscope, etc.
2) Molecular analysis of leukomogenesis induced by Friend leukemia virus (FLV)
3) Enhancement of apoptosis by virus-derived protein and development of apoptosis-induction cancer therapy
4) Molecular pathology of the myelodysplastic syndromes (MDS)
5) Clarification of drug resistance mechanism for hematopoietic malignancies
6) Comprehensive research for aging focus on the decreased immune competence
7) Molecular biology of the cancer progression and metastasis

(3) Education

Main objective of comprehensive pathology in the graduate course is to acquire the technique of clinical and basic pathology. This course provides students opportunity to study clinical pathology (for example, histological and cytological diagnosis, autopsy, clinico-pathologic conference) and also basic pathology (molecular pathology and molecular biology).

(4) Publications

[Original Articles]

1. Onishi I, Nakagawa Y, Murayama T, Hidaka M, Yamamoto K, Abe-Suzuki S, Abe S, Kurata M, Kitagawa M. Expression of multidrug resistance 1 gene in association with CXCL12 in chronic myelogenous leukemia Pathology. 2014;

2. Shishido-Hara Y, Kitagawa M, Uchihara T.. JC viral inclusions in progressive multifocal leukoencephalopathy: Scaffolding promyelocytic leukemia nuclear bodies (PML-NBs) grow with cell cycle transition through S-to-G2-like state in the enlarging nuclei of oligodendrocytes. J Neuropathol Exp Neurol. 2014; 75(5); 442-453

3. Tulafu M, Mitaka C, Hnin Si MK, Abe S, Kitagawa M, Ikeda S, Eishi Y, Kurata S, Tomita M. Atrial natriuretic peptide attenuates kidney-lung crosstalk in kidney injury. J Surg Res. 2014.01; 186(1); 217-225

4. R N Daggett, M Kurata, S Abe, I Onishi, K Miura, Y Sawada, T Tanizawa, M Kitagawa. Expression dynamics of CXCL12 and CXCR4 during the progression of mycosis fungoides. Br. J. Dermatol. 2014.04;

5. Yukiko Shishido-Hara, Takuya Yazawa, Motoo Nagane, Kayoko Higuchi, Shiho Abe-Suzuki, Morito Kurata, Masanobu Kitagawa, Hiroshi Kamma, Toshiki Uchihara. JC virus inclusions in progressive multifocal leukoencephalopathy: scaffolding promyelocytic leukemia nuclear bodies grow with cell cycle transition through an S-to-G2-like state in enlarging oligodendrocyte nuclei. J. Neuropathol. Exp. Neurol. 2014.05; 73(5); 442-453

6. Zeyu Yang, Kentaro Nakagawa, Aradhan Sarkar, Junichi Maruyama, Hiroaki Iwasa, Yijun Bao, Mari Ishigami-Yuasa, Shigeru Ito, Hiroyuki Kagechika, Shoji Hata, Hiroshi Nishina, Shinya Abe, Masanobu Kitagawa, Yutaka Hata. Screening with a novel cell-based assay for TAZ activators identifies a compound that enhances myogenesis in C2C12 cells and facilitates muscle repair in a muscle injury model. Mol. Cell. Biol.. 2014.05; 34(9); 1607-1621

7. Takayuki Nakayama, Kazutaka Saito, Yasuhisa Fujii, Shiho Abe-Suzuki, Yasukazu Nakanishi, Toshiki Kijima, Soichiro Yoshida, Junichiro Ishioka, Yoh Matsuoka, Noboru Numao, Fumitaka Koga, Kazunori Kihara. Pre-operative risk stratification for cancer-specific survival in patients with renal cell carcinoma with venous involvement who underwent nephrectomy. Jpn. J. Clin. Oncol. 2014.08; 44(8); 756-761

8. Shiho Abe-Suzuki, Morito Kurata, Shinya Abe, Iichiroh Onishi, Susumu Kirimura, Manami Nashimoto, Toshihiko Murayama, Michihiro Hidaka, Masanobu Kitagawa. CXCL12+ stromal cells as bone marrow niche for CD34+ hematopoietic cells and their association with disease progression in myelodysplastic syndromes. Lab. Invest. 2014.09;

9. Mitaka C, Hnin Si MK, Tulafu M, Yu Q, Uchida T, Abe S, Kitagawa M, Ikeda S, Eishi Y, Tomita M.. Effects of atrial natriuretic peptide on inter-organ crosstalk among the kidney, lung, and heart in a rat model of renal ischemia-reperfusion injury. Intensive Care Medicine Experimental. 2014.11; 2(28);

10. Iichiroh Onishi, Yasunori Nakagawa, Toshihiko Murayama, Michihiro Hidaka, Kouhei Yamamoto, Shiho Abe-Suzuki, Shinya Abe, Morito Kurata, Masanobu Kitagawa. Expression of multidrug resistance 1 gene in association with CXCL12 in chronic myelogenous leukaemia. Pathology. 2014.12; 46(7); 623-629

11. Masafumi Inoue, Yoshihisa Takahashi, Takeshi Fujii, Masanobu Kitagawa, Toshio Fukusato. Significance of downregulation of liver fatty acid-binding protein in hepatocellular carcinoma. World J. Gastroenterol. 2014.12; 20(46); 17541-17551

Molecular Oncology

Professor: Shinji TANAKA
Associate Professor: Yoshimitsu AKIYAMA
Associate Professor: Hiroshi FUKAMACHI
Assistant Professor: Shu SHIMADA
Laboratory Technician: Hiromi NAGASAKI
Graduate Student: Ayuna SAKAMOTO
Graduate Student: Taketo NISHIKAWAJI

(1) Outline

To understand the molecular mechanisms underlying carcinogenesis malignant progression for clinical application of cancer prevention, diagnosis and treatment.

(2) Research

1. Molecular analysis of refractory malignancies including liver, pancreatic and scirrhous gastric cancers
2. Development of molecularly targeted therapy for refractory malignancies
3. Cancer epigenetics/epigenomics and clinical application in refractory malignancies
4. Research of cancer stem cells and targted theratpy
5. Development of regenerative medicine using stem cell research

(3) Education

Hygiene is our charge. The undergraduate curriculum of hygiene includes lectures, and laboratory studies. Topics of lectures consist of environmental pollution and human health, world-wide environmental problems, carcinogen and occupational cancer, smoking-related diseases, infectious diseases including AIDS and hepatitis, food poisoning, anoxia and heat-related diseases.

(4) Lectures & Courses

The graduate students pursue their own projects associated with one of researches being in progress in the division. Every student can learn the basic scientific techniques, such as genetic engineering, cell culture and biochemical procedures. There are also many special lectures on cancer, gene, cell biology and biochemistry for the graduate students. On weekly seminars, the students present their own research data and introduce important papers from newly-arrived journals. Once the students get new findings, they are encouraged to present them at the domestic or international meeting and write manuscripts.

(5) Publications

[Original Articles]

1. Kano Y, Konno M, Kawamoto K, Tamari K, Hayashi K, Fukusumi T, Satoh T, Tanaka S, Ogawa K, Mori M, Doki Y, Ishii H. Novel drug discovery system for cancer stem cells in human squamous cell carcinoma

of the esophagus. Oncology Reports. 2014; 86(1); 53-62

2. Yasui Y, Kudo A, Kurosaki M, Matsuda S, Muraoka M, Tamaki N, Suzuki S, Hosokawa T, Ueda K, Matsunaga K, Nakanishi H, Tsuchiya K, Itakura J, Takahashi Y, Tanaka S, Asahina Y, Enomoto N, Arii S, Izumi N.. Reduced organic anion transporter expression is a risk factor for hepatocellular carcinoma in chronic hepatitis C patients: a propensity score matching study. Oncology. 2014.01; 86(1); 53-62

3. L Chen, L Fu, X Kong, J Xu, Z Wang, X Ma, Y Akiyama, Y Chen, J Fang. Jumonji domain-containing protein 2B silencing induces DNA damage response via STAT3 pathway in colorectal cancer. Br. J. Cancer. 2014.02; 110(4); 1014-1026

4. Kudo A, Mogushi K, Takayama T, Matsumura S, Ban D, Irie T, Ochiai T, Nakamura N, Tanaka H, Anzai N, Sakamoto M, Tanaka S, Arii S.. Mitochondrial metabolism in the noncancerous liver determine the occurrence of hepatocellular carcinoma: a prospective study. J. Gastroenterol.. 2014.03; 49(3); 502-510

5. Kudo A, Igari T, Kumagai J, Tanaka S, Ban D, Noguchi N, Irie T, Nakamura N, Arii S.. A simple index to predict liver functional reserve after hepatectomy. Hepatogastroenterology. 2014.04; 61; 712-716

6. Ogawa K, Tanaka S, Matsumura S, Murakata A, Ban D, Ochiai T, Irie T, Kudo A, Nakamura N, Tanabe M, Arii S.. EpCAM-targeted therapy for human hepatocellular carcinoma. Ann. Surg. Oncol.. 2014.04; 21(4); 1314-1322

7. Miura T, Ban D, Koyama T, Kudo A, Ochiai T, Irie T, Nakamura N, Tanaka S, Arii S.. Severe postoperative hemorrhage caused by antibody-mediated coagulation factor deficiencies: report of two cases. Surg. Today. 2014.05; 44(5); 976-981

8. Katsuta E, Tanaka S, Mogushi K, Matsumura S, Ban D, Ochiai T, Irie T, Kudo A, Nakamura N, Tanaka H, Tanabe M, Arii S.. Age-related clinicopathologic and molecular features of patients receiving curative hepatectomy for hepatocellular carcinoma. Am. J. Surg.. 2014.05;

9. Kudo A, Tanaka S, Matsumura S, Ban D, Irie T, Ochiai T, Nakamura N, Arii S.. Anatomic resection reduces the recurrence of solitary hepatocellular carcinoma < 5 cm without macrovascular invasion. Am. J. Surg.. 2014.06; 207(6); 863-869

10. Kudo A, Tanaka S, Ban D, Matsumura S, Irie T, Ochiai T, Nakamura N, Arii S, Tanabe M.. Alcohol consumption and recurrence of non-B or non-C hepatocellular carcinoma after hepatectomy: a propensity score analysis. J. Gastroenterol.. 2014.09; 49(9); 1352-1361

11. Seol HS, Akiyama Y, Shimada S, Lee HJ, Kim TI, Chun SM, Singh SR, Jang SJ. Epigenetic silencing of microRNA-373 to epithelial-mesenchymal transition in non-small cell lung cancer through IRAK2 and LAMP1 axes. Cancer Letters. 2014.10; 353(2); 232-241

12. Kudo A, Matusmura S, Ban D, Irie T, Ochiai T, Tanaka S, Arii S, Tanabe M.. Does the preoperative alpha-fetoprotein predict the recurrence and mortality after hepatectomy for hepatocellular carcinoma without macrovascular invasion in patients with normal liver function? Hepatol. Res.. 2014.12; 44(14); E437-E446

13. Matsunaga H, Tanaka S, Aihara A, Ogawa K, Matsumura S, Ban D, Ochiai T, Irie T, Kudo A, Nakamura N, Arii S, Tanabe M.. A Novel Therapeutic Combination Sequentially Targeting Aurora B and Bcl-xL in Hepatocellular Carcinoma. Ann. Surg. Oncol.. 2014.12;

14. Okajima C, Arii S, Tanaka S, Matsumura S, Ban D, Ochiai T, Irie T, Kudo A, Nakamura N, Tanabe M. Prognostic role of Child-Pugh score 5 and 6 in hepatocellular carcinoma patients who underwent curative hepatic resection. American Journal of Surgery, in press.

15. Watanabe Y, Yamamoto H, Oikawa R, Toyota M, Yamamoto M, Kokudo N, Tanaka S, Arii S, Yotsuyanagi H, Koike K, Itoh F. DNA methylation at hepatitis B viral integrants is associated with methylation at flanking human genomic sequences. Genome Research, in press.

[Misc]

1. Tanaka S. Molecular pathogenesis and targeted therapy of pancreatic cancer. Annals of Surgical Oncology, in press.

2. Ban D, Kudo A, Irie T, Ochiai T, Aihara A, Matusmura S, Tanaka S, Tanabe M. Advances in reduced port laparoscopic liver resection. Asian Journal of Endoscopic Surgery, in press.

3. Tanaka S. Cancer stem cells as therapeutic targets of hepato-biliary-pancreatic cancers. Journal of Hepato-Biliary-Pancreatic Sciences, in press.

[Conference Activities & Talks]

1. Ochiai T, Shioya A, Honma H, Saitoh T, Matsumura S, Ban D, Irie T, Kudo A, Nakamura N, Fujikawa T, Itai A, Tanaka S, Arii S, Yamaoka S, Tanabe M . Combination Treatment of I κ B Kinase β Inhibitor IMD-0354 and Gemcitabine Suppresses Oncogenic Proliferation of Pancreatic Cancer Cells. 9th Annual Academic Surgical Congress 2014.02.04 San Diego, USA

2. Shimada S, Akiyama Y, Fukamachi H, Kim W H, Yuasa Y. Identification of oncogenic pathways activated in a mouse model of E-cadherin/p53-deficient diffuse-type gastric cancer.. JSPS A3 Foresight Program 2014 Seminar - Epigenetic Signatures in Gastric Carcinogenesis 2014.03.15 Kyoto

3. Tanaka S, Ogawa K, Murakata A, Mogushi K, Matsumura S, Aihara A, Ban D, Ochiai T, Irie T, Kudo A, Nakamura N, Tanaka H, Arii S, Tanabe M. Preclinical studies of EpCAM-targeted therapy for human hepatocellular carcinoma with specific inhibition of stem cell features. 105th Annual Meeting of the American Association for Cancer Research 2014.04.06 San Diego, USA

4. Tanaka S. "Novel molecular targets and therapeutic combinations in hepatocellular carcinoma; rationale and significance" (invited lecture). 4th International Kyoto Liver Cancer Symposium 2014.06.08 Kyoto

5. Tanaka S, Aihara A, Matsumura S, Ban D, Ochiai T, Irie T, Kudo A, Nakamura N, Arii S, Tanabe M. Molecular targeted therapy for major vascular invasiveness of hepatocellular carcinoma (symposium). The 26th Meeting of Japanese Society of Hepato-Biliary-Pancreatic Surgery 2014.06.12 Wakayama

6. Shimada S, Akiyama Y, Fukamachi H, Yuasa Y. Identification of selective inhibitors of mouse E-cadherin/p53-deficient diffuse-type gastric cancer cells by careening a library of known compounds. NRFK A3 Foresight Program 2014 Seoul Seminar – Epigenetic Signatures in Gastric Carcinogenesis 2014.06.21 Seoul, Korea

7. Kim M, Lim B, Kim H-J, Kim S Y, Fukamachi H, Yuasa Y, Kim Y S. Transcriptome and DNA methylome analyses of gastric cancer stem cells. NRFK A3 Foresight Program 2014 Seoul Seminar – Epigenetic Signatures in Gastric Carcinogenesis 2014.06.21 Seoul, Korea

8. Fukamachi H. CD49fhigh cells retain sphere-forming tumor-initiating activities in human gastric cancers. Scientific Seminar at Medical Genomics Research Center, Korea Research Institute of Bioscience and Biotechnology, University of Science and Technology of Korea 2014.06.25 Daejeon, Korea

9. Shimada S, Akiyama Y, Fukamachi H, Yuasa Y. Identification of selective inhibitors of mouse diffuse-type gastric cancer cells by screening a library of kinown drugs. The 73rd Annual Meeting of the Japanese Cancer Association 2014.09.25 Yokohama

10. Fukamachi H, Shimada S, Yuasa Y . Features of tumor-initiating cells from a poorly-differentiated gastric tumor in primary culture. The 73rd Annual Meeting of the Japanese Cancer Association 2014.09.25 Yokohama

11. Tanaka S, Adikrisna R, Mogushi K, Matsunaga H, Matsumura S, Aihara A, Ochiai T, Tanaka H, Yamaoka S, Arii S. Visualized cancer stem cells for analysis of heterogenic expansion and microenvironments with tumor-host interaction (symposium). The 73th Annual Meeting of the Japanese Cancer Association 2014.09.25 Yokohama

12. Ueda H, Band D, Ohata Y, Sato T, Ohba A, Akahoshi K, Furuyama T, Ito H, Katsuta E, Nakao K, Matsumura S, Mitsunori Y, Aihara A, Ochiai T, Kudo A, Tanaka S, Tanabe M. The optimal dividing line of the jejunum for pancreatoduodenectomy. 2014.10.18

13. Akiyama Y, Koda Y, Nishikawaji T, Shimada S, Deng D, Kim WH, Zhu WG, Yuasa Y. Altered expression of the histone methyltransferase genes in gastric cancer.. 4th International Cancer Epigenetics Meeting 2014.10.19 Yangzhou, China

14. Katsuta E, Kudo A, Ohata Y, Ueda H, Sato A, Oba A, Akahoshi K, Nakao K, Furuyama T,Ito H, Matsumura S, Aihara A, Ban D, Ochiai T, Irie T, Tanaka S, Tanabe M.. Morphology of pancreatic Neuroendocrine Tumor(P-NET). American Pancreatic Association 2014.11.09 Hawaii

15. Tanaka S, Ogawa K, Matsumura S, Aihara A, Ban D, Ochiai T, Irie T, Kudo A, Arii S, Tanabe M. A preclinical study of EpCAM-targeted therapy for human hepatocellular carcinoma with stem cell features. 65th Annual Meeting of the American Association for the Study of Liver diseases 2014.11.10 Boston, USA

[Patents]

1. Compositions and methods for detection and treatment of hepatocellular carcinoma (Tanaka S, MacDonald G), Application Number：PCT/CA2014/050373

2. Dominant negative mutants of IRS-1 and uses there of (Tanaka S, Wands JR), Patent Number：United States Patent 6,528,479

3. Compositions and methods for detection and treatment of hepatocellular carcinoma (Tanaka S, MacDonald G), Application Number：US 61/811,360

Surgical Pathology

Professor : Yoshinobu EISHI
Associate Professor : Takumi AKASHI
Assistant Professor : Eisaku ITO, Yuan Bae, Emiko SUGAWARA
Hospital Staff Doctor : Keiko MIURA
Secretary : Ayako UENO, Yasuko SAKUMA

(1) Outline

Missons of diagnostic pathology are summarized to following 4 items. 1) participation to the medical treatment of the patients through anatomical diagnosis 2) assessment of medical treatment through autopsy examination 3) training of diagnostic pathologists 4) development of diagnostic methods by anatomical, immunohistochemical, microbiological and molecular technologies.
In cooperation with departments of human pathology and comprehensive pathology, department of surgical pathology provides 1. diagnostic pathology services for the clinicians of the affiliated hospital 2. education of medical students and post-graduate students through both lectures and medical practice 3. development of new methods in diagnosticl pathology.

(2) Research

1)Analysis of the pathophysiology of the disease, especially invasion mechanism of lung and gastrointestinal cancers by molecular biological technology.
2)Identification of epithelial neoplasms with chromosome translocation
3)Carcinogenesis of prostatic cancer in view of microbiology

(3) Education

Main object of surgical pathology in the course of graduate school is to provide medical students opportunity to study pathophysiology and diagnosis of core diseases, both neoplastic and non-neoplastic, through biopsy, surgical and autopsy cases. Another important mission is a training of pathology specialist in the post-graduate school through diagnostic services of surgical pathology, cytopathology and autopsy.

(4) Lectures & Courses

The initial purpose of this program is to acquire how to morphologically diagnose both neoplastic and non-neoplastic diseases. In addition, it is also very important to recognize the limitations and problems of morphological diagnosis and to learn the morphological and molecular methods which are necessary for the resolution of the problems. The ultimate purpose is to develop a new diagnostic method which can resolve the problems of morphological diagnosis.

(5) Clinical Services & Other Works

In cooperation with departments of human pathology and comprehensive pathology, department of surgical pathology provides autopsy services (38 case in a year), cytopathology services (9,957 cases in a year) and surgical pathology (11,574 cases in a year) for the clinicians of the affiliated hospital. Diagnosis is mostly done by the organ-subspecilized staffs. Clinico-pathological conferences have been held about two hundred times in 2014.

(6) Clinical Performances

Department of diagnostic pathology participates in the medical treatment of the patients through anatomical diagnosis. In the era of molecule-targeted therapy, specialized information has been requested in the field of pathological diagnosis. In order to appropriately respond to a latest request of clinicians, we practice pathological diagnosis in cooperation with departments of human pathology and comprehensive pathology with latest techniques, such as immunohistochemistry, electron microscopy, and FISH.

(7) Publications

[Original Articles]

1. Ota Kiyobumi, Obayashi Masato, Ozaki Kokoro, Ichinose Shizuko, Kakita Akiyoshi, Tada Mari, Takahashi Hitoshi, Ando Noboru, Eishi Yoshinobu, Mizusawa Hidehiro, Ishikawa Kinya. Relocation of p25alpha/tubulin polymerization promoting protein from the nucleus to the perinuclear cytoplasm in the oligodendroglia of sporadic and COQ2 mutant multiple system atrophy. Acta Neuropathol Commun. 2014; 2; 136

2. Bae Y, Ito T, Iida T, Uchida K, Sekine M, Nakajima Y, Kumagai J, Yokoyama T, Kawachi H, Akashi T, Eishi Y. Intracellular Propionibacterium acnes infection in glandular epithelium and stromal macrophages of the prostate with or without cancer. PLoS One. 2014; 9(2); e90324

3. Takemori N, Nakamura M, Kojima M, Eishi Y. Successful treatment in a case of Propionibacterium acnes-associated sarcoidosis with clarithromycin administration: a case report. J Med Case Rep. 2014; 8; 15

4. Tulafu M, Mitaka C, Hnin Si MK, Abe S, Kitagawa M, Ikeda S, Eishi Y, Kurata S, Tomita M. Atrial natriuretic peptide attenuates kidney-lung crosstalk in kidney injury. J Surg Res. 2014.01; 186(1); 217-225

5. Takemura K, Kawachi H, Eishi Y, Kitagaki K, Negi M, Kobayashi M, Uchida K, Inoue J, Inazawa J, Kawano T, Board PG. γ-Glutamylcyclotransferase as a novel immunohistochemical biomarker for the malignancy of esophageal squamous tumors. Hum Pathol. 2014.02; 45(2); 331-341

6. Bae Hyeyeol, Yoshida Soichiro, Matsuoka Yoh, Nakajima Hiroshi, Ito Eisaku, Tanaka Hiroshi, Oya Miyako, Nakayama Takayuki, Takeshita Hideki, Kijima Toshiki, Ishioka Junichiro, Numao Noboru, Koga Fumitaka, Saito Kazutaka, Akashi Takumi, Fujii Yasuhisa, Kihara Kazunori. Apparent diffusion coefficient value as a biomarker reflecting morphological and biological features of prostate cancer. Int Urol Nephrol. 2014.03; 46(3); 555-561

7. Ueno H, Shirouzu K, Shimazaki H, Kawachi H, Eishi Y, Ajioka Y, Okuno K, Yamada K, Sato T, Kusumi T, Kushima R, Ikegami M, Kojima M, Ochiai A, Murata A, Akagi Y, Nakamura T, Sugihara K; Study Group for Perineural Invasion projected by the Japanese Society for Cancer of the Colon and Rectum (JSCCR). Histogenesis and prognostic value of myenteric spread in colorectal cancer: a Japanese multi-institutional study. J Gastroenterol. 2014.03; 49(3); 400-407

8. Ichiro Yamada, Keigo Hikishima, Naoyuki Miyasaka, Yutaka Tokairin, Eisaku Ito, Tatsuyuki Kawano, Daisuke Kobayashi, Yoshinobu Eishi, Hideyuki Okano. Esophageal carcinoma: Evaluation with q-space diffusion-weighted MR imaging ex vivo. Magn Reson Med. 2014.06;

9. Omori M, Bito T, Yamada M, Ogura K, Eishi Y, Nishigori C. Systemic sarcoidosis with bone marrow involvement showing Propionibacterium acnes in the lymph nodes. J Eur Acad Dermatol Venereol. 2014.06;

10. Yamada I, Hikishima K, Miyasaka N, Kawano T, Tokairin Y, Ito E, Kobayashi D, Eishi Y, Okano H. Esophageal carcinoma: ex vivo evaluation with diffusion-tensor MR imaging and tractography at 7 T. Radiology. 2014.07; 272(1); 164-173

11. Yamada I, Hikishima K, Miyasaka N, Tokairin Y, Kawano T, Ito E, Kobayashi D, Eishi Y, Okano H, Shibuya H. Diffusion-tensor MRI and tractography of the esophageal wall ex vivo. J Magn Reson Imaging. 2014.09; 40(3); 567-576

12. Inoue Masaharu, Koga Fumitaka, Yoshida Soichiro, Tamura Tomoki, Fujii Yasuhisa, Ito Eisaku, Kihara Kazunori. Significance of ERBB2 overexpression in therapeutic resistance and cancer-specific survival in muscle-invasive bladder cancer patients treated with chemoradiation-based selective bladder-sparing approach. Int J Radiat Oncol Biol Phys. 2014.10; 90(2); 303-311

13. Fuminori Nomura, Taro Sugimoto, Keisuke Kitagaki, Takashi Ito, Hiroshi Kawachi, Yoshinobu Eishi, Ken Watanabe, Miki Igaue, Norio Shimizu, Makoto Tomita, Ken Kitamura, Seiji Kishimoto. Clinical characteristics of Japanese oropharyngeal squamous cell carcinoma positive for human papillomavirus infection. Acta Otolaryngol.. 2014.12; 134(12); 1265-1274

[Conference Activities & Talks]

1. Eishi Y,Uchida K,Furukawa A,Suzuki Y,Sekine M,Sakakibara Y . Sarcoidosis as an allergic endogenous infection caused by Propionibacterim acnes . 3rd Combined WASOGBAL Meeting, 11th WASOG Meetning and 13th International Conference on BAL 2014.10.08 Kusadasi, Turky

Experimental Animal Model for Human Disease

Professor	Masami Kanai-Azuma
Junior AssociateProfessor	Yoshikazu Hirate
Assistant Professor	Shu Endo
Assistant Professor	Miyuri Kawasumi
Assistant Professor	Hitomi Suzuki

(1) Research

1)Sox17 function for the foregut endoderm development.
(Etiology – Mouse Hepatitis)
2)The functional analysis of SoxF group
3)Mechanisms of bile duct development
4)Functional analysis of transcription factor Sox17 for implantation.
5)Mechanism of primordial follicle activation in mammalian ovary

(2) Publications

[Original Articles]

1. Mishima Tatsuya, Fujiwara Tomonori, Sanada Masumi, Kofuji Takefumi, Kanai-Azuma Masami, Akagawa Kimio. Syntaxin 1B, but not syntaxin 1A, is necessary for the regulation of synaptic vesicle exocytosis and of the readily releasable pool at central synapses. PLoS One. 2014; 9(2); e90004

2. Puri P, Department of Obstetrics Gynecology and Reproductive Sciences Center for", Research in Reproductive Physiology Magee Women's Research Institute University", of Pittsburgh Pittsburgh Pennsylvania USA.", Phillips Bart T", Phillips BT, Suzuki Hitomi", Suzuki H, Orwig Kyle E", Orwig KE, Rajkovic Aleksandar", Rajkovic A, Lapinski Philip E", Lapinski PE, King Philip D", King PD, Feng Gen-Sheng", Feng GS, Walker William H", Walker WH. The transition from stem cell to progenitor spermatogonia and male fertility requires the SHP2 protein tyrosine phosphatase. Stem Cells Stem cells (Dayton, Ohio)". 2014.03; 32(3); 741-753

3. Ramaswamy S, Department of Obstetrics Gynecology and Reproductive Sciences University of", Pittsburgh School of Medicine Pittsburgh PA 15261 USA.", Razack Bibi S", Razack BS, Roslund Rachel M", Roslund RM, Suzuki Hitomi", Suzuki H, Marshall Gary R", Marshall GR, Rajkovic Aleksandar", Rajkovic A, Plant Tony M", Plant TM. Spermatogonial SOHLH1 nucleocytoplasmic shuttling associates with initiation of spermatogenesis in the rhesus monkey (Macaca mulatta). Mol Hum Reprod. 2014.04; 20(4); 350-357

4. Nobuhisa I, Osawa M, Uemura M, Kishikawa Y, Anani M, Harada K, Takagi H, Saito K, Kanai-Azuma M, Kanai Y, Iwama A, and Taga T. Sox17-mediated maintenance of fetal intra-aortic hematopoietic cell

clusters. Mol Cell Biol. 2014.06; 34(11); 1976-1990

5. Takahashi S, Lee J, Kohda T, Matsuzawa A, Kawasumi M, Kanai-Azuma M, Kaneko-Ishino T, Ishino F. Induction of the G2/M transition stabilizes haploid embryonic stem cells. Development. 2014.10; 141(20); 3842-3847

6. Shinomura Mai, Kishi Kasane, Tomita Ayako, Kawasumi Miyuri, Kanezashi Hiromi, Kuroda Yoshiko, Tsunekawa Naoki, Ozawa Aisa, Aiyama Yoshimi, Yoneda Asuka, Suzuki Hitomi, Saito Michiko, Picard Jean-Yves, Kohno Kenji, Kurohmaru Masamichi, Kanai-Azuma Masami, Kanai Yoshiakira. A novel Amh-Treck transgenic mouse line allows toxin-dependent loss of supporting cells in gonads. Reproduction. 2014.12; 148(6); H1-H9

[Misc]

1. Hirate Yoshikazu, Sasaki Hiroshi. The role of angiomotin phosphorylation in the Hippo pathway during preimplantation mouse development. Tissue Barriers. 2014.01; 2(1); e28127

[Conference Activities & Talks]

1. Miyuri Kawasumi, Hitomi Suzuki, Yoshiakira Kanai, Masami Kanai-Azuma . The effect of Sox17 on uterus during mouse implantation.. The 61st Annual Meeting of Japanese Association for Laboratory Animal Science 2014.05.15 Sapporo Convention Center

2. Kento Miura,Masami Kanai-Azuma,Yoshiakira Kanai. Common molecular pathways between SRY-dependent and –independent testiculogenesis in mouse fetal gonads. 4th International SOX Research Conference 2014.09.08 Cleveland,Ohio,USA

3. Masami Kanai-Azum. Sox17 haploinsufficiency causes maternal defects in implantation,leading to reduced female fertility. 4th International SOX Research Conference 2014.09.08 Cleveland,Ohio,USA

4. Yoshikazu Hirate, Miyuri Kawasumi, Hitomi Suzuki, Sakurako Kano, Yoshiakira Kanai, Masami Kanai-Azuma. Sox17 heterozygous females show impaired implantation in mice.. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25 Pacifico Yokohama

Signal Gene Regulation

Professor NAKAMURA Masataka
Associate Professor FUNATO Noriko
Assistant Professor MIZUGUCHI Mariko

(1) Research

1) Molecular mechanism of tumorigenesis by human T-cell leukemia virus type I (HTLV-I).
2) Roles of transcription factors in cell differetiation.
3) Implication of prostaglandin D2 receptor (CRTH2) in allergy reactions.

(2) Lectures & Courses

The aim of Human Gene Sciences Center is to provide laboratory equipment, room and information for researches in advanced molecular and cellular biology. In educational objectives in the graduate school, our Center gives lecture, seminar, training course and individual assistance in research fields of molecular genetics, immunology and virology.

(3) Publications

[Original Articles]

1. S Kinpara, S Ito, T Takahata, Y Saitoh, A Hasegawa, M Kijiyama, A Utsunomiya, M Masuda, Y Miyazaki, M Matsuoka, M Nakamura, S Yamaoka, T Masuda, M Kannagi. Involvement of double-stranded RNA-dependent protein kinase and antisense viral RNA in the constitutive NF κ B activation in adult T-cell leukemia/lymphoma cells. Leukemia. 2014.01;

2. Sarashina H, Tsubosaka Y, Omori K, Aritake K, Nakagawa T, Hori M, Hirai H, Nakamura M, Narumiya S, Urade Y, Ozaki H, Murata T. Opposing immunomodulatory roles of prostaglandin D2 during the progression of skin inflammation. J. Immunol.. 2014.01; 192(1); 459-465

3. Haba R, Shintani N, Onaka Y, Kanoh T, Wang H, Takenaga R, Hayata A, Hirai H, Nagata K, Nakamura M, Kasai A, Hashimoto R, Nagayasu K, Nakazawa T, Hashimoto H, Baba A. Central CRTH2, a second prostaglandin D2 receptor, mediates emotional impairment in the lipopolysaccharide and tumor-induced sickness behavior model. J. Neurosci.. 2014.02; 34(7); 2514-2523

4. Morita J, Nakamura M, Kobayashi Y, Deng C, Funato N, Moriyama K. Soluble form of FGFR2 with S252W partially prevents craniosynostosis of the apert mouse model. Dev. Dyn.. 2014.04; 243(4); 560-567

5. Moniot B, Ujjan S, Champagne J, Hirai H, Aritake K, Nagata K, Dubois E, Nidelet S, Nakamura M, Urade Y, Poulat F, Boizet-Bonhoure B. Prostaglandin D2 acts through the Dp2 receptor to influence male germ cell differentiation in the foetal mouse testis. Development. 2014.09; 141(18); 3561-3571

6. Tsubosaka Y, Nakamura T, Hirai H, Hori M, Nakamura M, Ozaki H, Murata T. A deficiency in the prostaglandin D2 receptor CRTH2 exacerbates adjuvant-induced joint inflammation. J. Immunol.. 2014.12; 193(12); 5835-5840

[Misc]

1. Funato N, Ohyama K, Nakamura M. Basic helix-loop-helix (bHLH) factors in osteoblast differentiation. J Oral Biosciences.

[Conference Activities & Talks]

1. Preston L.E., Kokubo H., Nakamura M., Saga Y., Funato N.. Hand1 regulates Endochondral Ossification.. IADR (International Association for Dental Research) 2014.06.27

2. ,Mizukoshi T, Nakamura M. Cell lineage-dependent activation of NF-kB by human T-cell leukemia virus type 1 Tax1. FEBS EMBO 2014 2014.09.02 Paris

3. Funato N, Nakamura M, Richardson JA, Srivastava D, Yanagisawa H.. Loss of Tbx1 induces bone phenotypes similar to cleidocranial dysplasia.. Japanese Division of the International Association for Dental Research (JADR). 2014.12.05

4. Nakamura M. Induction and mediation of allergy reactions by prostaglandin D2 signaling. WAO International Conferece 2014 2014.12.08 Rio de Janeiro

Biofunctional Molecular Science

Associate Professor Tomoya Hirano
Assistant Professor Shigeru Ito
Technician Hiroyuki Masuno

(1) Outline

Our group is working on the developments of functional molecules, which can "modulate" or "sense" the physiological functions, such as enzyme inhibitors and fluorescent sensors for elucidating intracellular or extracellular signal transduction pathway. In addition, we also focus on the development of novel drug and diagnostic tools for various diseases.

(2) Research

1) Construction of a facile method to develop various fluorescent sensors for elucidating physiological functions
We construct a facile method to develop various fluorescent sensors, which can sense the change of the concentration or activity of each biologically important analyte.

2) Development of histone methyltransferase inhibitors
Post-translational modification of histone proteins plays an important role in the regulation of gene expression, and can be controlled by histone modifying enzymes, such as histone methyltransferase (HMT). We are developing some inhibitors against these HMTs.

(3) Education

In this course, students are taught and trained several knowledgnes and techniques for the development of functional molecules.

(4) Lectures & Courses

Through this course, students are expected to understand and train the experimental techniques related to organic chemistry, analytical chemistry, medicinal chemistry and chemical biology.

(5) Publications

[Original Articles]

1. Fujii, S.; Sekine, R.; Kano, A.; Masuno, H.; Songkram, C.; Kawachi, E.; Hirano, T.; Tanatani, A.; Kagechika, H.. Structural development of p-carborane-based potent non-secosteroidal vitamin D analogs Bioorganic Medicinal Chemistry. 2014; 22; 5891-5901

2. Fujii, S.; Kano, A.; Masuno, H.; Songkram, C.; Kawachi, E.; Hirano, T.; Tanatani, A.; Kagechika, H.. Design and synthesis of tetraol derivatives of 1,12-dicarba-closo-dodecaborane as non-secosteroidal vitamin D analogs Bioorganic Medicinal Chemistry Letters. 2014; 24; 4515-4519

3. Takuya Shiraishi, Toshiki Saito, Hiroyuki Kagechika, Tomoya Hirano. Development of a Novel Fluorescent Sensor to Detect a Specific Range of pH Tetrahedron Lett. 2014; 55; 6784-6786

4. Shinya Fujii, Atsushi Kano, Chalermkiat Songkram, Hiroyuki Masuno, Yoshiyuki Taoda, Emiko Kawachi, Tomoya Hirano, Aya Tanatani, Hiroyuki Kagechika. Synthesis and structure-activity relationship of p-carborane-based non-secosteroidal vitamin D analogs. Bioorg. Med. Chem.. 2014.02; 22(4); 1227-1235

[Conference Activities & Talks]

1. Tomoya Hirano. Development of Various Fluorescent Sensors Based on the Construction of Fluorescent Compound Library. CCS-CSJ Joint Symposium 2014.08 Beijing, China

2. Hirano, T., Shiraishi, T., Saito, T., Kagechika, H. Development of Fluorescent Sensors with its Functions Regulated by Chemical or Enzymatic Reaction. 3rd Int. Chem. Bio. Symp. 2014.11 San Francisco, USA

Medicinal Chemistry

Professor Hirokazu TAMAMURA
Assistant Professor Nami OHASHI
Technical Assistant Miho TANABE
Adjunct Lecturer Motoyoshi NOMIZU

Graduate students
D 4 Yosuke NONAKA
M 2 Yu Irahara, Tsugunori OKABE, Ryosuke KOBAYASHI, Sho SAKAMOTO, Yuzuna HONDA
M 1 Iyo OHURA, Misato KOTANI, Taisuke SUGII, Yudai MATSUZAKI, Yuriko MARUTANI, Daisuke MIYAKI, Natsuka YATABE

Visiting Undergraduate Student
B 4 Yusuke ISHIDA, Shizuka TAKAGI

External Research Collaborator
Yuko YAMADA

(1) Outline

1.Development of conformational-constrained templates for drug discovery.
Drug-discovery templates for conformational restriction, which enable pharmacophores of bioactive compounds (ex. peptides) to be suitably disposed in three-dimensional space, are being developed. Drug discovery for the chemotherapy of cancer, AIDS, Alzheimer' s disease, rheumatoid arthritis, SARS, etc. is being performed based on targeting several receptors, enzymes, etc.
2.Development of bio-probes, bio-sensing, medicinal chemistry towards chemical biology.
Bio-probes that specifically recognize each receptor or enzyme are being developed for research on chemical biology involving imaging and sensing.
3.Structural analysis of the interactions between receptors/enzymes and their ligands.
Using X-ray crystal structural analysis, the mechanism of signal transduction operated by binding of ligands to receptors/enzymes is being analyzed.
4. Development of applications of zinc finger protein for gene therapy and nano technology.
Utilizing DNA sequence-specific recognition of zinc finger protein, technologies for DNA recombination, modifications, and DNA labeling are being developed.

(2) Publications

[Original Articles]

1. Tetsuo Narumi, Hikaru Takano, Nami Ohashi, Akinobu Suzuki, Toshiaki Furuta & Hirokazu Tamamura. Isostere-Based Design of 8-Azacoumarin-type Photolabile Protecting Groups: A Hydrophilicity Increasing Strategy for Coumarin-4-ylmethyls. Org. Lett.,. 2014; 16(4); 1184-1187

2. Jun Yamamoto, Nami Maeda, Chiaki Komiya, Tomohiro Tanaka, Masaya Denda, Koji Ebisuno, Wataru Nomura, Hirokazu Tamamura, Youichi Sato, Aiko Yamauchi, Akira Shigenaga & Akira Otaka. Development of a Fluoride-responsive Amide Bond Cleavage Device that is Potentially Applicable to a Traceable Linker. Tetrahedron,. 2014; 70(34); 5122-5127

3. Nami Ohashi, Wataru Nomura, Natsuki Minato & Hirokazu Tamamura . Screening for Protein Kinase C Ligands Using Fluorescence Resonance Energy Transfer. Chem. Pharm. Bull., . 2014; 62(10); 1019-1025

4. Jun Yamamoto, Masaya Denda, Nami Maeda, Miku Kita, Chiaki Komiya, Tomohiro Tanaka, Wataru Nomura, Hirokazu Tamamura, Youichi Sato, Aiko Yamauchi, Akira Shigenaga & Akira Otaka. Development of a Traceable Linker Containing a Thiol-responsive Amino Acid for the Enrichment and Selective Labelling of Target Proteins. Org. Biomol. Chem.,. 12(23); 3821-3826

5. Hikaru Takano, Tetsuo Narumi, Nami Ohashi, Akinobu Suzuki, Toshiaki Furuta, Wataru Nomura & Hirokazu Tamamura. Development of the 8-Aza-3-bromo-7-hydroxycoumarin-4-ylmethyl Group as a New Entry of Photolabile Protecting Groups. Tetrahedron, . 70(29); 4400-4404

[Conference Activities & Talks]

1. Nomura W, Masuda A, Tamamura H.. Enhanced Gene Disruption by Simultaneous Digestion of ZFN or CRISPR/Cas System at hTERT Promoter Region. FASEB SRC "Genome Engineering Cutting-Edge Research and Applications" . FASEB SRC "Genome Engineering Cutting-Edge Research and Applications" 2014

2. Nomura W, Masuda A, Tamamura H.. Enhanced Gene Disruption at Specific Promoter Region by Simultaneous Digestion of ZFN or CRISPR/Cas System.. The Synthetic Biology: Engineering, Evolution & Design (SEED) conference 2014

3. Nomura W, Masuda A, Tamamura H.. Efficient Gene Disruption at hTERT Promoter Region by Simultaneous Digestion by Pairs of ZFNs or Guide RNAs of CRISPR/Cas System.. The 28th annual symposium of protein society. 2014

4. Nomura W, Hashimoto C, Fujino M, Murakami T, Ohashi N, Tamamura H.. Multimerized Peptides Derived from the C-Terminal Region of HIV-1 gp41 as Fusion Inhibitors.. The 33rd European Peptide Society Symposium. 2014

5. Nomura W, Métifiot M, Ohashi N, Fujino M, Mizuguchi T, Yamamoto N, Pommier Y, Komano JA, Murakami T, Tamamura H.. Cell-permeable Stapled Peptides with Integrase Inhibitory Activity Derived from HIV Gene Products.. The 15h Kumamoto AIDS Seminar. 2014

6. Yamada Y, Hashimoto C, Otsuki H, Hirota Y, Yoshimura K, Harada S, Ohashi N, Mizuguchi T, Nomura W, Miura T, Igarashi T, Matsushita S, Tamamura H.. A CD4 Mimic as an HIV Entry Inhibitor: Pharmacokinetics... The 15h Kumamoto AIDS Seminar. 2014

7. Irahara Y, Kotani M, Harada S, Narumi T, Yamada Y, Hirota Y, Ohashi N, Mizuguchi T, Nomura W, Matsushita S, Yoshimura K, Tamamura H.. A New Type of Small CD4 Mimic Molecules Targeting an HIV Envelope Protein gp120.. The 15h Kumamoto AIDS Seminar. 2014

8. Kotani M, Hirota Y, Irahara Y, Harada S, Yamada Y, Ohashi N, Mizuguchi T, Nomura W, Matsushita S, Yoshimura K, Tamamura H.. Structure-activity Relationship Studies of CD4 Mimic Molecules.. The 15h Kumamoto AIDS Seminar. 2014

9. Nomura W, Koseki T, Mizuguchi T, Tamamura H. Design and Synthesis of Trivalent CXCR4 Ligands Utilizing Polyproline Linkers. The 51th Japanese Peptide Symposium 2014

10. Honda Y, Mizuguchi T, Nomura W, Tamamura H. Development of Dimeric Peptide Derivatives Based on gp41 Fragments as HIV-1 Fusion Inhibitors. The 51th Japanese Peptide Symposium 2014

11. Kobayakawa T, Narumi T, Tamamura H. Development of Efficient Synthetic Methodologies of Chloroalkene Dipeptide Isosteres. The 51th Japanese Peptide Symposium 2014

12. Takano H, Narumi T, Nomura W, Furuta T, Tamamura H. Development of 8-Azacoumarin-4-ylmethyl-type Photolabile Protecting Groups Based on Amide-alkene Isosterism.. The 51th Japanese Peptide Symposium 2014

13. Mizuguchi T, Yamazaki Y, Kobayashi K, Ooe H, Iida M, Ninomiya R, Saito K, Akaji K, Tamamura H.. Studies on Identification of Active Sites of an Inhibitory Cyclic Peptide against EGF Receptor Dimerization.. The 51th Japanese Peptide Symposium 2014

Biomechanics

Kenji Kawashima
Takahiro Kanno

(1) Outline

Kawashima Lab. mainly working on the development of medical devises and systems based on control engineering, robotics and fluid dynamics.

Key word is integration such as hardware and software, electrical and pneumatics, human and machine.

(2) Research

1) Development of Forceps Manipulator for Surgical Robot

2) Assist Device using Pneumatic Artificial Rubber Muscle

3) Teleoperation Control using Biological Signals

4) Evaluation of Surgical Robot System

(3) Education

Learn basic skill to evaluate the medical devices such as robotic surgery system. Practice computer programming, and execute some experimental research related to surgical robot.

(4) Lectures & Courses

Enhance the ability to design and develop medical devices based on biomechanics.

(5) Publications

[Original Articles]

1. T. Kanno, D. Haraguchi, M. Yamamoto, K. Tadano, and K. Kawashima. A Forceps Manipulator With Flexible 4-DOF Mechanism for Laparoscopic Surgery IEEE/ASME Transactions on Mechatronics. 2014.06;

2. Hongbing Li, Kenji Kawashima. Experimental Comparison of Backdrivability for Time-delayed Telerobotics Control Engineering Practice. 2014.07; 28; 90-96

3. Kazuhiro Chayama, Akira Fujioka, Kenji Kawashima, Hiroshi Yamamoto,Yasushi Nitta, Chikao Ueki, Atsushi Yamashita, and Hajime Asa. Technology of Unmanned Construction System in Japan Journal of Robotics and Mechatronics. 2014.07; 26(4); 403-417

4. Hongbing Li, Kotaro Tadano, Kenji Kawashima. Model-based passive bilateral teleoperation with time delay Transactions of the Institute of Measurement and Control. 2014.08; 36(8); 1010-1020

5. Hongbing Li, Kenji Kawashima. Achieving Stable Tracking in Wave-Variable-Based Teleoperation IEEE/ASME Transactions on Mechatronics (TMECH). 2014.10; 19(5); 1574-1582

6. Hongbing Li, Kenji Kawashima. Achieving Stable Tracking in Wave-Variable-Based Teleoperation. (ACCEPT) IEEE/ASME Transactions on Mechatronics (TMECH).

[Conference Activities & Talks]

1. Kenji Kawashima. Pneumatically-Driven Surgical Robot with Force Perception. International Symposium on Technologies against Cancer 2014.03.09 Tokyo

2. Kei Mikami, Kotaro Tadano, Kenji Kawashima. A Laparoscope Control System using a Pneumatic Robot Arm. The 9th JFPS International Symposium on Fluid Power 2014.10.29

3. Takahiro Kanno, Daisuke Haraguchi, Kotaro Tadano, Kenji Kawashima. Force Projection Type Bilateral Control of a Pneumatic Surgical Robot. The 9th JFPS International Symposium on Fluid Power 2014.10.29

4. In Kim, Takumi Yajima, Takahiro Kanno, Kotaro Tadano, Kenji Kawashima. Operation of Surgical Robot Using a Haptic Master Device with Air Jets. The 9th JFPS International Symposium on Fluid Power 2014.10.29

5. T. Kanno, D. Haraguchi, K. Tadano, K. Kawashima. Force Projection Type Bilateral Control of a Pneumatic Surgical Robot. The 9th JFPS International Symposium on Fluid Power 2014.10.29

6. In Kim, Kotaro Tadano, Kenji Kawashima. Surgical Robot Using Force Input Type Operation Interface. The 9th JFPS International Symposium on Fluid Power 2014.10.30

7. Jun Li, Kenji Kawashima, Toshiharu Kagawa. Energy saving actuation of the pneumatic artificial rubber muscles system. The 6st International Conference on Positioning Technology 2014.11.19

8. Reona Shiode, Kotaro Tadano, Kenji Kawashim. Reduction of friction in a pneumatic cylinder using piezoelectrically excited vibration. The 6st International Conference on Positioning Technology 2014.11.19

[Patents]

1. Maneuvering system having inner force sense presenting function, Patent Number：US 8,897,916 B2

2. Pressure Regulator, Patent Number：US 8,195,336 B2

Material Biofunctions

Akiko Nagai (Associate Professor)
Kosuke Nozaki (Assistant Professor)
Hiroshi Masuda (Project Associate Professor)
Minako Segawa (Technical Assistant)
Kasumi Yamanaka (Technical Assistant)

(1) Outline

1. Reaction mechanism between materials and living tissues
Development of standard evaluation process for the safety, biocompatibility, and biofunction of biomedical materials and devices, based on interfacial reactions between the materials and living tissue.

2. Effects of medical materials and devices on human health
Systematization of influences of biofunctional materials and artificial organs on the human body from the viewpoint of medicine.

3. Development of functional materials accelerating bone formation
Development of new surface modification processes of bioimplants to accelerate bone formation.

4. Development of evaluation methods for studying interaction of materials with biological function
Development of new intravital observation methods for evaluating biological effects of physical and chemical factors.

(2) Education

The objective and principle of this graduate course is to educate students with materials knowledge demanded to medical and dental doctors who are leading medical professionals and bioscientists who are capable of carrying out their own research at an international level in the area of their special fields of science, respectively.

(3) Publications

[Original Articles]

1. Rie Fujita, Wataru Komada, Kosuke Nozaki, Hiroyuki Miura. Measurement of the remaining dentin thickness using optical coherence tomography for crown preparation. Dent Mater J. 2014; 33(3); 355-362

2. Nakamura M, Kobayashi A, Nozaki K, Horiuchi N, Nagai A, Yamashita K.. Improvement of osteoblast adhesion through polarization of plasma-sprayed hydroxyapatite coatings on metal J Med Biol Eng. 2014; 34(1); 44-48

3. Shinonaga T, Tsukamoto M, Nagai A, Yamashita K, Hanawa T, Matsushita N, Xie G, Abe N. Cell Spreading on Titanium Dioxide Film Formed and Modified with Aerosol Beam and Femtosecond Laser Appl. Surf. Sci.. 2014; 288(1); 649-653

4. Horiuchi N, Tsuchiya Y, Nozaki K, Nakamura M, Nagai A, Hashimoto K, Yamashita K. Thermally Stimulated Depolarization Current Measurements in Cubic and Tetragonal Yttria-Stabilized Zirconia Solid State Ionics. 2014; 262; 500-503

5. Wada N, Horiuchi N, Nakamura M, Nozaki K, Hiyama T, Nagai A, Yamashita K,. Cooperative Effects of Polarization and Polyaspartic Acid on Formation of Calcium Carbonate Films with a Multiple Phase Structure on Oriented Calcite Substrates J. Cryst. Growth. 2014; 402; 179-186

6. Horiuchi N, Nakaguki S, Wada N, Nozaki K, Nakamura M, Nagai A, Katayama K, Yamashita K. Polarization Induced Surface Charge in Hydroxyapatite Ceramics J. Appl. Phys.. 2014; 116;

7. Horiuchi N, Tsuchiya Y, Nozaki K, Nakamura M, Nagai A, Hashimoto K, Yamashita K. Thermally Stimulated Depolarization Current Measurements in Cubic and Tetragonal Yttria-Stabilized Zirconia Solid State Ionics. 2014; 262; 500-503

8. Akiko Nagai, Tatsuya Hattori, Michiko Hirose, Atsuo Ogura, Kosuke Nozaki, Mamoru Aizawa, Kimihiro Yamashita. Mouse embryonic stem cells cultured under serum- and feeder-free conditions maintain their self-renewal capacity on hydroxyapatite. Mater Sci Eng C Mater Biol Appl. 2014.01; 34; 214-220

9. Akiko Nagai, Tatsuya Hattori, Michiko Hirose, Atsuo Ogura, Kosuke Nozaki, Mamoru Aizawa, Kimihiro Yamashita. Mouse embryonic stem cells cultured under serum- and feeder-free conditions maintain their self-renewal capacity on hydroxyapatite. Mater Sci Eng C Mater Biol Appl. 2014.01; 34; 214-220

10. Akiko Nagai, Yuta Suzuki, Yusuke Tsutsumi, Kosuke Nozaki, Norio Wada, Keiichi Katayama, Takao Hanawa, Kimihiro Yamashit. Anodic oxidation of a Co–Ni–Cr–Mo alloy and its inhibitory effect on platelet activation. J. Biomed. Mater. Res. Part B Appl. Biomater.. 2014.05; 102(4); 659-666

11. Kosuke Nozaki, Wei Wang, Naohiro Horiuchi, Miho Nakamura, Kazuo Takakuda, Kimihiro Yamashita, Akiko Nagai. Enhanced osteoconductivity of titanium implant by polarization-induced surface charges. J Biomed Mater Res A. 2014.09; 102(9); 3077-3086

12. Ana Milheiro, Kosuke Nozaki, Cornelis J Kleverlaan, Joris Muris, Hiroyuki Miura, Albert J Feilzer. In vitro cytotoxicity of metallic ions released from dental alloys. Odontology. 2014.12;

13. Ishizaka M, Nagai A, Iwanaga M, Imamura M, Azuma H. Possible involvement of enhanced arginase activity due to up-regulated arginases and decreased hydroxyarginine in accelerating intimal hyperplasia with hyperglycemia. Vascul Pharmacol. 47(5-6); 272-280

14. Hiroshi Masuda, Akira Ushiyama, Shogo Hirota, Kanako Wake, Soichi Watanabe, Yukio Yamanaka, Masao Taki, Chiyoji Ohkubo. Effects of subchronic exposure to a 1439 MHz electromagnetic field on the microcirculatory parameters in rat brain. In Vivo. 21(4); 563-570

15. Hiroshi Masuda, Akira Ushiyama, Shogo Hirota, Kanako Wake, Soichi Watanabe, Yukio Yamanaka, Masao Taki, Chiyoji Ohkubo. Effects of acute exposure to a 1439 MHz electromagnetic field on the microcirculatory parameters in rat brain. In Vivo. 21(4); 555-562

16. Hiroshi Masuda, Akira Ushiyama, Shogo Hirota, George F Lawlor, Chiyoji Ohkubo. Long-term observation of pial microcirculatory parameters using an implanted cranial window method in the rat. In Vivo. 21(3); 471-479

17. Akira Ushiyama, Hiroshi Masuda, Shugo Hirota, Chiyoji Ohkubo. Subchronic effects on leukocyte-endothelial interactions in mice by whole body exposure to extremely low frequency electromagnetic fields. In Vivo. 18(4); 425-432

[Conference Activities & Talks]

1. Yamashita K, Horiuchi N, Nozaki K, Nagai A. Fundamentals and Applications of Ceramic Electrets. The 15th IUMRS-ICA 2014 2014.08

2. Masutani T., Horiuchi N., Nozaki K., Nakamura M., Yamashita K., Nagai A.. Investigation of cell dynamics on polarized HAp discs. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5) Conjunction with 6th IBB Frontier Symposium 2014.11

3. Nozaki K., Nagai A., Yamashita K. Effect of implanting position on bone formation in the porous carbonated apatite block. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5) Conjunction with 6th IBB Frontier Symposium 2014.11

4. Igeta K., Nagai A., Nozaki K., Aizawa M., Yamashita K. The effects of carbonated hydroxyapatite on macrophage behaviors. 26th Symposium and Annual Meeting of the International Society for Ceramics in Medicine 2014.11

5. Shen D, Horiuchi N, Ono Y, Yamashita K, Nagai A. Synthesize octacalcium phosphate carnobate and it enhances osteoblast prolification compared with octacalcium phosphate and hydroxyapatite. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5), 2014.11.19

6. Horiuchi N, Ebe N, Nozaki K, Nakamura M, Nagai A, Yamashita K. Evaluation of surface charge on polarized hydroxyapatite using Kelvin probe method,. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5) 2014.11.19

Genetic Regulation

Professor Akinori KIMURA
Associate Professor Takeharu HAYASHI
Assistant Professor Daisuke SAKURAI
Research Associate Taeko K. NARUSE

(1) Outline

Research and Education in the Department of Genetic Regulation are carried out by staff members of the Department of Molecular Pathogenesis, Medical Research institute.
The main purpose of this Department is to decipher the genetic regulation involved in the pathogenesis of intractable diseases, including hereditary cardiovascular diseases such as hypertrophic cardiomyopathy, dilated cardiomyopathy and hereditary arrhythmia, autoimmune diseases such as rheumatoid arthritis, type I diabetes mellitus, autoimmune thyroid diseases (Graves disease and Hashimoto thyroiditis), inflammatory bowel diseases (Crohn disease and ulcerative colitis) and SLE, as well as infectious diseases including HIV/AIDS. We also investigate molecular pathogenesis of coronary heart disease (atherosclerosis) and intractable vascular diseases (Takayasu arteritis and Buerger disease).

(2) Research

1) Identification and functional analysis of disease-related genes for cardiovascular diseases
2) Identification and functional analysis of disease-related genes for autoimmune diseases
3) Identification and functional analysis of disease-related genes for infectious diseases
4) Structural, functional and evolutional analyses of MHC and immune-related genes in vaccination

(3) Education

Structural and functional diversity of human genome, are involved in the etiology and pathogenesis of human diseases. Main objective of Genetic Regulation is to identify the gene mutations or polymorphisms and to decipher the molecular mechanisms involved in the etiology and pathogenesis of intractable diseases, in order to develop new strategies for diagnosis, treatment and/or prevention of the diseases. Current research is focused on the intractable cardiovascular diseases (e.g. idiopathic cardiomyopathy, idiopathic arrhythmia, and coronary heart disease), autoimmune diseases (e.g. Burger disease, Graves disease, and rheumatoid arthritis) and infectious diseases (e.g. HIV/AIDS). In addition, genome diversity in immune-related genes is investigated from the view-point of primate evolution.

(4) Lectures & Courses

Main purpose is to understand the molecular pathogenesis of various intractable diseases by methodologies in the fields of Human Genetics, Genome Medicine, Biochemistry and Cell Biology.

(5) Publications

[Original Articles]

1. Nami Iwamoto, Naofumi Takahashi, Sayuri Seki, Takushi Nomura, Hiroyuki Yamamoto, Makoto Inoue, Tsugumine Shu, Taeko K Naruse, Akinori Kimura, Tetsuro Matano. Control of simian immunodeficiency virus replication by vaccine-induced Gag- and Vif-specific CD8+ T cells. J. Virol.. 2014.01; 88(1); 425-433

2. Taeko K Naruse, Hirofumi Akari, Tetsuro Matano, Akinori Kimura. Divergence and diversity of ULBP2 genes in rhesus and cynomolgus macaques. Immunogenetics. 2014.03; 66(3); 161-170

3. Akinori Kimura. Departure from the Hardy-Weinberg equilibrium. Gene. 2014.03; 537(2); 357

4. Ayako Nishio, Yoshihiro Noguchi, Tatsuya Sato, Taeko K Naruse, Akinori Kimura, Akira Takagi, Ken Kitamura. A DFNA5 mutation identified in Japanese families with autosomal dominant hereditary hearing loss. Ann. Hum. Genet.. 2014.03; 78(2); 83-91

5. Goro Katsuumi, Wataru Shimizu, Hiroshi Watanabe, Takashi Noda, Akihiko Nogami, Kimie Ohkubo, Takeru Makiyama, Naofumi Takehara, Yuichiro Kawamura, Yukio Hosaka, Masahito Sato, Satoki Fukae, Masaomi Chinushi, Hirotaka Oda, Masaaki Okabe, Akinori Kimura, Koji Maemura, Ichiro Watanabe, Shiro Kamakura, Minoru Horie, Yoshifusa Aizawa, Naomasa Makita, Tohru Minamino. Efficacy of bepridil to prevent ventricular fibrillation in severe form of early repolarization syndrome. Int. J. Cardiol.. 2014.03; 172(2); 519-522

6. Pinós T, Fuku N, Cámara Y, Arai Y, Abe Y, Rodríguez-Romo G, Garatachea N, Santos-Lozano A, Miro-Casas E, Ruiz-Meana M, Otaegui I, Murakami H, Miyachi M, Garcia-Dorado D, Hinohara K, Andreu AL, Kimura A, Hirose N, Lucia A. The rs1333049 polymorphism on locus 9p21.3 and extreme longevity in Spanish and Japanese cohorts. Age (Dordr). 2014.04; 36(2); 933-943

7. Takushi Nomura, Hiroyuki Yamamoto, Naofumi Takahashi, Taeko K Naruse, Akinori Kimura, Tetsuro Matano. Identification of SIV Nef CD8(+) T cell epitopes restricted by a MHC class I haplotype associated with lower viral loads in a macaque AIDS model. Biochem. Biophys. Res. Commun.. 2014.07; 450(2); 942-947

8. Seigo Okada, Yasuo Suzuki, Takuro Arimura, Akinori Kimura, Hiroko Narumi, Shunji Hasegawa. A novel de novo mutation of β-cardiac myosin heavy chain gene found in a twelve-year-old boy with hypertrophic cardiomyopathy. J. Genet.. 2014.08; 93(2); 557-560

9. Makita N, Yagihara N, Crotti L, Johnson CN, Beckmann BM, Roh MS, Shigemizu D, Lichtner P, Ishikawa T, Aiba T, Homfray T, Behr ER, Klug D, Denjoy I,Mastantuono E, Theisen D, Tsunoda T, Satake W, Toda T, Nakagawa H, Tsuji Y, Tsuchiya T, Yamamoto H, Miyamoto Y, Endo N, Kimura A, Ozaki K, Motomura H, Suda K, Tanaka T, Schwartz PJ, Meitinger T, Kääb S, Guicheney P, Shimizu W, Bhuiyan ZA, Watanabe H, Chazin WJ, George AL Jr. Novel calmodulin mutations associated with congenital arrhythmia susceptibility. Circ Cardiovasc Genet. 2014.08; 7(4); 466-474

10. Atsushi Tanaka, Shinsuke Yuasa, Giulia Mearini, Toru Egashira, Tomohisa Seki, Masaki Kodaira, Dai Kusumoto, Yusuke Kuroda, Shinichiro Okata, Tomoyuki Suzuki, Taku Inohara, Takuro Arimura, Shinji Makino, Kensuke Kimura, Akinori Kimura, Tetsushi Furukawa, Lucie Carrier, Koichi Node, Keiichi Fukuda. Endothelin-1 induces myofibrillar disarray and contractile vector variability in hypertrophic cardiomyopathy-induced pluripotent stem cell-derived cardiomyocytes. J Am Heart Assoc. 2014.11; 3(6); e001263

[Conference Activities & Talks]

1. Akinori Kimura, Takuro Arimura, Kenji Onoue, Taisuke Ishikawa, Yoshihiko Saito. Molecular mechanism of gender difference in heart failure caused by lamin A/C mutations. The 78th Annual Scientific Meeting of the Japanese Circulation Society 2014.03.21 Tokyo

Applied Gene Medicine

Professor Yoshio MIKI
Associate Professor Akira NAKANISHI
Assistant professor Katsuya TAKENAKA
Project Assistant Professor Ken MIYAGUCHI
Project Assistant Professor Miho TAKAOKA
Graduate Student Toshiyuki ISHIBA,
Yuya KAGAMI,
Ucar Konuskan AYSE,
Taichi KURASINA,
Mai KONNO,
Yuka SHIMIZU,
Shun ITO,
Maiko UMEGAKI,
Gen SATO

(1) Outline

Since 1981, cancer has been a top leading cause of death in our country and a novel action is an urgent social challenge. In Department of Molecular Genetics, we aim to study a basic biology underlying cancer and establish novel diagnostic and therapeutic modalities based on findings from the fundamental researches. We have largely focused on three major research directions to understand the molecular mechanisms of breast cancer development: 1) Uncovering DNA damage repair function and genome stabilization mechanism, 2) Uncovering hormone-dependent cellular proliferation, and 3) Determining how the tumor microenvironment contributes to cancer development and progression. Utilizing a wide variety of approaches in genomics, molecular biology, biochemistry and informatics, we are addressing an integrative understanding of multidisciplinary analyses.

(2) Research

1. Molecular Mechanisms of Breast Cancer Progression
   - Understanding Molecular Mechanisms of Metastasis, Invasion, Recurrence in Cancer
   - Uncovering Molecular functions of hereditary breast cancer genes, BRCA1 and BRCA2
2. Cancer Genomics Research
   - Cancer Genomics Research with Next-Generation Sequencing
   - Identification of Genes Involved in Human Cancer Using Genome-Wide Association Studies
3. Cell Death Signaling in Cancer
4. DNA Damage Repair and Genome Instability in Cancer
5. Hormone-Dependent Breast Cancer Cell Growth
6. Cancer Microenvironment

(3) Education

Our research is directed at understanding the molecular mechanism of carcinogenesis, based on basic molecular cell biology and molecular genetics. We have applied new findings and information obtained by basic research

to develop the new diagnosis, treatment, and prevention of cancer. Our objective in the graduate course is to provide students opportunity to study basic science and applied genome science for cancer research.

(4) Publications

[Original Articles]

1. Ishiba Toshiyuki, Nagahara Makoto, Nakagawa Tsuyoshi, Sato Takanobu, Ishikawa Toshiaki, Uetake Hiroyuki, Sugihara Kenichi, Miki Yoshio, Nakanishi Akira. Periostin suppression induces decorin secretion leading to reduced breast cancer cell motility and invasion. Sci Rep. 2014; 4; 7069

2. Wada Yusaku, Matsuura Masaaki, Sugawara Minoru, Ushijima Masaru, Miyata Satoshi, Nagasaki Koichi, Noda Tetsuo, Miki Yoshio. Development of detection method for novel fusion gene using GeneChip exon array. J Clin Bioinforma. 2014; 4(1); 3

3. Wali Nadila, Hosokawa Kana, Malik Sadiya, Saito Hiroko, Miyaguchi Ken, Imajoh-Ohmi Shinobu, Miki Yoshio, Nakanishi Akira. Centrosomal BRCA2 is a target protein of membrane type-1 matrix metalloproteinase (MT1-MMP). Biochem Biophys Res Commun. 2014.01; 443(4); 1148-1154

4. Miho Takaoka, Hiroko Saito, Katsuya Takenaka, Yoshio Miki, Akira Nakanishi. BRCA2 phosphorylated by PLK1 moves to the midbody to regulate cytokinesis mediated by nonmuscle myosin IIC. Cancer Research. 2014.03; 74(5); 1518-1528

5. Kimura Hitomi, Miki Yoshio, Nakanishi Akira. Centrosomes at M phase act as a scaffold for the accumulation of intracellular ubiquitinated proteins. Cell Cycle. 2014.06; 13(12); 1928-1937

6. Tan Tuan Zea, Miow Qing Hao, Miki Yoshio, Noda Tetsuo, Mori Seiichi, Huang Ruby Yun-Ju, Thiery Jean Paul. Epithelial-mesenchymal transition spectrum quantification and its efficacy in deciphering survival and drug responses of cancer patients. EMBO Mol Med. 2014.10; 6(10); 1279-1293

[Conference Activities & Talks]

1. Toshiyuki Ishiba et al.. Proteomics of phyllodes tumor revealed that decorin increase in the extracellular matrix by periostin deficiency decreased cancer cell motility and invasion. AACR Annual Meeting 2014 2014.04.09 San Diego, California

Molecular Cytogenetics

Professor Johji Inazawa M.D., Ph.D.
Lecturer Jun Inoue Ph.D.
Assistant Professor Tomoki Muramatsu Ph.D.
Assistant Professor Kosuke Tanimoto Ph.D.

(1) Research

1.Identification of genes responsible for intractable diseases including cancer and genomic disorders through integrative genomics and epigenomics.
2.Discovery of molecular mechanisms of cancer-related genes, including microRNAs, in the multistep processes of carcinogenesis and cancer progression, such as cancer stem cell, epithelial-mesenchymal transition (EMT), invasion and metastasis using systems biology.
3.Establishment of autophagy-based diagnosis and therapy in human cancers by understanding cellular context-dependent role of autophagy.
4.Multiple genomic analyses of genetic disorders of unknown etiology, e.g. mental retardation or epilepsy, to detect causative genes and clarify the etiology. Also, an array chip for diagnosis of known congenital disorders, 'Genome Disorder Array' , was developed and released for a practical use at 2009.
5.Development of innovative techniques for genomics and epigenomics in medical science.
6.Development of practically useful tools for molecular diagnosis of intractable diseases.

(2) Lectures & Courses

The principal aim of the Department of Molecular Cytogenetics(MCG) is to understand the molecular mechanism underlying intractable diseases, such as cancer and uncharacterized genetic diseases. Main objective of MCG in the graduate course is to provide students opportunity to study molecular cytogenetic approach for intractable diseases, identify genes responsible for those diseases, and develop innovative techniques/ practically useful tools for detection of genomic and epigenomic aberrations in those diseases. It is our goal to bridge the gap between basic and clinical research for the benefit of each of the patients.

(3) Publications

[Original Articles]

1. Uno M, Saitoh Y, Mochida K, Tsuruyama E, Kiyono T, Imoto I, Inazawa J, Yuasa Y, Kubota T, Yamaoka S. NF-κ B Inducing Kinase, a Central Signaling Component of the Non-Canonical Pathway of NF-κ B, Contributes to Ovarian Cancer Progression. PLoS ONE. 2014; 9(2); e88347

2. Yamamoto S, Inoue J, Kawano T, Kozaki K, Omura K, Inazawa J. The Impact of miRNA-Based Molecular Diagnostics and Treatment of NRF2-Stabilized Tumors. Mol Cancer Res. 2014.01; 12(1); 58-68

3. Dobashi Y, Sato E, Oda Y, Inazawa J, Ooi A. Significance of Akt activation and AKT gene increases in soft tissue tumors. Hum Pathol. 2014.01; 45(1); 127-136

4. Takemura K, Kawachi H, Eishi Y, Kitagaki K, Negi M, Kobayashi M, Uchida K, Inoue J, Inazawa J, Kawano T, Board PG. γ-Glutamylcyclotransferase as a novel immunohistochemical biomarker for the malignancy of esophageal squamous tumors. Hum Pathol. 2014.02; 45(2); 331-341

5. Nishimura J, Yamamoto M, Hayashi S, Ohyashiki K, Ando K, Brodsky AL, Noji H, Kitamura K, Eto T, Takahashi T, Masuko M, Matsumoto T, Wano Y, Shichishima T, Shibayama H, Hase M, Li L, Johnson K, Lazarowski A, Tamburini P, Inazawa J, Kinoshita T, Kanakura Y. Genetic variants in C5 and poor response to eculizumab. N Engl J Med. 2014.02; 370(7); 632-639

6. Iwadate R, Inoue J, Tsuda H, Takano M, Furuya K, Hirasawa A, Aoki D, Inazawa J. High Expression of SQSTM1/p62 Protein Is Associated with Poor Prognosis in Epithelial Ovarian Cancer Acta Histochem Cytochem. 2014.06; 47(6); 295-301

7. Matsumoto H, Zaha K, Nakamura Y, Hayashi S, Inazawa J, Nonoyama S. Chromosome 9q33q34 microdeletion with early infantile epileptic encephalopathy, severe dystonia, abnormal eye movements, and nephroureteral malformations Pediatr Neurol. 2014.07; 51(1); 1196-1206

[Conference Activities & Talks]

1. Uehara DT, Hayashi S, Mizuno S, Inazawa J.. De novo heterozygous deletion involving NFIX in a Japanese subject with severe intellectual disability, postnatal growth delay and relative macrocephaly:. American Society of Human Genetics 64th annual meeting. 2014.10.19 San Diego, USA.

2. Hayashi S, Okamoto N, Takanashi J, Inazawa J. Comprehensive investigation of CASK and other relevant genes in 41 patients with intellectual disability, microcephaly and disproportionate pontine and cerebellar hypoplasia (MICPCH) using next-generation sequencing. . ASHG 2014 Annual Meeting 2014.10.21 SanDiego, USA

3. Inazawa J. Exploring Tumor Suppressor microRNAs Silenced by Tumor-specific DNA Hyper-Methylation in Cancer. 17th Annual Conference A-IMBN 2014.12.01 Manila, Philippines

4. Inazawa J. Exploring cancer-related miRNAs by function-based screening.. International Conference on the 19th Annual Meeting of Korean Society of Cancer Prevention 2014.12.12 Seoul, Korea

Biochemical Genetics

Professor	Shigetaka Kitajima MD, PhD
Associate Professor	Yujiro Tanaka MD, PhD
Assistant Professor	Junya Kawauchi MD, PhD
Graduate Student	Makoto Inoue
	Satoshi Fukumoto
	Syunsuke Takaya
	Natsuki Arai
	Akihisa Fujisawa
Research Student	Takuya Suzuki
	Nao Otsuka
	Natsumi Sakai
Technical Assistant	Yohei Uchida

(1) Outline

Transcriptional regulation is one of the most important processes by which genome information is expressed from DNA to mRNA to protein. The faithful synthesis of mRNA is achieved by transcriptional machinery comprised of RNA polymerase II, basal factors and many other protein factors, whose dysfunction is implicated in various human diseases. Our research interest is focused on the basic mechanism of transcription cycle and implication of early response transcription factors in determining cell fate in stress response.

Key words
· To provide novel paradigm of transcriptional regulation
· To understand role of transcription factor in cell fate determination

(2) Research

Research Subjects
1) Transcription
· Elongin A plays dual roles in stress response
· A novel function of FCP1
2) Cell fate determination by activating transcription factor (ATF) 3
· Pro-apoptotic role of ATF3 and its implication in anti-cancer therapy
· Genome-wide screen of the role of ATF3 in stress response and human cancer
· ATF3 complex; transcriptional repressor or activator
· ATF3 transcriptionally regulates microRNA
3) H3K36-sepcific histone methyltransferase ASH1.

(3) Publications

[Original Articles]

1. Jia Liu, Makoto Edagawa, Hiroto Goshima, Makoto Inoue, Hideo Yagita, Zhonghui Liu, Shigetaka Kitajima. Role of ATF3 in synergistic cancer cell killing by a combination of HDAC inhibitors and agonistic anti-DR5 antibody through ER stress in human colon cancer cells. Biochem. Biophys. Res. Commun.. 2014.03; 445(2); 320-326

2. Makoto Edagawa, Junya Kawauchi, Manabu Hirata, Hiroto Goshima, Makoto Inoue, Tatsuro Okamoto, Akira Murakami, Yoshihiko Maehara, Shigetaka Kitajima. Role of activating transcription factor 3 (ATF3) in endoplasmic reticulum (ER) stress-induced sensitization of p53-deficient human colon cancer cells to tumor necrosis factor (TNF)-related apoptosis-inducing ligand (TRAIL)-mediated apoptosis through up-regulation of death receptor 5 (DR5) by zerumbone and celecoxib. J. Biol. Chem.. 2014.08; 289(31); 21544-21561

[Conference Activities & Talks]

1. Makoto Inoue, Junya Kawauchi, Mizue Fukuda, Yohei Uchida, Takashi Yasukawa, Ronald C. Conaway, Joan W. Conaway, Teijiro Aso and Shigetaka Kitajima. Transcriptional properties of mammalian Elongin A and its role in stress response.. ASBMB ANNUAL MEETING 2014.04 San Diego

Structural Biology

Associate Professor Teikichi IKURA

(1) Outline

We are investigating the relationship between structure and function of biopolymers such as proteins and nucleic acids from the physicochemical viewpoint. Our lab deals with the fundamental issues on protein folding and stability, and various folding-diseases such as Alzheimer's disease.

(2) Research

Research Subjects
1.Analysis of interactions between tau protein and Pin1
2.Structural analyses of potential drug targets

(3) Education

Lecture on Structural Biology
The goal of this lecture is to provide the ability to understand and analyze the relationship between structure and function of biopolymers such as proteins and nucleic acids. This lecture deals with the fundamental contents on protein folding and stability, and then takes an overview on various folding-diseases such as Alzheimer' s disease from the physicochemical viewpoint.

(4) Lectures & Courses

The purpose of this course is to provide the ability to understand and analyze the relationship between structure and function of biopolymers such as proteins and nucleic acids. Students learn fundamental contents through the lecture, fundamental techniques through the practice, and then acquire various techniques essential to bioscience through lab experiments.
The goal of this lecture is to provide the ability to understand and analyze the relationship between structure and function of biopolymers such as proteins and nucleic acids. This lecture deals with the fundamental contents on protein folding and stability, and then takes an overview on various folding-diseases such as Alzheimer' s disease from the physicochemical viewpoint.
In this practice, students learn how to read scientific journal related to folding-diseases, and understand fundamental techniques to elucidate the inherent functions of the proteins and the mechanism of the diseases.
In the lab experiments, students learn various techniques for physicochemical study on proteins such as gene cloning, protein expression and purification, structural analysis and interaction analysis.

(5) Publications

[Original Articles]

1. Kudo T, Ishizawa M, Maekawa K, Nakabayashi M, Watarai Y, Uchida H, Tokiwa H, Ikura T, Ito N, Makishima M, Yamada S. Combination of triple bond and adamantane ring on the vitamin d side chain produced partial agonists for vitamin d receptor J Med Chem. 2014.05; 57(10); 4073-4087

[Conference Activities & Talks]

1. Ikura T, Ito N. Molecular mechanism of cooperativity of Pin1 and PP2A in dephosphorylation of tau protein. The 14th Annual Meeting of Protein Science Society of Japan 2014.06 Yokohama, Japan
2. Ikura T, Ito N. How do peptidyl-prolyl isomerases rescue tau protein from aggregating?. 2014 International Biophysics Congress (IUPAB) 2014.08.04 Brisbane, Australia
3. Ikura T, Ito N. Relationship between Pin1's peptidyl-prolyl isomerase activity and its aggregation-inhibitory activity for tau protein. The 52nd Annual Meeting of The Biophysical Society of Japan 2014.09 Sapporo, Japan

Hematology

Professor Osamu Miura

Junior Associate Professor Ayako Arai

Assistant Professor Tetsuya Fukuda, Tetsuya Kurosu, Masahide Yamamoto, Gaku Oshikawa

Project Assistant Professor Chizuko Sakashita, Yoshihiro Umezawa

Senior Resident Keiichiro Hattori, Emi Uchida, Shunichiro Yasuda, Chihiro Hirose

Graduate Student Shihoko Suwa, Ayako Nogami, Hiroki Akiyama, Shinya Ishida, Keigo Okada, Minako Jinta

(1) Outline

The Department of Hematology is responsible for clinical services at our University Hospital with treatment of patients with various hematological disorders including leukemias, lymphomas, anemia, and hemorrhagic diseases by chemotherapies, immunotherapies, molecularly-targeted therapies, and hematopoietic cell transplantation. Our department is also responsible for teaching undergraduate students with the lecture course in hematology as well as the clinical clerkship and for training junior and senior residents. Our department is also actively involved, with doctoral course students, in basic and clinical researches aiming to elucidate the molecular and cellular mechanisms involved in pathogenesis of hematological malignancies as well as in acquisition of therapy resistance to develop novel efficient therapies against these diseases.

(2) Research

The research interests and activities of the Department of Hematology are diverse, and the following projects among others are currently under way. 1. Elucidation of the molecular mechanisms involved in acquisition of resistance against chemotherapies and molecularly-targeted therapies by leukemic cells from chronic myeloid leukemia, acute myeloid leukemia, and various myeloproliferative neoplasms expressing aberrant tyrosine kinases, including BCR/ABL, FLT3-ITD, and Jak2-V617F, aiming to develop novel therapeutic strategies to overcome the resistance. 2. Elucidation of the regulation mechanisms for immune responses to indolent lymphoid neoplasms, including chronic lymphocytic leukemia, for developing novel immunotherapies. 3. Elucidation of the pathogenesis of chronic active EB virus infection and development of effective therapeutic modalities. 4. Signal transduction mechanisms from cytokine/growth factor receptors regulating proliferation, survival, and adhesion of hematopoietic cells including leukemia and lymphoma cells. The Department is also actively involved in a variety of clinical studies for treatment of various leukemias, lymphomas, and multiple myeloma.

(3) Education

The Department of hematology is responsible for teaching basic and clinical hematology to the 3rd and 4th grade students in the integrated hematology course and the hematology and oncology united block course. The Department is also responsible for teaching the 5th and 6th grade students in clinical clerkship to obtain basic knowledge and problem-solving abilities in hematology as well as general internal medicine. The Department is also actively involved in training about 24 junior residents every year to acquire clinical skills in hematology

and internal medicine and about 4 senior residents to practice diagnosis and treatment of various hematological disorders and to obtain the certificate for hematology specialist. As a division in the Graduate School of Medical and Dental Sciences, the Department is actively involved in education of 6 to 8 graduate students, who participate in the research projects listed above, to obtain the Ph. D. degree in medicine.

(4) Lectures & Courses

The major objective of the course is to understand the pathophysiology of blood cells, blood cell-forming organs, and hemostasis to provide a basis for rational diagnosis and treatment of their disorders.

(5) Clinical Services & Other Works

The Department of Hematology provides diagnosis and treatment for hematological diseases, such as leukemia, malignant lymphoma, anemia, and thrombocythemia, with chemotherapeutics, molecularly-targeted drugs, immunosuppressive agents, and hematopoietic cell trans- plantation.

(6) Clinical Performances

We provide the highest quality of patient care for a wide spectrum of blood diseases and cancers.

(7) Publications

[Original Articles]

1. Nagao T, Kurosu T, Umezawa Y, Nogami A, Oshikawa G, Tohda S, Yamamoto M, Miura O. Proliferation and survival signaling from both Jak2-V617F and Lyn involving GSK3 and mTOR/p70S6K/4EBP1 in PVTL-1 cell line newly established from acute myeloid leukemia transformed from polycythemia vera. PLoS ONE. 2014; 9(1); e84746

2. Ayako Arai, Takeshi Yamaguchi, Honami Komatsu, Ken-Ichi Imadome, Morito Kurata, Kaoru Nagata, Osamu Miura. Infectious mononucleosis accompanied by clonal proliferation of EBV-infected cells and infection of CD8-positive cells. Int. J. Hematol.. 2014; 99(5); 671-675

3. Ludan Wang, Aiko Sato-Otsubo, Sunao Sugita, Hiroshi Takase, Manabu Mochizuki, Yoshihiko Usui, Hiroshi Goto, Takatoshi Koyama, Hiroki Akiyama, Osamu Miura, Seishi Ogawa, Ayako Arai. High-resolution genomic copy number profiling of primary intraocular lymphoma by single nucleotide polymorphism microarrays. Cancer Sci.. 2014.05; 105(5); 592-599

4. Nakatani K, Imai K, Shigeno M, Sato H, Tezuka M, Okawa T, Mitsuiki N, Isoda T, Tomizawa D, Takagi M, Nagasawa M, Kajiwara M, Yamamoto M, Arai A, Miura O, Kamae C, Nakagawa N, Honma K, Nonoyama S, Mizutani S, Morio T.. Cord blood transplantation is associated with rapid B cell neogenesis compared with bone marrow transplantation. Bone Marrow Transplant.. 2014.09; 49; 1155-1161

5. Mayumi Yoshimori, Ken-Ichi Imadome, Honami Komatsu, Ludan Wang, Yasunori Saitoh, Shoji Yamaoka, Tetsuya Fukuda, Morito Kurata, Takatoshi Koyama, Norio Shimizu, Shigeyoshi Fujiwara, Osamu Miura, Ayako Arai. CD137 Expression Is Induced by Epstein-Barr Virus Infection through LMP1 in T or NK Cells and Mediates Survival Promoting Signals. PLoS ONE. 2014.11; 9(11); e112564

6. Ken Watanabe, Noriko Doki, Yoshiharu Miura, Takeshi Hagino, Shuhei Kurosawa, Yutaro Hino, Naoki Shingai, Kosuke Yoshioka, Shinya Ishida, Aiko Igarashi, Yuho Najima, Takeshi Kobayashi, Kazuhiko Kakihana, Hisashi Sakamaki, Kazuteru Ohashi. Toxic encephalopathy after exposure to azacitidine. Leuk. Lymphoma. 2014.11; 1-2

7. Arai M, Arai A, Izumi S. Postgraduate education of traditional Japanese (Kampo) medicine: A current survey on the training hospitals in Kanagawa prefecture. Tokai J Exp Clin . 2014.12; 39(4); 186-192

[Misc]

1. Ayako Arai. Regulatory T cells in Epstein-Barr virus-associated disorders 2014;
2. Ayako Arai. Development of Lymphomas in Autoimmune diseases 2014;
3. Fujiwara S, Kimura H, Imadome K, Arai A, Kodama, E, Morio T, Shimizu N, and Wakiguchi H. . Current research on chronic active Epstein-Barr virus infection in Japan. Pediatrics International. 2014.04; 56; 159-166

[Conference Activities & Talks]

1. Outcome of allogeneic hematopoietic stem cell transplantation for Ph-positive ALL in our institute. 2014.03.08
2. Retrospective analysis of HLA one antigen mismatch allogeneic transplantation with/without low dose ATG. 2014.03.08
3. Kazuhito Yamamoto, Koich Miyamura, Toshihiro Miyamoto, Mitsune Tanimoto, Masafumi Taniwaki, Shinya Kimura, Kazuma Ohyashiki, Tatsuya Kawaguchi, Itaru Matshumura, Tomoko Hata, Hisashi Tsurumi, Shigeki Saito, Masayuki Hino, Seiji Tadokoro, Kuniaki Meguro, Hideo Hyodo, Masahide Yamamoto, Kohmei Kubo, Junichi Tsukada, Midori Kondo, Taro Amagasaki, Eiji Kawahara, Masamitsu Yanada. SENSOR INTERIM DATA WITH MUTATION ANALYSIS: SWITCHING TO NILOTINIB AFTER MOLECULAR SUBOPTIMAL RESPONSE TO IMATINIB IN PATIENTS WITH CHRONIC MYELOID LEUKEMIA IN CHRONIC PHASE. 19th Congress of EHA 2014.06 Milan, Italy
4. Ken-Ichi Imadome1, Go Matsuda1, Fuyuko Kawano1, Eiichi Kodama2, Ayako Arai3, Norio Shimizu4, and Shigeyoshi Fujiwara1. Preclinical studies of novel therapies for Epstein-Barr virus-associated diseases in humanized mouse models. 39th Annual International Herpesvirus Workshop (IHW) 2014.07 Kobe
5. Ken-Ichi Imadome1, Go Matsuda1, Fuyuko Kawano1, Eiichi Kodama2, Ayako Arai3, Norio Shimizu4, and Shigeyoshi Fujiwara. Applications of mouse models of EBV-associated diseases for the evaluation of novel therapies. 16th International Symposium on EBV and Associated Diseases 2014.08 Brisbane
6. Makoto Arai, Ayako Arai, Shun-ichiro Izumi. Postgraduate education in Kampo (traditional Japanese) medicine: A current survey of clinical training hospitals. The Association for Medical Education in Europe 2014.09 Milan
7. Shihoko Suwa, Hiroki Hatsusawa, Megumi Iida, Osamu Miura, Tetsuya Fukuda. Identification of HLA restricted peptides derived from tumor-associated of hematological malignancy. The 6th Annual Meeting of the Society of Immunotherapy for Hematological Disorders 2014.09.06 Kyoto University Shiran-kaikan Yamauchi Hall
8. Shihoko Suwa, Ayaka Usui, Megumi Iida, Ken Watanabe, Osamu Miura, Tetsuya Fukuda. Identification of HLA restricted peptides derived from tumor-associated of hematological malignancy. The 76th Annual Meeting of the Japanese Society of Hematology 2014.10.31 Osaka International Convention Center
9. Yoshihiro Umezawa, Hiroki Akiyama, Shinya Ishida, Ayako Nogami, Gaku Oshikawa, Toshikage Nagao, Tetsuya Kurosu, Osamu Miura. PECAM-1 enhances SDF-1-induced chemotaxis mediated through activation of the PI3K/Akt/mTORC1 pathway. the 76th annual meeting of the japanese society of hematology 2014.10.31 Osaka
10. Ayako Nogami, Gaku Oshikawa, Shinya Ishida, Hiroki Akiyama, Yoshihiro Umezawa, Toshikage Nagao, Tetsuya Kurosu, Osamu Miura. FLT3-ITD confers resistance to PI3K/Akt inhibitors by protecting mTOR/eIF4F/Mcl-1 pathway via STAT5. The 76th Annual Meeting of the Japanese Society of Hematology 2014.10.31 Osaka
11. Iida M, Watanabe K, Suwa S, Kato M, Miura O, Fukuda T.. Protooncogene MYB activates the transcription of ROR1 in B cell malignancies.. The 76th annual meeting of Japanese Society of Hematology 2014.11.02
12. Hiroki Akiyama, Hiroshi Takase, Fumito Kubo, Tohru Miki, Masahidde Yamamoto, Makoto Tomita, Manabu Mochizuki, Osamu Miura, Ayako Arai . Systemic following intravitreal MTX administration prevents CNS infiltration of Primary intraocular lymphoma. 56th ASH Annual Meeting and Exposition 2014.12 San Francisco

13. Komatsu H, Imadome K, Shibayama H. Yada T, Yamada M, Yamamoto K, Koyama T, Fujiwara S, Miura O, Arai A. STAT3 is activated by EBV in T or NK cells leading to development of EBV-T/NK-lymphoproliferative disorders. 56th ASH Annual Meeting and Exposition 2014.12 San Francisco

14. Watanabe K, Iida M, Suwa S, Kato M, Miura O, Fukuda T.. Protooncogene MYB Activates the Transcription of ROR1 in B Cell Malignancies.. 56th American Society of Hematology Annual Meeting and Exposition 2014.12.06 San Francisco

Molecular Endocrinology and Metabolism

Professor: Yoshihiro Ogawa
Junior Associate Professor: Takanobu Yoshimoto, Hajime Izumiyama
Assistant Professor: Isao Minami, Kyoichiro Tsuchiya, Ryotaro Bouchi
Clinical Fellow: Norihiko Ohara, Yujiro Nakano, Rie Nishitani, Takato Takeuchi
Medical Fellow: Masanori Murakami
Project Assistant Professor: Miyako Tanaka, Rumi Hachiya, Misa Saijo, Xunmei Yuan[1], Ibuki Shirakawa[1]
JSPS RPD Fellow: Michiko Itoh
Graduate Students (Doctor's course): Kenji Ikeda, Naoto Tsuda, Toshiyuki Sakurai, Chikara Komiya, Yasutaka Chiba, Kazutaka Tsujimoto, Yasutaka Miyachi, Hideaki Kato, Kumiko Shiba, Kenichi Kawahori
Graduate Students (Master's course): Yukino Hatazawa, Takuya Shiihashi
Joint Research Fellow: Toshihiro Goto
Project Professor[1]: Takayoshi Suganami
Project Associate Professor[2]: Koshi Hashimoto

[1]Department of Organ Network and Metabolism, [2]Department of Preemptive Medicine and Metabolism

(1) Outline

1. Purpose of Education

Our training program enables postdoctoral trainees to prepare for the future academic careers and the clinical practice in the broad discipline of endocrinology and metabolism. The research program provides mentor-based training in experimental design, laboratory and clinical research techniques and methodology, and interpretation and analysis of the results obtained from cellular and molecular biology, physiology, clinical physiology, clinical therapeutics, and health sciences. This training program is designed to educate and establish 'physician-scientist' in the field of endocrinology and metabolism.

2. Research Subjects

1) Role of adipose tissue inflammation in the metabolic syndrome
2) Molecular mechanisms of saturated fatty acid-induced chronic inflammation
3) Molecular mechanism of vascular injury in diabetes, endocrine and metabolic diseases
4) Role of epigenetic regulation in metabolism
5) Mechanism of pathogenesis in endocrine tumors
6) Development of novel diagnostic and therapeutic tools in endocrine and metabolic diseases

3. Clinical Services

Comprehensive inpatient and outpatient services in the area of endocrine and metabolic disorders, including:
1) diseases of the thyroid, pituitary and adrenal glands.
2) diabetes mellitus, diabetic complications, metabolic syndrome, and obesity
3) primary and secondary hypertension

4) disorders of calcium metabolism

(2) Publications

[Original Articles]

1. Morita Sumiyo, Horii Takuro, Kimura Mika, Arai Yuji, Kamei Yasutomi, Ogawa Yoshihiro, Hatada Izuho. Paternal allele influences high fat diet-induced obesity. PLoS One. 2014; 9(1); e85477

2. Ito Ryo, Satoh-Asahara Noriko, Yamakage Hajime, Sasaki Yousuke, Odori Shinji, Kono Shigeo, Wada Hiromichi, Suganami Takayoshi, Ogawa Yoshihiro, Hasegawa Koji, Shimatsu Akira. An increase in the EPA/AA ratio is associated with improved arterial stiffness in obese patients with dyslipidemia. J Atheroscler Thromb. 2014; 21(3); 248-260

3. Aoyama-Mani Chikako, Kawachi Shoji, Ogawa Yoshihiro, Kato Norihiro. Vascular complications and coagulation-related changes in the perioperative period in Japanese patients undergoing non-cardiac surgery. J Atheroscler Thromb. 2014; 21(5); 414-434

4. Inoue Kana, Maeda Norikazu, Mori Takuya, Sekimoto Ryohei, Tsushima Yu, Matsuda Keisuke, Yamaoka Masaya, Suganami Takayoshi, Nishizawa Hitoshi, Ogawa Yoshihiro, Funahashi Tohru, Shimomura Iichiro. Possible involvement of Opa-interacting protein 5 in adipose proliferation and obesity. PLoS One. 2014; 9(2); e87661

5. Hatazawa Yukino, Tadaishi Miki, Nagaike Yuta, Morita Akihito, Ogawa Yoshihiro, Ezaki Osamu, Takai-Igarashi Takako, Kitaura Yasuyuki, Shimomura Yoshiharu, Kamei Yasutomi, Miura Shinji. PGC-1alpha-mediated branched-chain amino acid metabolism in the skeletal muscle. PLoS One. 2014; 9(3); e91006

6. Tanaka Miyako, Ikeda Kenji, Suganami Takayoshi, Komiya Chikara, Ochi Kozue, Shirakawa Ibuki, Hamaguchi Miho, Nishimura Satoshi, Manabe Ichiro, Matsuda Takahisa, Kimura Kumi, Inoue Hiroshi, Inagaki Yutaka, Aoe Seiichiro, Yamasaki Sho, Ogawa Yoshihiro. Macrophage-inducible C-type lectin underlies obesity-induced adipose tissue fibrosis. Nat Commun. 2014; 5; 4982

7. Tsuda Naoto, Kumadaki Shin, Higashi Chika, Ozawa Makoto, Shinozaki Mikihiko, Kato Yutaka, Hoshida Koutarou, Kikuchi Satomi, Nakano Yoshihisa, Ogawa Yoshihiro, Furusako Shoji. Intestine-targeted DGAT1 inhibition improves obesity and insulin resistance without skin aberrations in mice. PLoS One. 2014; 9(11); e112027

8. Asakawa Masahiro, Chin Rina, Niitsu Yoshihiro, Sekine Tetsuo, Niwa Arisa, Miyake Atsuko, Inoshita Naoko, Kawamura Mitsunobu, Ogawa Yoshihiro, Hirata Yukio. A Case of Rathke's Cleft Cyst Associated with Transient Central Adrenal Insufficiency and Masked Diabetes Insipidus. Case Rep Endocrinol. 2014; 2014; 693294

9. Iwasaki Y, Suganami T, Hachiya R, Shirakawa I, Kim-Saijo M, Tanaka M, Hamaguchi M, Takai-Igarashi T, Nakai M, Miyamoto Y, Ogawa Y. Activating transcription factor 4 links metabolic stress to interleukin-6 expression in macrophages. Diabetes. 2014.01; 63(1); 152-161

10. Iwasaki Yorihiro, Suganami Takayoshi, Hachiya Rumi, Shirakawa Ibuki, Kim-Saijo Misa, Tanaka Miyako, Hamaguchi Miho, Takai-Igarashi Takako, Nakai Michikazu, Miyamoto Yoshihiro, Ogawa Yoshihiro. Activating transcription factor 4 links metabolic stress to interleukin-6 expression in macrophages. Diabetes. 2014.01; 63(1); 152-161

11. Sawada Naoki, Jiang Aihua, Takizawa Fumihiko, Safdar Adeel, Manika Andre, Tesmenitsky Yevgenia, Kang Kyu-Tae, Bischoff Joyce, Kalwa Hermann, Sartoretto Juliano L, Kamei Yasutomi, Benjamin Laura E, Watada Hirotaka, Ogawa Yoshihiro, Higashikuni Yasutomi, Kessinger Chase W, Jaffer Farouc A, Michel Thomas, Sata Masataka, Croce Kevin, Tanaka Rica, Arany Zolt. Endothelial PGC-1alpha mediates vascular dysfunction in diabetes. Cell Metab. 2014.02; 19(2); 246-258

12. Kamei Yasutomi, Hattori Maki, Hatazawa Yukino, Kasahara Tomomi, Kanou Masanobu, Kanai Sayaka, Yuan Xunmei, Suganami Takayoshi, Lamers Wouter H, Kitamura Tadahiro, Ogawa Yoshihiro. FOXO1 activates glutamine synthetase gene in mouse skeletal muscles through a region downstream of 3'-UTR: possible contribution to ammonia detoxification. Am J Physiol Endocrinol Metab. 2014.09; 307(6); E485-E493

13. Park Jinyoung, Yoon Young-Sil, Han Hye-Sook, Kim Yong-Hoon, Ogawa Yoshihiro, Park Keun-Gyu, Lee Chul-Ho, Kim Seong-Tae, Koo Seung-Hoi. SIK2 is critical in the regulation of lipid homeostasis and adipogenesis in vivo. Diabetes. 2014.11; 63(11); 3659-3673

Hepatobiliary and Pancreatic Surgery

Director & Professor
Minoru Tanabe MD, PhD
Associate Professor
Shinji Tanaka MD, PhD (until October 2014)
Assistant Professor
Atsushi Kudo MD, PhD
Takumi Irie MD, PhD (until September 2014)
Takanori Ochiai MD, PhD
Daisuke Ban MD, PhD (Centeer for Minimally Invasive Surgery)
Arihiro Aihara MD, PhD (joining April 2014)
Satoshi Matsumura MD, PhD
Yusuke Mitsunori MD, PhD (joining October 2014)
Taku Sato MD (Bioresource Reseach Center)
Graduate School Students
Tomoya Miura MD (until March 2014)
Hiroko Matsunaga MD (until March 2014)
Eriko Katsuta MD
Takaki Furuyama MD
Hiromitsu Ito MD
Keisuke Nakao MD
Keiichi Akakhoshi MD
Hiroki Ueda MD
Yoshiteru Ohata MD
Atsushi Ohba MD
Yuki Mizuno MD (joining April 2014)
Norimichi Chiyonobu MD (joining April 2014)
Haku Liu MD (joining April 2014)

(1) Outline

The department of Hepato-Biliary-Pancreatic Surgery at Tokyo Medical and Dental University focus on the liver, biliary tract and pancreas with benign and malignant disorders. We constantly strive to provide the highest level of complex and innovative surgical care, comprehensive surgical training for tomorrow's leaders as well as groundbreaking basic science and clinical research.

(2) Research

We conduct medical research in both clinical and laboratory settings and develop novel ideas in research which impact patient outcomes, teaching, and clinical care.
Our research programs encompass:
· Biomolecular mechanisms of carcinogenesis, cancer growth, invasion and metastasis
· Molecular target therapy for malignant diseases
· Cancer stem cell
· Extended indication for hepatectomy

· The system of liver microcirculation
· Laparoscopic surgery for hepatobiliary pancreatic diseases
· Liver transplantation and organ preservation
· Treatments for neuroendocrine tumor
· Innovation of imaging modality for hepatobiliary pancreatic diseases

(3) Education

Medical students program:
We conduct the various experiences of hepatobiliary pancreatic diseases, diagnosis and management, through lectures, pre-clinical clerkship and clinical clerkship. Clinical clerkship exposes students to the surgical patients and basic surgical techniques. It also provides opportunities to participate in peri-operative care as well as operative procedures. Students learn interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and professional associates.

Surgical training program:
The aim of our surgical training program cultivates not only training for certified board surgeons, but also the future surgical leaders, through experiences from the academic, the operative, and the outpatient aspects of management in university hospital and affiliated hospitals. Clinically, the trainees receive training and experience in the preoperative, operative, and post-operative care of patients and basic science and clinical research in our training programs strive to help young surgeons develop both technical and cognitive expertise.

(4) Clinical Performances

Our highly experienced surgeons offer state-of-the-art diagnosis and treatment, such as the multidisciplinary treatments (based on radical surgery) for advanced malignant diseases, minimally invasive procedures (including reduced port surgery).
Annually, 270 operations (hepatectomy: 105 cases, pancreatectomy: 62 cases) were performed in 2014, placing one of the top high volume medical centers in the country for hepatobiliary pancreatic surgery.

(5) Publications

[Original Articles]

1. Ito H, Kudo A, Matsumura S, Ban D, Irie T, Ochiai T, Nakamura N, Tanaka S, Tanabe M. Mixed adenoneuroendocrine carcinoma of the colon progressed rapidly after hepatic rupture: report of a case. Int Surg. 2014; 99(1); 40-44

2. Kano Y, Konno M, Kawamoto K, Tamari K, Hayashi K, Fukusumi T, Satoh T, Tanaka S, Ogawa K, Mori M, Doki Y, Ishii H. Novel drug discovery system for cancer stem cells in human squamous cell carcinoma of the esophagus. Oncology Reports. 2014; 86(1); 53-62

3. Katsuta E, Tanaka S, Mogushi K, Matsumura S, Ban D, Ochiai T, Irie T, Kudo A, Nakamura N, Tanaka H, Tanabe M, Arii S.. Age-related clinicopathological and molecular features of patients received curative hepatectomy for hepatocellular carcinoma. American Journal of Surgery. 2014; 208(3); 450-456

4. Yasui Y, Kudo A, Kurosaki M, Matsuda S, Muraoka M, Tamaki N, Suzuki S, Hosokawa T, Ueda K, Matsunaga K, Nakanishi H, Tsuchiya K, Itakura J, Takahashi Y, Tanaka S, Asahina Y, Enomoto N, Arii S, Izumi N.. Reduced organic anion transporter expression is a risk factor for hepatocellular carcinoma in chronic hepatitis C patients: a propensity score matching study. Oncology. 2014.01; 86(1); 53-62

5. Jibiki Masatoshi, Inoue Yoshinori, Kudo Toshifumi, Toyofuku Takahiro, Saito Kazutaka, Kihara Kazunori, Kudo Atsushi, Ban Daisuke, Arii Shigeki. Combined resection of a tumor and the inferior vena cava: report of two cases. Surg Today. 2014.01; 44(1); 166-170

6. Hirano Y, Takeuchi H, Suda K, Oyama T, Nakamura R, Takahashi T, Kawakubo H, Wada N, Saikawa Y, Obara H, Jinno H, Hasegawa H, Tanabe M, Kitagawa Y.. Clinical utility of the Revised Cardiac Risk

Index in non-cardiac surgery for elderly patients: a prospective cohort study. Surg Today. 2014.02; 44(2); 277-284

7. Kudo A, Mogushi K, Takayama T, Matsumura S, Ban D, Irie T, Ochiai T, Nakamura N, Tanaka H, Anzai N, Sakamoto M, Tanaka S, Arii S.. Mitochondrial metabolism in the noncancerous liver determine the occurrence of hepatocellular carcinoma: a prospective study. J. Gastroenterol.. 2014.03; 49(3); 502-510

8. Kudo A, Igari T, Kumagai J, Tanaka S, Ban D, Noguchi N, Irie T, Nakamura N, Arii S.. A simple index to predict liver functional reserve after hepatectomy. Hepatogastroenterology. 2014.04; 61; 712-716

9. Ogawa K, Tanaka S, Matsumura S, Murakata A, Ban D, Ochiai T, Irie T, Kudo A, Nakamura N, Tanabe M, Arii S.. EpCAM-targeted therapy for human hepatocellular carcinoma. Ann. Surg. Oncol.. 2014.04; 21(4); 1314-1322

10. Lin Q, Aihara A, Chung W, Li Y, Huang Z, Chen X, Weng S, Carlson R, Wands J, Dong X. LRH1 as a driving factor in pancreatic cancer growth. Cancer Lett. 2014.04; 345(1); 85-90

11. Emoto K, Masugi Y, Yamazaki K, Effendi K, Tsujikawa H, Tanabe M, Kitagawa Y, Sakamoto M.. Presence of primary cilia in cancer cells correlates with prognosis of pancreatic ductal adenocarcinoma. Hum Pathol. 2014.04; 45(4); 817-825

12. Miura T, Ban D, Koyama T, Kudo A, Ochiai T, Irie T, Nakamura N, Tanaka S, Arii S.. Severe postoperative hemorrhage caused by antibody-mediated coagulation factor deficiencies: report of two cases. Surg. Today. 2014.05; 44(5); 976-981

13. Katsuta E, Tanaka S, Mogushi K, Matsumura S, Ban D, Ochiai T, Irie T, Kudo A, Nakamura N, Tanaka H, Tanabe M, Arii S.. Age-related clinicopathologic and molecular features of patients receiving curative hepatectomy for hepatocellular carcinoma. Am. J. Surg.. 2014.05;

14. Kudo A, Tanaka S, Matsumura S, Ban D, Irie T, Ochiai T, Nakamura N, Arii S.. Anatomic resection reduces the recurrence of solitary hepatocellular carcinoma < 5 cm without macrovascular invasion. Am. J. Surg.. 2014.06; 207(6); 863-869

15. Masashi Nakadate, Yoshio Kitazume, Daisuke Ban, Mayumi Watanabe, Isamu Ohashi, Hitoshi Shibuya. A case of hepatic endometrioma Japanese Journal of Clinical Radiology. 2014.06; 59(6); 805-809

16. Shinoda M, Tanabe M, Itano O, Obara H, Kitago M, Abe Y, Hibi T, Yagi H, Fujino A, Kawachi S, Hoshino K, Kuroda T, Kitagawa Y. Left-side hepatectomy in living donors: through a reduced upper-midline incision for liver transplantation. Transplant Proc. 2014.06; 46(5); 1400-1406

17. Yamazaki K, Masugi Y, Effendi K, Tsujikawa H, Hiraoka N, Kitago M, Shinoda M, Itano O, Tanabe M, Kitagawa Y, Sakamoto M.. Upregulated SMAD3 promotes epithelial-mesenchymal transition and predicts poor prognosis in pancreatic ductal adenocarcinoma. Lab Invest. 2014.06; 94(6); 683-691

18. Lin Q, Aihara A, Chung W, Li Y, Chen X, Huang Z, Weng S, Carlson R, Nadolny C, Wands J, Dong X. LRH1 promotes pancreatic cancer metastasis. Cancer Lett. 2014.08; 350(1-2); 15-24

19. Kudo A, Tanaka S, Ban D, Matsumura S, Irie T, Ochiai T, Nakamura N, Arii S, Tanabe M.. Alcohol consumption and recurrence of non-B or non-C hepatocellular carcinoma after hepatectomy: a propensity score analysis. J. Gastroenterol.. 2014.09; 49(9); 1352-1361

20. Ban D, Tanabe M, Ito h, Otsuka Y, Nitta H, Abe Y, Hasegawa Y, Katagiri T, Takagi C, Itano O, Kaneko H, Wakabayashi G.. A novel difficulty scoring system for laparoscopic liver resection. J Hepatobiliary Pancreat Sci. 2014.10; 21(10); 745-753

21. Aihara A, Huang C, Olsen M, Lin Q, Chung W, Tang Q, Dong X, Wands J. A cell-surface beta-hydroxylase is a biomarker and therapeutic target for hepatocellular carcinoma. Hepatology. 2014.10; 60(4); 1302-1313

22. Tanaka M, Shinoda M, Takayanagi A, Oshima G, Nishiyama R, Fukuda K, Yagi H, Hayashida T, Masugi Y, Suda K, Yamada S, Miyasho T, Hibi T, Abe Y, Kitago M, Obara H, Itano O, Takeuchi H, Sakamoto M, Tanabe M, Maruyama I, Kitagawa Y.. Gene transfer of high-mobility group box 1 box-A domain in a rat acute liver failure model. J Surg Res. 2014.11;

23. Kudo A, Matusmura S, Ban D, Irie T, Ochiai T, Tanaka S, Arii S, Tanabe M.. Does the preoperative alpha-fetoprotein predict the recurrence and mortality after hepatectomy for hepatocellular carcinoma without macrovascular invasion in patients with normal liver function? Hepatol. Res.. 2014.12; 44(14); E437-E446

24. Matsunaga H, Tanaka S, Aihara A, Ogawa K, Matsumura S, Ban D, Ochiai T, Irie T, Kudo A, Nakamura N, Arii S, Tanabe M.. A Novel Therapeutic Combination Sequentially Targeting Aurora B and Bcl-xL in Hepatocellular Carcinoma. Ann. Surg. Oncol.. 2014.12;

25. Yamada Y, Ochiai T, Boskovic S, Nadazdin O, Oura T, Schoenfeld D, Cappetta K, Smith R-N, Colvin R B, Madsen J C, Sachs D H, Benichou G, Cosimi A B, Kawai T. Use of CTLA4Ig for induction of mixed chimerism and renal allograft tolerance in nonhuman primates Am J Transplant. 2014.12; 14(12); 2704-2712

26. Okajima C, Arii S, Tanaka S, Matsumura S, Ban D, Ochiai T, Irie T, Kudo A, Nakamura N, Tanabe M. Prognostic role of Child-Pugh score 5 and 6 in hepatocellular carcinoma patients who underwent curative hepatic resection. American Journal of Surgery, in press.

27. Watanabe Y, Yamamoto H, Oikawa R, Toyota M, Yamamoto M, Kokudo N, Tanaka S, Arii S, Yotsuyanagi H, Koike K, Itoh F. DNA methylation at hepatitis B viral integrants is associated with methylation at flanking human genomic sequences. Genome Research, in press.

[Books etc]

1. Tanabe M. Reduced Port Laparoscopic Surgery. Springer, 2014 (ISBN : 978-4-4315-4600-9)

[Misc]

1. Kishida N, Shinoda M, Masugi Y, Itano O, Fujii-Nishimura Y, Ueno A, Kitago M, Hibi T, Abe Y, Yagi H, Tanimoto A, Tanabe M, Sakamaoto M, Kitagawa Y.. Cystic tumor of the liver without ovarian-like stroma or bile duct communication: two case reports and a review of the literature. World J Surg Oncol. 2014; 12; 229

2. Tanaka S. Molecular pathogenesis and targeted therapy of pancreatic cancer. Annals of Surgical Oncology, in press.

3. Ban D, Kudo A, Irie T, Ochiai T, Aihara A, Matusmura S, Tanaka S, Tanabe M. Advances in reduced port laparoscopic liver resection. Asian Journal of Endoscopic Surgery, in press.

4. Tanaka S. Cancer stem cells as therapeutic targets of hepato-biliary-pancreatic cancers. Journal of Hepato-Biliary-Pancreatic Sciences, in press.

[Conference Activities & Talks]

1. Ochiai T, Shioya A, Honma H, Saitoh T, Matsumura S, Ban D, Irie T, Kudo A, Nakamura N, Fujikawa T, Itai A, Tanaka S, Arii S, Yamaoka S, Tanabe M . Combination Treatment of I κ B Kinase β Inhibitor IMD-0354 and Gemcitabine Suppresses Oncogenic Proliferation of Pancreatic Cancer Cells. 9th Annual Academic Surgical Congress 2014.02.04 San Diego, USA

2. Akahoshi K, Ochiai T, Matsumura S, Ban D, Irie T, Kudo A, Tanaka S, Tanabe M. The usefulness of POSSUM score for elective liver surgery: analysis of 100 patients of hepatocellular carcinoma. 9th Annual Academic Surgical Congress 2014.02.04 San Diego, USA

3. Tanabe M, Kiyagawa Y.. Cryoablation for hepatocellular carcinoma.. The 41th Annual Meeting of Japan Society for Low Temperature Medicine 2014.02.13 Nagoya

4. Tanabe M.. Theoretical Sesson. Lap. Liver Resection, Technical Tips.. Asia Endosurgery Task Force 21st Workshop 2014.03.15 Sizuoka

5. Tanabe M. Theoretical Sesson. Single port.. IRCAD Taiwan Advanced Course "Hepatobiliary and Pancreatic Surgery Course 2014.03.27 Taiwan

6. Tanabe M. Hepatic Surgery. Atate the Art in radiofrequency. micro-wave, and cryoablation. . IRCAD Taiwan Hepatobiliary and Pancreatic Surgery Course 2014.03.29 Taiwan

7. Tanaka S, Ogawa K, Murakata A, Mogushi K, Matsumura S, Aihara A, Ban D, Ochiai T, Irie T, Kudo A, Nakamura N, Tanaka H, Arii S, Tanabe M. Preclinical studies of EpCAM-targeted therapy for human hepatocellular carcinoma with specific inhibition of stem cell features. 105th Annual Meeting of the American Association for Cancer Research 2014.04.06 San Diego, USA

8. Tanaka S. "Novel molecular targets and therapeutic combinations in hepatocellular carcinoma; rationale and significance" (invited lecture). 4th International Kyoto Liver Cancer Symposium 2014.06.08 Kyoto

9. Tanaka S, Aihara A, Matsumura S, Ban D, Ochiai T, Irie T, Kudo A, Nakamura N, Arii S, Tanabe M. Molecular targeted therapy for major vascular invasiveness of hepatocellular carcinoma (symposium). The 26th Meeting of Japanese Society of Hepato-Biliary-Pancreatic Surgery 2014.06.12 Wakayama

10. Tanabe M. Biliary Tract Surgery. single port and mini-instrumentation for cholecystectomy.. IRCAD France New Perspectives in Hepatobiliary & Pancreatic Surgery Advanced Course 2014.06.19 France

11. Tanabe M. Theopetical session. State of the art in ablation therapy (radiofrequency, micro-wave and cryoablation). IRCAD France New Perspectives in Hepatobiliary & Pancreatic Surgery Advanced Course 2014.06.21

12. Tanabe M. Theoretical session.Technical tips for safe liver resection.. IRCAD Brazil Advanced Course in hepatic surgery 2014.08.01 Brazil

13. Ban D, Akita K, Ueda H, Matsumura S, Aihara A, Ochiai T, Irie T, Kudo A, Tanaka S, Tanabe M.. Anatomy of Meso-Pancreas. The Korea-Japan Pancreato-Biliary Collaborative Multicenter Symposium 2014.08.30

14. Yoshihiro Iwasa, Yoshio Kitazume, Isami Ohashi, Daisuke Ban, Minoru Tanabe. Prediction of the histological grade of hepatocellular carcinoma: quantitative comparisons among DW, T2W, and hepatobilliary phase of Gd-EOB-DTPA enhanced MRI. 42nd Japanese Society for Magnetic Resonance in Medicine 2014.09.18 Hotel Granvia Kyoto

15. Tanaka S, Adikrisna R, Mogushi K, Matsunaga H, Matsumura S, Aihara A, Ochiai T, Tanaka H, Yamaoka S, Arii S. Visualized cancer stem cells for analysis of heterogenic expansion and microenvironments with tumor-host interaction (symposium). The 73th Annual Meeting of the Japanese Cancer Association 2014.09.25 Yokohama

16. Aihara A, Tanaka S, Wands J. LRH1 as a driving factor in pancreatic cancer progression. The 73rd Annual Meeting of the Japanesse Cancer Association 2014.09.26 yokohama

17. Tanabe M. Difficulty score.. The 2nd International Consensus Conference on Laparoscopic Liver Surgery 2014.10.05 Morioka

18. Ban D, Ueda H, Mizuno Y, Ohata Y, Sato T, Ohba A, Akahoshi K, Furuyama T,Ito H, Nakao K, Katsuta E, Matsumura S, Mitsunori Y, Aihara A, Ochia Ti Kudo A, Tanaka S, Tanabe M.. Efficacy of the bioabsorbable sheet wrapping with fibrin-glue for the pancreatic stump after distal pancreatectomy. The 6th Scientific Meeting of Japan-Hungary-Poland Surgical Society 2014.10.17

19. Ueda H, Band D, Ohata Y, Sato T, Ohba A, Akahoshi K, Furuyama T, Ito H, Katsuta E, Nakao K, Matsumura S, Mitsunori Y, Aihara A, Ochiai T, Kudo A, Tanaka S, Tanabe M. The optimal dividing line of the jejunum for pancreatoduodenectomy. 2014.10.18

20. Katsuta E, Kudo A, Ohata Y, Ueda H, Sato A, Oba A, Akahoshi K, Nakao K, Furuyama T,Ito H, Matsumura S, Aihara A, Ban D, Ochiai T, Irie T, Tanaka S, Tanabe M.. Morphology of pancreatic Neuroendocrine Tumor(P-NET). American Pancreatic Association 2014.11.09 Hawaii

21. Tanaka S, Ogawa K, Matsumura S, Aihara A, Ban D, Ochiai T, Irie T, Kudo A, Arii S, Tanabe M. A preclinical study of EpCAM-targeted therapy for human hepatocellular carcinoma with stem cell features. 65th Annual Meeting of the American Association for the Study of Liver diseases 2014.11.10 Boston, USA

22. Aihara A, Huang C, Olsen M, Lin Q, Chung W, Tang Q, Dong X, Wands J. A Cell surface β-Hydroxylase is a biomarker and therapeutic target for hepatocellular carcinoma. AASLD 2014.11.10 Boston

23. Hiroko Kohbata, Yuka Ozasa, Hitoshi Kuwana, Kyoichiro Tsuchiya, Masatoshi Takagi, Atsushi Kudo, Masayuki Yoshida. A case of von Hippel-Lindau disease with pancreatic cysts diagnosed by novel PCR-based genetic testing. 2014.11.21

[Patents]

1. Compositions and methods for detection and treatment of hepatocellular carcinoma (Tanaka S, MacDonald G), Application Number：PCT/CA2014/050373
2. ORGAN FUNCTION MAINTAINING AND AMELIORATING SOLUTION, Patent Number：PCT/JP2006/304269
3. Dominant negative mutants of IRS-1 and uses there of (Tanaka S, Wands JR), Patent Number：United States Patent 6,528,479
4. Compositions and methods for detection and treatment of hepatocellular carcinoma (Tanaka S, MacDonald G), Application Number：US 61/811,360

Orthopaedic and Spinal Surgery

Professor: Atsushi Okawa
Assistant Professor: Tsuyoshi Kato, Toshitaka Yoshii, Hiroyuki Inose
Associate Professor: Shinichi Sotome, Yoshinori Asou
Assistant Professor: Shigenori Kawabata, Mitsuhiro Enomoto

(1) Outline

Members of our section and Orthopaedic Joint Sugery section wrok together in a clinic and OR. Through these practices we train to make the clinical diagnosis and to plan the adequate surgery. We practice findings of clinical problem of the locomotorium lesion such as joints, spine and spinal cord, peripheral nerve disorders, aging, injury, tumorigenesis mechanism, and image findings. To solve a lot of clinical question and develop new methodology to treat patients having severe orthopaedic problems, we especcially study spinal cord function, bone regeneration, and pain perception mechanism at dorsal root ganglion.

(2) Research

Research themes:
Bone and cartilage metabolism
Development and evaluation of biomaterials for clinical application
Mechanism of spinal ligament ossification
Development of measuring device for spinal cord magnetic signals
Research of bone an d spinal metastatic tumors

We collaborate with other sections in our university such as the Clinical Anatomy, the Neurology, and the Physiology and Cell Biology.

(3) Education

Our department has several regular program such as "Bedside Professor Round" at Monday 14:30-16:30, "Clinical Conference" at Monday 7:30-9:00, and "Jounal Clubb or Research Progress meeting" at 7:30-8:00 of Tuesday, Thursday, and Friday.
Graduate students in our department can acquire the basic techmiques of orthpaedic research and can learn a up-dated knowledge of clinical medicaine through regularly-held journal clubs and research meetings.

(4) Lectures & Courses

Japanese orthpaedic research is charactorised by the fact that orthopaedc surgeon himself participates experiments while he is working as a clinician. A lot of new knowledge concerning bone, cartilage and nerve were discovered by this so-called "surgeon scientist".
We have already taken a new artificial bone developed in our section to the market and have been preparing a revolutional measurering device for spinal magnetic signals. We think it very important that research by a surgeon shloud be based on clinical problems even when methodoloy of molecular biology is used.
Our graduate students learn basic technique of orthopaedic research and also acquire the ability of life-cotinueing attitude for clinical studies.

(5) Clinical Services & Other Works

Our orthopaedic department consists of two graduate school sectiones, the Orthopaedic and Spinal Surgery and the Joint Surgery and Sports Medicine. We deal wtih all kinds of orthopaedic diseases such as spine, hand, hip, knee,and musuclo-skeletal tumor. More than twenty registerd orthopaedic surgeons belong to our department.

Our anterior cervical operation fot OPLL results in a good clinical outcome. We also organize many spinal surgeons who are members of a nation-wide research organization for spinal ligament ossification supported by the Ministry of Health, Labour and Welfare.

(6) Clinical Performances

We aim to provide safer surgery to the patinets with intractable spinal disease using many kinds of modality as navigation, microscopic surgery, spinal cord montoring, and intraoperative CAT scan. Treatments of adult spinal defromity and othteopotic vertebral fracture are our other interest. We have also developed an original artificial bone composed of hydroxy-appatite and collagen, now promoting to use aggressively to fill large bone defect.

(7) Publications

[Original Articles]

1. Juyong Wang, Juqiang Wang, Asou Yoshinori, Fu Paul, Huiliang Shen, Jiani Chen, Shinichi Sotome, Zhao Liu, Kenichi Shinomiya. Low-intensity pulsed ultrasound prompts tissue-engineered bone formation after implantation surgery. Chin. Med. J.. 2014; 127(4); 669-674

2. Ukegawa M,Bhatt K, Hirai T, Kaburagi H, Sotome S, Wakabayashi Y, Ichinose S, Shinomiya K, Okawa A, Enomoto M. Bone marrow stromal cells combined with a honeycomb collagen sponge facilitate neurite elongation in vitro and neural restoration in the hemisected rat spinal cord Cell Transplant. (Epub ahead of print). 2014;

3. Yoshihiro Hagiwara, Kenji Kanazawa, Akira Ando, Akimoto Nimura, Takashi Watanabe, Kazuhiro Majima, Keiichi Akita, Eiji Itoi. Blood flow changes of the anterior humeral circumflex artery decrease with the scapula in internal rotation Knee Surg Sports Traumatol Arthrosc. 2014.01;

4. Kobayashi Sho, Matsuyama Yukihiro, Shinomiya Kenichi, Kawabata Shigenori, Ando Muneharu, Kanchiku Tsukasa, Saito Takanori, Takahashi Masahito, Ito Zenya, Muramoto Akio, Fujiwara Yasushi, Kida Kazunobu, Yamada Kei, Wada Kanichiro, Yamamoto Naoya, Satomi Kazuhiko, Tani Toshikazu. A new alarm point of transcranial electrical stimulation motor evoked potentials for intraoperative spinal cord monitoring: a prospective multicenter study from the Spinal Cord Monitoring Working Group of the Japanese Society for Spine Surgery and Related Research. J Neurosurg Spine. 2014.01; 20(1); 102-107

5. Horie Masaki, Enomoto Mitsuhiro, Shimoda Manabu, Okawa Atsushi, Miyakawa Shumpei, Yagishita Kazuyoshi. Enhancement of satellite cell differentiation and functional recovery in injured skeletal muscle by hyperbaric oxygen treatment. J Appl Physiol (1985). 2014.01; 116(2); 149-155

6. Yoshii Toshitaka, Yamada Tsuyoshi, Hirai Takashi, Taniyama Takashi, Kato Tsuyoshi, Enomoto Mitsuhiro, Inose Hiroyuki, Sumiya Satoshi, Kawabata Shigenori, Shinomiya Kenichi, Okawa Atsushi. Dynamic changes in spinal cord compression by cervical ossification of the posterior longitudinal ligament evaluated by kinematic computed tomography myelography. Spine (Phila Pa 1976). 2014.01; 39(2); 113-119

7. Hirai Takashi, Enomoto Mitsuhiro, Kaburagi Hidetoshi, Sotome Shinichi, Yoshida-Tanaka Kie, Ukegawa Madoka, Kuwahara Hiroya, Yamamoto Mariko, Tajiri Mio, Miyata Haruka, Hirai Yukihiko, Tominaga Makoto, Shinomiya Kenichi, Mizusawa Hidehiro, Okawa Atsushi, Yokota Takanori. Intrathecal AAV serotype 9-mediated delivery of shRNA against TRPV1 attenuates thermal hyperalgesia in a mouse model of peripheral nerve injury. Mol Ther. 2014.02; 22(2); 409-419

8. Atsushi Tasaki, Akimoto Nimura, Taiki Nozaki, Akira Yamakawa, Mamoru Niitsu, Wataru Morita, Yoshimitsu Hoshikawa, Keiichi Akita. Quantitative and qualitative analyses of subacromial impingement by kinematic open MRI Knee Surg Sports Traumatol Arthrosc. 2014.02;

9. Akimoto Nimura, Hitomi Fujishiro, Yoshiaki Wakabayashi, Junya Imatani, Hiroyuki Sugaya, Keiichi Akita. Joint capsule attachment to the extensor carpi radialis brevis origin：an anatomical study with possible implications regarding the etiology of lateral epicondylitis J Hand Surg Am. 2014.02; 39(2); 219-225

10. Tomoyuki Mochizuki, Hitomi Fujishiro, Akimoto Nimura, Pasuk Mahakkanukrauh, Kazunori Yasuda, Takeshi Muneta, Keiichi Akita. Anatomic and histologic analysis of the mid-substance and fan-like extension fibres of the anterior cruciate ligament during knee motion, with special reference to the femoral attachment Knee Surg Sports Traumatol Arthrosc. 2014.02; 22(2); 336-344

11. Arai Yoshiyasu, Hirai Takashi, Yoshii Toshitaka, Sakai Kenichiro, Kato Tsuyoshi, Enomoto Mitsuhiro, Matsumoto Renpei, Yamada Tsuyoshi, Kawabata Shigenori, Shinomiya Kenichi, Okawa Atsushi. A prospective comparative study of 2 minimally invasive decompression procedures for lumbar spinal canal stenosis: unilateral laminotomy for bilateral decompression (ULBD) versus muscle-preserving interlaminar decompression (MILD). Spine (Phila Pa 1976). 2014.02; 39(4); 332-340

12. Ukegawa Dai, Kawabata Shigenori, Sakaki Kyohei, Ishii Senichi, Tomizawa Shoji, Inose Hiroyuki, Yoshii Toshitaka, Kato Tsuyoshi, Enomoto Mitsuhiro, Okawa Atsushi. Efficacy of biphasic transcranial electric stimulation in intraoperative motor evoked potential monitoring for cervical compression myelopathy. Spine (Phila Pa 1976). 2014.02; 39(3); E159-E165

13. Haruhiko Shimura, Yoshiaki Wakabayashi, Akimoto Nimura. A novel closed reduction with extension block and flexion block using Kirschner wires and microscrew fixation for mallet fractures J Orthop Sci. 2014.03; 19(2); 308-312

14. Sawamura C, Matsumoto S, Shimoji T, Okawa A, Ae K.. How long should we follow patients with soft tissue sarcomas? Clinical Orthopaedics and Related Research . 2014.03; 472(3); 842-848

15. Tetsuya Jinno, Kazuyoshi Yagishita. What’s New in Orthopedics: Asian Perspective - Hip Austin MS, Klein GR, eds. Recent Advances in Orthopedics. 2014.03; 202-214

16. Kazuyoshi Yagishita, Tetsuya Jinno. What’s New in Orthopedics: Asian Perspective - Knee Austin MS, Klein GR, eds. Recent Advances in Orthopedics. 2014.03; 215-220

17. Sakamoto Kazuaki, Nasu Hisayo, Nimura Akimoto, Hamada Junichiro, Akita Keiichi. An anatomic study of the structure and innervation of the pronator quadratus muscle. Anat Sci Int. 2014.04;

18. Sachiyuki Tsukada, Hitomi Fujishiro, Kentaro Watanabe, Akimoto Nimura, Tomoyuki Mochizuki, Mahakkanukrauh Pasuk, Kazunori Yasuda, Keiichi Akita. Anatomic variations of the lateral intercondylar ridge：relationship to the anterior margin of the anterior cruciate ligament Am J Sports Med. 2014.05; 42(5); 1110-1117

19. Atsushi Tasaki, Akimoto Nimura, Tomoyuki Mochizuki, Kumiko Yamaguchi, Ryuichi Kato, Hiroyuki Sugaya, Keiichi Akita. Anatomic observation of the running space of the suprascapular nerve at the suprascapular notch in the same direction as the nerve Knee Surg Sports Traumatol Arthrosc. 2014.06;

20. Madoka Ukegawa, Kush Bhatt, Takashi Hirai, Hidetoshi Kaburagi, Shinichi Sotome, Yoshiaki Wakabayashi, Shizuko Ichinose, Kenichi Shinomiya, Atsushi Okawa, Mitsuhiro Enomoto. Bone marrow stromal cells combined with a honeycomb collagen sponge facilitate neurite elongation in vitro and neural restoration in the hemisected rat spinal cord. Cell Transplant. 2014.06;

21. Yoto Oh, Yoshiaki Wakabayashi, Yoshiro Kurosa, Masafumi Ishizuki, Atsushi Okawa. Stress fracture of the bowed femoral shaft is another cause of atypical femoral fracture in elderly Japanese: a case series. J Orthop Sci. 2014.07; 19(4); 579-586

22. Kawaguchi Yoshiharu, Matsumoto Morio, Iwasaki Motoki, Izumi Tomohiro, Okawa Atsushi, Matsunaga Shunji, Chiba Kazuhiro, Tsuji Takashi, Yamazaki Masashi, Fujimori Takahito, Yoshii Toshitaka, Toyama Yoshiaki. New classification system for ossification of the posterior longitudinal ligament using CT images. J Orthop Sci. 2014.07; 19(4); 530-536

23. Satoru Muro, Kumiko Yamaguchi, Yasuo Nakajima, Kentaro Watanabe, Masayo Harada, Akimoto Nimura, Keiichi Akita. Dynamic intersection of the longitudinal muscle and external anal sphincter in the layered structure of the anal canal posterior wall Surg Radiol Anat. 2014.08; 36(6); 551-559

24. Naoko Araya, Hiroyuki Inose, Tsuyoshi Kato, Masanori Saito, Satoshi Sumiya, Tsuyoshi Yamada, Toshitaka Yoshii, Shigenori Kawabata, Atsushi Okawa. Spinal deformity caused by hyperimmunoglobulin E syndrome: clinical article. J Neurosurg Spine. 2014.08; 21(2); 292-295

25. R Fujihara, M Usui, G Yamamoto, K Nishii, Y Tsukamoto, Y Okamatsu, T Sato, Y Asou, K Nakashima, M Yamamoto. Tumor necrosis factor-α enhances RANKL expression in gingival epithelial cells via protein kinase A signaling. J. Periodont. Res.. 2014.08; 49(4); 508-517

26. Yoshii Toshitaka, Hafeman Andrea E, Esparza Javier M, Okawa Atsushi, Gutierrez Gloria, Guelcher Scott A. Local injection of lovastatin in biodegradable polyurethane scaffolds enhances bone regeneration in a critical-sized segmental defect in rat femora. J Tissue Eng Regen Med. 2014.08; 8(8); 589-595

27. Nakajima Masahiro, Takahashi Atsushi, Tsuji Takashi, Karasugi Tatsuki, Baba Hisatoshi, Uchida Kenzo, Kawabata Shigenori, Okawa Atsushi, Shindo Shigeo, Takeuchi Kazuhiro, Taniguchi Yuki, Maeda Shingo, Kashii Masafumi, Seichi Atsushi, Nakajima Hideaki, Kawaguchi Yoshiharu, Fujibayashi Shunsuke, Takahata Masahiko, Tanaka Toshihiro, Watanabe Kei, Kida Kazunobu, Kanchiku Tsukasa, Ito Zenya, Mori Kanji, Kaito Takashi, Kobayashi Sho, Yamada Kei, Takahashi Masahito, Chiba Kazuhiro, Matsumoto Morio, Furukawa Ken-Ichi, Kubo Michiaki, Toyama Yoshiaki, Ikegawa Shiro, Genetic Study Group of Investigation Committee on Ossification of the Spinal Ligaments. A genome-wide association study identifies susceptibility loci for ossification of the posterior longitudinal ligament of the spine. Nat Genet. 2014.09; 46(9); 1012-1016

28. Hisayo Nasu, Akimoto Nimura, Kumiko Yamaguchi, Keiichi Akita. Distribution of the axillary nerve to the subacromial bursa and the area around the long head of the biceps tendon 2014.09;

29. Ryuzo Arai, Akimoto Nimura, Kumiko Yamaguchi, Hideya Yoshimura, Hiroyuki Sugaya, Takahiko Saji, Shuichi Matsuda, Keiichi Akita. The anatomy of the coracohumeral ligament and its relation to the subscapularis muscle J Shoulder Elbow Surg. 2014.10; 23(10); 1575-1581

30. Taniyama Takashi, Hirai Takashi, Yoshii Toshitaka, Yamada Tsuyoshi, Yasuda Hiroaki, Saito Masanori, Inose Hiroyuki, Kato Tsuyoshi, Kawabata Shigenori, Okawa Atsushi. Modified K-line in magnetic resonance imaging predicts clinical outcome in patients with nonlordotic alignment after laminoplasty for cervical spondylotic myelopathy. Spine (Phila Pa 1976). 2014.10; 39(21); E1261-E1268

31. Yoshii Toshitaka, Ueki Hiroko, Kato Tsuyoshi, Tomizawa Shoji, Okawa Atsushi. Severe kyphotic deformity resulting from collapses of cemented and adjacent vertebrae following percutaneous vertebroplasty using calcium phosphate cement. A case report. Skeletal Radiol. 2014.10; 43(10); 1477-1480

32. Yuasa Masato, Mignemi Nicholas A, Barnett Joey V, Cates Justin M M, Nyman Jeffry S, Okawa Atsushi, Yoshii Toshitaka, Schwartz Herbert S, Stutz Christopher M, Schoenecker Jonathan G. The temporal and spatial development of vascularity in a healing displaced fracture. Bone. 2014.10; 67; 208-221

33. Yoto Oh, Yoshiaki Wakabayashi, Yoshiro Kurosa, Koji Fujita, Atsushi Okawa. Potential pathogenic mechanism for stress fractures of the bowed femoral shaft in the elderly: Mechanical analysis by the CT-based finite element method. Injury. 2014.11; 45(11); 1764-1771

34. Tatsuya Tamaki, Akimoto Nimura, Kazuhiro Oinuma, Hideaki Shiratsuchi, Satoshi Iida, Keiichi Akita. An anatomic study of the impressions on the greater trochanter : bony geometry indicates the alignment of the short external rotator muscles J Arthroplasty. 2014.12; 29(12); 2473-2477

35. Makoto Hirata, Shingo Sato, Jay S Wunder, Tak W. Mak, Benjamin A. Alman, etc.. Mutant IDH1 is sufficient to initiate enchondromatosis in mice Proc Natl Acad Sci USA. in press;

[**Books etc**]

1. Chigusa Sawamura. TNM Staging Atlas with Oncoanatomy 2nd Edition(612-639). 2014.08

2. Shigenori Kawabata. Visualization of electrophysiological activities of spinal cord using magnetospinography. 2014.11

[**Misc**]

1. Jinnno T, Morita S, Aizawa J, Masuda T. Problems and a new definition of the angle of shoulder axial rotation The Japanese Journal of Rehabilitation Medicine. 2014.08; 51(8/9); 574-581

[**Conference Activities & Talks**]

1. Akimoto Nimura, Tomoyuki Mochizuki, Hitomi Fujishiro, Junya Imatani, Hiroyuki Sugaya, Takeshi Muneta, Keiichi Akita. Initiation Of Tennis Elbow; Anatomic Findings Of Origin Of Extensor Carpi Radialis Brevis And Joint Capsule. The 2014 Annual Meeting of the American Academy of Orthopaedic Surgeons 2014.03.11 New Orleans, LO, USA

2. Gaku Koyano, Tetsuya Jinno, Daisuke Koga, Chisato Hoshino, Takeshi Muneta, Atsushi Okawa. Is closed suction drainage effective in recovery of hip joint function after total hip arthroplasty?. American Academy of Orthopaedic Surgeons 2014.03.12

3. Taniyama T, Sotome S, Yamada T, Masaoka T, Yoshii T, Takayama T, Kozaka Y, Nakajima T, Okawa A. Repair of osteochondral defects using porous hydroxyapatite collagen composite impregnated with bone morphogenetic proteins.. 60th Annuial meeting of the orthopaedic research society 2014.03.15 New Orleans

4. Tsuyoshi Yamada, Shinichi Sotome, Masato Yuasa, Takashi Taniyama, Toshitaka Yoshii, Atsushi Okawa . After Repeated Division, Bone Marrow Stromal Cells Express Inhibitory Factors With Osteogenic Capabilities, And EphA5 Is A Primary Candidate.. 60th Annual Meeting of the Orthopaedic Research Society 2014.03.15 New Orleans

5. Akimoto Nimura, Keiichi Akita. Lateral Epicondylitis Originates At The Anterior Side Of The Articular Capsule Underlying The Extensor Carpi Radialis Brevis. The Orthpaedic Research Society 2014.03.15 New Orleans, LO, USA

6. Yoshii T, Yamada T, Taniyama T, Sotome S, Kato T, Kawabata S, Okawa A. . Dynamic Changes in Spinal Cord Compression by Cervical Ossification of the Posterior Longitudinal Ligament Evaluated by Kinematic Computed Tomography Myelogram. The ORS 2014 Annual Meeting 2014.03.16 New Orleans

7. Satoshi Sumiya, Shigenori Kawabata, Dai Ukegawa, Hiroyuki Inose, Toshitaka Yoshii, Tsuyoshi Kato, Mitsuhiro Enomoto, Atsushi Okawa. Visualization by magnetospinography of electrophysiological activity in the cervical spine evoked by peripheral nerve stimulation. 30th International Congress of Clinical Neurophysiology 2014.03.20 Berlin

8. Tsuyoshi Kato, Toshitaka Yoshii, Hiroyuki Inose, Tsuyoshi Yamada, Satoshi Sumiya, Shigenori Kawabata, Atsushi Okawa. The Examination about cervical spinal surgeries for the elderly patients over 80 years old. CSRS-Asia Pacific Section 2014.04.03 HO CHI MINH

9. Toshitaka Yoshii, Kenichiro Sakai, Takashi Hirai, Tsuyoshi Kato, Yoshiyasu Arai , Atsushi Okawa . Cervical Pedicle Screw Placement Using Intraoperative Computed Tomography Imaging With A Mobile Scanner Gantry. CSRS-Asia Pacific Section 2014.04.04

10. Toshitaka Yoshii, Kenichiro Sakai, Takashi Hirai, Tsuyoshi Kato, Yoshiyasu Arai , Atsushi Okawa. Comparison of surgical outcomes for cervical ossification of longitudinal ligament with ≧ 50% occupying ratio - Anterior decompression with fusion vs Posterior decompression with fusion -. CSRS-Asia Pacific Section 2014.04.04

11. Akimoto Nimura, Taiki Nozaki, Tomoyuki Mochizuki, Keiichi Akita. Anatomic relationship between lateral impression of greater tuberosity of humerus and insertion of infraspinatus tendon. 16th European Society of Sports Traumatology, Knee Surgery and Arthroscopy Congress 2014.05.13 Amsterdam, Netherland

12. Motoki Tanaka, Akimoto Nimura, Hiroyuki Sugaya, Keiichi Akita. Arthroscopic Evaluation of Delaminated Rotator Cuff Tears：A Morphological Analysis. 16th European Society of Sports Traumatology, Knee Surgery and Arthroscopy Congress 2014.05.14 Amsterdam, Netherland

13. Sachiyuki Tsukada, Hitomi Fujishiro, Kentaro Watanabe, Akimoto Nimura, Tomoyuki Mochizuki, Mahakkanukrauh P, Kazunori Yasuda, Keiichi Akita. The lateral intercondlylar ridge：Anatomic variations and relationship to the anterior margin of the anterior cruciate ligament. 16th European Society of Sports Traumatology, Knee Surgery and Arthroscopy Congress 2014.05.14 Amsterdam, Netherland

14. Toshitaka Yoshii, Tsuyoshi Kato, Hiroyuki Inose, Shigenori Kawabata, Tsuyoshi Yamada, Satoshi Sumiya, Atsushi Okawa. Safe Cervical Pedicle Screw Placement Using Intraoperative Computed Tomography Imaging System With A Mobile Scanner Gantry. The 87th Annual Meeting of the Japanese Orthopaedic Association 2014.05.22

15. Hiroyuki Inose, et al.. Bone remodeling ratio (BRR) as a predicting factor for non-union after spinal fusion.. The 87 th Annual Meeting of the Japanese Orthopaedic Association 2014.05.24

16. Yasushi Kojima. Proposal for a new decompression illness(DCI)severity classification based on 98 DCI clinical cases and outcomes. UNDERSEA & HYPERBARIC MEDICAL SOCIETY Annual Scientific Meeting 2014 2014.06 Saint Louis

17. Toshitaka Yoshii, Kiyoshi Mochida, Akio Tsuchiya, Tsuyoshi Kato, Yoshiyasu Arai, Atsushi Okawa. Long-term radiological outcomes in short segment posterior lumbar interbody fusion using expandable cages. 41st Annual Meeting of the International Society for the Study of the Lumbar Spine (ISSLS) 2014.06.04 Korea

18. Akinobu Hyodo, Tetsuya Jinno, Daisuke Koga, Takeshi Muneta, Atsushi Okawa. A case of pseudotumor after metal-on-highly cross-linked polyethylene bearing total hip arthroplasty. 15th EFORT 2014.06.04

19. Ryohei Takada, Tetsuya Jinno, Daisuke Koga, Masanobu Hirao, Chisato Hoshino, Yoshinori Asou, Sadao Morita, Takeshi Muneta, Atsushi Okawa. Risk factors related to dislocation after primary total hip arthroplasty. 15th EFORT 2014.06.04

20. Tsuyoshi Kato, Toshitaka Yoshii, Hiroyuki Inose, Tsuyoshi Yamada, Satoshi Sumiya, Takuya Oyaizu, Takashi Hirai, Kenichiro Sakai, Atsushi Okawa. The evaluation of the pain origin of non-union osteoporotic vertebral fracture using the vertebral block procedure before the operation. 41st Annual Meeting of the International Society for the Study of the Lumbar Spine(ISSLS) 2014.06.04 SEOUL

21. Shingo Sato. Pericyte as a cell of origin for sarcomas. 2014.07.08 Tokyo

22. Daisuke Koga, Tetsuya Jinno, Shigenori Kawabata, Takeshi Muneta, Atsushi Okawa. Utility of muscle evoked potential monitoring in total hip arthroplasty.. ICJR Pan Pacific Orthopaedic Congress 2014.07.16

23. Shuta Ushio, Shigenori Kawabata, Satoshi Sumiya, Tsuyoshi Kato, Atsushi Okawa. usefulness of rapid train stimulation protocol in BR-MSEP. The 49th Annual Meeting of the Japan Medical Society of Spinal Cord Lesion 2014.09.11

24. Shingo Sato, Qingxia Wei, Makoto Hirata, Yuning Tang, Shu Takeda, Jay S. Wunder, Benjamin Alman. Microarray and RNA sequencing analysis of pericyte-derived sarcomas in a novel sarcoma mouse model. Connective Tissue Oncology Society Meeting 2014 2014.10.17 Berlin

25. Hitomi Fujishiro, Sachiyuki Tsukada, Tomomasa Nakamura, Akimoto Nimura, Keiichi Akita. Anatomic relationship between lateral meniscus and anterior cruciate ligament. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

26. Masataka Nakazawa, Akimoto Nimura, Masahiro Koizumi, Tatsuo Sato, Keiichi Akita. Posterior bundle of the acromioclavicular ligament plays a role in joint stabilization. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

27. Tatsuya Tamaki, Kazuhiro Oinuma, Hideaki Shiratsuchi, Akimoto Nimura, Keiichi Akita. The attachments of the short external rotator tendons can be visualized using preoperative 3D-CT. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

28. Motoki Tanaka, Akimoto Nimura, Nobuaki Kawai, Tomoyuki Mochizuki, Norimasa Takahashi, Hiroyuki Sugaya, Keiichi Akita. Arthroscopic Evaluation of Delaminated Rotator Cuff Tears:A Morphological Analysis. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

29. Daisuke Ban, Keiichi Akita, Hiroki Ueda, Atsushi Ooba, Akimoto Nimura, Kumiko Yamaguchi, Hisayo Nasu, Satoshi Matsumura, Arihiro Aihara, Takumi Irie, Takanori Ochiai, Atsushi Kudo, Shinji Tanaka, Minoru Tanabe. Anatomy of Mesopancreas and Pancreatic uncus. The 2nd congress of Asian association of clinical anatomy and the 18th congress of Japanese research society of clinical anatomy 2014.11.08 Tokyo, Japan

30. Shuta Ushio, Shigenori Kawabata, Satoshi Sumiya, Tsuyoshi Yamada, Hiroyuki Inose, Toshitaka Yoshii, Tsuyoshi Kato, Atsushi Okawa. Difference of each recording of BR-MSEP. The 44th Annual Meeting of the Japanese Sosiety of Clinical Neurophysiology 2014.11.19

31. Motoki Tanaka, Akimoto Nimura, Hiroyuki Sugaya, Keiichi Akita. Arthroscopic Evaluation of Delaminated Rotator Cuff Tears：A Morphological Analysis. Academic Congress of the Asian Shoulder Association 2014.11.25 Ceb City, Philippines

32. Hitomi Fujishiro, Sachiyuki Tsukada, Akimoto Nimura, Keiichi Akita. An anatomic study of spatial relationships between the anterior cruciate ligament and the lateral meniscus. 11th Australian and New Zealand Association of Clinical Anatomy 2014.12.03 Otago, Newzealand

33. Toshitaka Yoshii, Tsuyoshi Kato, Kenichiro Sakai, Takashi Hirai, Satoshi Sumiya, Shigenori Kawabata, Yoshiyasu Arai, Atsushi Okawa, Kenichi Shinomiya. A Prospective, Randomized Study Comparing Selective Laminectomy and Conventional Laminoplasty for Cervical Spondylotic Myelopathy: A Minimum of 2-year Follow-up. The 42nd Cervical spine Research Society 2014.12.04

[**Awards & Honors**]

1. Chigusa Sawamura:Top Reviewer for CORR, Clinical Orthopaedics and Related Research , 2014

2. Masato Yuasa: ORS2014 New Investigator Recognition Award, 2014

Diagnostic Radiology and Nuclear Medicine

Professor Ukihide Tateishi(Oct. ～)
Project Professor Yukihisa Saida(Oct. ～)
Associate Professors Isam Ohashi(～ Jun.), Ichiro Yamada
Lecturers Kaoru Hanafusa and Mitsuhiro Kishino,
Research Associates Yoshio Kitazume,Yoshiaki Katada,
Akira Toriihara, Youichi Machida (～ Mar.),
Kaori Okazawa, Masashi Nakadate(Mar. ～), Akiyuki Matsuhisa
Hospital Staff members Masashi Nakadate(～ Mar.)
Tomoyuki Fujioka, Yoshihiro Iwasa

(1) Outline

More than ever, advancing the fundamental medical concepts of “patient-oriented medical care” and “thorough medical safety management” are core principles in the field of diagnostic radiology and nuclear medicine, so continuing to maintain capabilities from this perspective is essential in daily practice. Diagnostic radiology and nuclear medicine was divided off the specialist field responsible for diagnostic radiology in July 2013. However, because the radiologist examination covers both treatment and diagnosis, the plan for the three years of general training is to provide it without dividing students into treatment or diagnosis streams. In compliance with the specialist training curriculum guidelines set out by the Japan Radiological Society, students generally complete about one year of training in the university, then about two years of training in an external affiliated hospital. There are currently 11 external affiliated hospitals (five in Tokyo and six in the Kanto region) approved by the Society as training hospitals. When commencing specialist training, students are allocated to their specialist fields. After the two years of specialist training, all students decide whether to aim to become a radiotherapist or a diagnostic radiologist. Almost all then set out to obtain a further degree by enrolling in either a post-graduate school or adult graduate school. In addition, many also obtain certification as a senior (first class) radiation protection supervisor.

In recent times, diagnostic radiology has been experiencing an increasing load in terms of image processing, the number of image readings, and server storage, owing to improvements in instrument performance. As hybrid imaging such as PET/CT, SPECT/CT, PET/MRI become more prevalent, the diversification of diagnostic methods is accelerating. This trend is expected to continue, so there is a need for work on adequate personnel responses, including infrastructure improvement. And because the combined use of functional images to monitor metabolism and blood flow from morphologic images alone will be fundamental, it is essential that the university goes on enhancing education for radiologists so that they acquire the capabilities to extract and analyze clinically useful information from the complex data gathered.

(2) Research

Diagnostic specialists must keep up with the latest research in their fields, applying medical research findings to clinical practice, and making use of continuing education, continuing professional development programs, medical journals, society activities and the internet to maintain their skills. Along with the importance of maintaining awareness of how to interpret and apply research findings to the patient, it is also necessary to go

on formulating broad education programs from a specialist perspective, in order to stay well informed about the fundamentals of research methods and to practice appropriate medicine. The faculty continues to actively advance international cooperative networks with the Radiological Society of North America (RSNA), the Society of Nuclear Medicine and Molecular Imaging (SNMMI), etc. from the standpoint of diagnostic radiology and nuclear medicine, and continues to advance research based on a thorough awareness of the impacts emerging in the field and the potentialities developing in related practical application fields. Diagnostic radiology and nuclear medicine enable us to understand pathological condition by collecting and analyzing blood flow and metabolic data over time. The faculty is continuing research into a minimally invasive method of extracting in vivo blood flow data to enable the use of in vivo dynamic analysis as a biomarker with formulation of dynamic scan protocols that obtain images over time with bolus contrast injection before high-resolution, multi-slice CT or high magnetic field MRI. The faculty is also formulating scan protocols that obtain images over time with 3D PET/CT, as a minimally invasive technique of extracting in vivo metabolic data. Known tracers include 18F-FDG (glucose metabolism), 11C-choline (lipid metabolism), 18F-FACBC (amino acid metabolism), 62/64Cu-ATSM (redox, hypoxia), 18F-FLT (DNA synthesis), 18F-NaF (bone metabolism), and 68Ga-DOTA-PEG-RGD (angiogenesis). The usefulness of 18F-FDG in the discipline of oncology has been observed in numerous carcinomas. Given the need for examination with standardized imaging and assessment techniques, by conducting a multi-center joint study using PET/CT, the faculty is working to realize and to formulate methodologies for standardization to facilitate participation in global clinical trials in Japan.

(3) Education

In order to meet the expectations of both the patient and diagnostic radiologist, it is important to know the values, especially empathy, capabilities, and autonomy that lie at the core of medical care, and to continue to independently demonstrate them. Diagnostic radiology demands high-level capabilities, so extensive training is required to acquire those capabilities, while keeping a watch on developments in medical knowledge and maintaining those capabilities is also an issue for the discipline. Similarly, it is also necessary to maintain knowledge, skills and capabilities in ethics, not only radiology knowledge and skills, in order to respond to changes in medical practices as well as the social and political environment. Under the new radiology specialist system, it is possible to obtain a qualification by completing two years of post-graduate clinical training, followed by three years of general training at a training facility approved by the Japan Radiological Society, then sitting the radiology specialist examination (sixth year after graduation). After passing that examination, it is possible to obtain a qualification in either radiotherapy or diagnostic radiology by completing a further two years of specialist training and sitting either the radiotherapist or the diagnostic radiologist examination (eighth year after graduation).

In July 2013, radiation oncology was divided into diagnostic radiology and nuclear medicine responsible for diagnostic radiology and radiotherapeutic oncology, in turn responsible for radiotherapy. However, because the radiologist examination covers both treatment and diagnosis, the plan for the three years of general training is to provide the training without dividing students into treatment or diagnosis streams. In compliance with the specialist training curriculum guidelines set out by the Japan Radiological Society, students generally complete about one year of training in the university, then about two years of training in an external affiliated hospital. There are currently 11 external affiliated hospitals (five in Tokyo and six in the Kanto region) approved by the Society as training hospitals. When students commence specialist training, they will be allocated to their specialist fields. After the two years of specialist training, all students decide whether to aim to become a radiotherapist or a diagnostic radiologist. Almost all students then set out to obtain a further degree by enrolling in either a post-graduate school or adult graduate school. From the standpoint of managing sealed and unsealed sources in nuclear medicine, many students also obtain certification as a senior (first class) radiation protection supervisor before engaging in clinical and research work.

(4) Lectures & Courses

The department delivers education based on the university' s fundamental policy aimed at realization of its mission: to contribute to the development of society, with a specific mission to bear the responsibility for the basic functions of education, research and medical care. As a department at the core of medical care, it develops professionals who can engage in practice across different fields, taking the approach that the standards of behavior demonstrated by diagnostic radiologists in clinical practice have far more impact than the formal curriculum in ethics.

The department develops professionals who can continue to work to resolve the issues faced by the university hospital, professionals who know the values, especially empathy, capabilities, and autonomy that lie at the core of medical care to meet the expectations of both the patient and student, can independently demonstrate them, and can flourish while maintaining a global outlook. Education in the department aims to develop professionals equipped with the capabilities to resolve a range of problems and the attitude to identify and research topics themselves, by developing three subject groups, problem presentation, technical skill acquisition, and collaboration with the profession, and by formulating and implementing specialist education based on those groups, from the radiological perspective. Education in the postgraduate school aims to develop professionals who can resolve the problems faced by humanity from a global perspective, implementing research into leading-edge topics within a framework for research guidance under numerous teachers in addition to the acquisition of specialist knowledge, delivering education that develops inventive and practical research capabilities, from the radiological perspective.

(5) Clinical Services & Other Works

Clinical and External Activities
Diagnostic Radiology
· CT: A total of three CT scanners are involved in diagnostic radiology: two in the radiology department (64-slice MDCT) and one in the ER center (16-slice MDCT). Not only has the number of examinations using MDCT increased (32,221 in 2014), but it has been possible to obtain improved diagnostic performance by reading MPR (multi-planar reconstruction) images and 1-mm thick images.
· MRI: A total of four MRI scanners are involved in diagnostic radiology: two 1.5-tesla scanners and two 3-tesla scanners. This has allowed for an increase in examinations (12,588 in 2014).
· Ultrasound: The main examinations carried out by diagnostic radiologists are breast and abdominal examinations (1,290 in 2014).
· Angiography and Interventional Radiology (IVR): In the vascular area: TAE for hepatic carcinoma, PTA and stent placement for occlusive arterial disease, intraarterial injection for pelvic tumor, and emergency hemostasis for ER center patients. In the non-vascular area: mainly CT-guided chest biopsy, breast mass biopsy and lymph node biopsy (2,145 in 2014).
· Breast: The department is responsible for breast diagnostic radiology and collaborates with the breast surgery department in team medical care. The department endeavors to diagnose breast cancer at an early stage, provide accurate pre-surgery diagnoses, and formulate treatment plans by providing high-quality diagnostic radiology services combining mammography reading, ultrasound examination, as well as MRI and FDG-PET/CT, in addition to providing image-guided biopsy and surgical marking.
· Conferences: The department holds inter-disciplinary conferences with all departments on a daily basis. The department holds its internal conference every Friday and participates in externally conducted conferences, as appropriate. The department also takes a lead role in organizing conferences aimed at external attendees (Shoheizaka Radiology: twice a year), and the three-university joint conferences (three times a year).
Nuclear Medicine
· Since the department began operating its second PET/CT scanner in November 2006, it has been conducting 15 to 16 PET examinations per day, mainly for malignant tumor, as well as eight to 10 general radioisotope examinations per day, mainly brain and myocardial SPECT. (2,890 PET/CT and 1,448 examinations in 2014.) The department is planning to renew one SPECT scanner and one PET/CT scanner in 2015.

(6) Clinical Performances

Being a core diagnosis and treatment department, diagnostic radiology and nuclear medicine is a department that engages in inter-disciplinary clinical practice forming strong partnerships to meet the needs of its internal client departments and works to resolve issues faced by the university hospital, bearing its responsibility to unswervingly fulfill its mission from a global perspective. Diagnostic radiology and nuclear medicine is equipped with the capabilities to process large volumes of imaging information, it develops problem presentation, technical skill acquisition, and collaboration with all departments, and possesses the characteristics to go on conscientiously tackling new modalities, probes and contrasts as well as clinical trials.

(7) Publications

[Original Articles]

1. Kakizoe M, Yao M, Tateishi U, Minamimoto R, Ueno D, Namura K, Makiyama K,. The early response of renal cell carcinoma to tyrosine kinase inhibitors evaluated by FDG PET/CT was not influenced by metastatic organ. BMC Cancer. 2014; 14; 390

2. Mitsuhiro Kishino, Naoyuki Miyasaka, Yuko Takeguchi, Isamu Ohashi. Retrograde transvenous obliteration for uterine arteriovenous malformation. Obstet Gynecol. 2014.02; 123(2 Pt 2 Suppl 2); 427-430

3. Sato Y, Nozaki T, Matsusako M, Eto H, Matsui M, Ohtake N, Suzuki K, Starkey J, Saida Y.. Human papillomavirus-associated plantar epidermoid cysts: MR and US imaging appearance. Skeletal Radiol. 2014.02; 43(2); 257-261

4. Yoneyama T, Tateishi U, Terauchi T, Inoue T. . Correlation of metabolic tumor volume and 11C-choline uptake with the pathology of prostate cancer: evaluation by use of simultaneously recorded MR and PET images. Jpn J Radiol. 2014.03; 32(3); 155-163

5. Ishii Y, Tomita N, Tateishi U, Ishiyama Y, Yamamoto E, Hattori Y, Hagihara M, . The rate of reduction in the maximum standardized uptake value from the initial to the post-R-CHOP therapy in positron emission tomography scan predicts disease progression in diffuse large B cell lymphoma patients. Med Oncol. 2014.03; 31(3); 880

6. Kikuchi M, Tsunoda H, Koyama T, Kawakita T, Suzuki K, Yamauchi H, Takahashi O, Saida Y.. Opportunistic breast cancer screening by mammography in Japan for women in their 40s at our preventive medical center: harm or benefit? Breast Cancer. 2014.03; 21(2); 135-139

7. Takenaka K, Ohtsuka K, Kitazume Y, Nagahori M, Fujii T, Saito E, Naganuma M, Araki A, Watanabe M. Comparison of Magnetic Resonance and Balloon Enteroscopic Examination of Deep Small Intestine in Patients with Crohn's Disease. Gastroenterology. 2014.04;

8. Shibata E, Ueda T, Akaike G, Saida Y.. CT findings of gastric and intestinal anisakiasis. Abdom Imaging. 2014.04; 39(2); 257-261

9. Ichiro Yamada, Keigo Hikishima, Naoyuki Miyasaka, Yutaka Tokairin, Eisaku Ito, Tatsuyuki Kawano, Daisuke Kobayashi, Yoshinobu Eishi, Hideyuki Okano. Esophageal carcinoma: Evaluation with q-space diffusion-weighted MR imaging ex vivo. Magn Reson Med. 2014.06;

10. Masashi Nakadate, Yoshio Kitazume, Daisuke Ban, Mayumi Watanabe, Isamu Ohashi, Hitoshi Shibuya. A case of hepatic endometrioma Japanese Journal of Clinical Radiology. 2014.06; 59(6); 805-809

11. Yamada I, Hikishima K, Miyasaka N, Kawano T, Tokairin Y, Ito E, Kobayashi D, Eishi Y, Okano H. Esophageal carcinoma: ex vivo evaluation with diffusion-tensor MR imaging and tractography at 7 T. Radiology. 2014.07; 272(1); 164-173

12. Hino-Shishikura A, Tateishi U, Shibata H, Yoneyama T, Nishii T, Torii I,. Tumor hypoxia and microscopic diffusion capacity in brain tumors: a comparison of (62)Cu-Diacetyl-Bis (N4-Methylthiosemicarbazone) PET/CT and diffusion-weighted MR imaging. Eur J Nucl Med Mol Imaging. 2014.07; 41(7); 1419-1427

13. Fujioka T, Toriihara A, Kubota K, Machida Y, Nakamura S, Kishimoto S, Ohashi I, Shibuya H.. Long-term follow-up using 18F-FDG PET/CT for postoperative olfactory neuroblastoma. Nucl Med Commun. 2014.08; 35; 857-863

14. Yamada I, Hikishima K, Miyasaka N, Tokairin Y, Kawano T, Ito E, Kobayashi D, Eishi Y, Okano H, Shibuya H. Diffusion-tensor MRI and tractography of the esophageal wall ex vivo. J Magn Reson Imaging. 2014.09; 40(3); 567-576

15. Yoneyama T, Tateishi U, Endo I, Inoue T. . Staging accuracy of pancreatic cancer: comparison between non-contrast-enhanced and contrast-enhanced PET/CT. Eur J Radiol. 2014.10; 83(10); 1734-1739

16. Akaike G, Tsunoda H, Hayashi N, Onoda T, Honda S, Suzuki K, Ohde S, Yamauchi H, Saida Y.. Ultrasonography mapping combined with mammography before breast-conserving surgery for primary breast cancer with microcalcifications: a novel approach. Clin Breast Cancer. 2014.10; 14(5); 352-357

17. Kitazume Y, Ohashi I, Katayama T, Tsunoda A, Kishimoto S, Negi M.. Diffusion-weighted magnetic resonance neurography for parapharyngeal schwannomas: preoperative determination of the originating nerves. J Comput Assist Tomogr.. 2014.11; 38; 930-935

18. Tateishi U, Tateishi K, Hino-Shishikura A, Torii I, Inoue T, Kawahara N.. Multimodal approach to detect osseous involvement in meningioma: additional value of (18)F-fluoride PET/CT for conventional imaging. Radiology. 2014.11; 273(2); 521-528

[Books etc]

1. Toriihara A, Tateishi U.. Functional Imaging in Oncology Volume 2 Clinical Applications. Springer,Functional Imaging of Tumors of the Mesenterium and Retroperitoneum,1235-1248, 2014

[Conference Activities & Talks]

1. kitazume Y, Ohashi I, Katayama T, Tsunoda A, Kishimoto S.. Diffusion-weighted magnetic resonance neurography for parapharyngeal schwannomas: preoperative determination of their originated nerves.. European Congress of Radiology 2014.03 Vienna, Austria

2. Toriihara A, Kitazume Y, Nishida H, Kubota K, Machida Y, Nakadate M, Okazawa K, Ohashi I. Comparison of FDG-PET/CT images between chronic renal failure patients on hemodialysis and normal controls.. JRS 73rd Annual Meeting 2014.04.10 Yokohama, Japan

3. Toriihara A, Arai A, Machida Y, Fujioka T, Kubota K, Ohashi I. FDG-PET/CT findings of adult-onset Epstein-Barr virus positive T- or NK-cell lymphoproliferative disease.. JRS 73rd Annual Meeting 2014.04.10 Yokohama, Japan

4. Masashi Nakadate, Mitsuhiro Kishino, Yoshio Kitazume, Akiyuki Matsuhisa, Tomoyuki Fujioka, Toshihumi Kudo, Yoshinori Inoue, Isamu Ohashi. Embolization of type II endoleak after endovascular repair of abdominal aortic aneurysm using balloon-occluded carbon dioxide angiography: A case report. 2014.06.05 Nara

5. Mitsuhiro Kishino,Masashi Nakadate,Akiyuki Matsuhisa,Yoshio Kitazume,Tomoyuki Fujioka,Takaya Takeguchi,Yuko Takeguchi,Isamu Ohashi. The technical effect on laboratory data in left adrenal venous sampling. The 43rd Annual Meeting of the Japanese Society of Interventional Radiology 2014.06.06

6. Toriihara A, Nakadate M, Kubota K, Nakamura S, Ohashi I. 70 FDG-PET/CT cases in which the nuclear medicine physician suspected lymphoma: How reliable are we?. SNMMI 61st Annual Meeting 2014.06.07 St. Louis, USA

7. Toriihara A, Nakadate M, Kubota K, Machida Y, Fujioka T, Iwasa Y, Okazawa K, Matsuhisa A, Ohashi I. Utility of FDG-PET/CT for plasma cell disorders: Diagnosis, staging, monitoring therapy and predicting prognosis.. SNMMI 61st Annual Meeting 2014.06.07 St. Louis, USA

8. Toriihara A, Nakajima R, Nakadate M, Abe K, Kubota K, Ohashi I. FDG-PET/CT findings of Epstein-Barr virus-related lymphoproliferative disorders: Pictorial review.. SNMMI 61st Annual Meeting 2014.06.07 St. Louis, USA

9. Yoshihiro Iwasa, Yoshio Kitazume, Isami Ohashi, Daisuke Ban, Minoru Tanabe. Prediction of the histological grade of hepatocellular carcinoma: quantitative comparisons among DW, T2W, and hepatobilliary phase of Gd-EOB-DTPA enhanced MRI. 42nd Japanese Society for Magnetic Resonance in Medicine 2014.09.18 Hotel Granvia Kyoto

10. Yamada I, Hikishima K, Miyasaka N, Kato K, Ito E, Kojima K, Kawano T, Kobayashi D, Eishi Y, Okano H. q-Space diffusion-weighted MR imaging of gastric carcinoma ex vivo: correlation with histopathologic findings (Yamada I, et al.). The 100th Scientific Assembly and Annual Meeting of the Radiological Society of North America 2014.11 Chicago, USA

Disease Genomics

Shumpei Ishikawa: Professor
Takayuki Isagawa: Assistant Professor
Hiroto Kato: Assistant Professor
Yasunari Satou: Collaborative Researcher
Reiko Sato: Technical Assistant
Satoko Aihara: Technical Assistant
Asami Yamamoto: Technical Assistant
Kazuki Kishi: Technical Assistant
Ryouhei Suzuki: Technical Assistant
Miharu Tamukai: Secretary
Miki Fujihashi: Graduate Student

(1) Outline

Tumor tissue is a complex system composed of tumor cells and multiple types of stromal cells. Our purpose is to understand the dynamic multicellular interactions in such a complexed biological system by measuring a large amount of data at the genomic level, which leads the identifications of therapeutic targets and biomarkers. Another objective in the graduate course is to learn the applications, methods and interpretations of the disease genomics and to understand how to apply disease genomics to clinical fields through analyzing clinical human samples.

(2) Research

① Genomic approch for cancer - stromal interaction
② Functional genomic screening in cancer
③ Fuctional analysis of cancer assoiated molecules
④ Genomic analysis of clinical cancer samples

(3) Publications

[Original Articles]

1. Yukawa M, Akiyama T, Franke V, Mise N, Isagawa T, Suzuki Y, Suzuki MG, Vlahovicek K, Abe K, Aburatani H, Aoki F. Genome-wide analysis of the chromatin composition of histone H2A and H3 variants in mouse embryonic stem cells. PLoS ONE. 2014; 9(3); e92689

2. Kobayashi S, Hara A, Isagawa T, Manabe I, Takeda K, MaruYama T.. The nuclear I κ B family protein I κ BNS influences the susceptibility to experimental autoimmune encephalomyelitis in a murine model. PLoS ONE. 2014; 9(10); e110838

3. Hamanaka W, Motoi N, Ishikawa S, Ushijima M, Inamura K, Hatano S, Uehara H, Okumura S, Nakagawa K, Nishio M, Horai T, Aburatani H, Matsuura M, Iwasaki A, Ishikawa Y. . A subset of small cell lung cancer with low neuroendocrine expression and good prognosis: a comparison study of surgical and

inoperable cases with biopsy. Hum Pathol. 2014 May;45(5):1045-56. doi: 10.1016/j.humpath.2014.01.001. Epub 2014 Jan 23. PubMed PMID: 24746210. 2014.01;

4. Hayashi A, Morikawa T, Kawai T, Kume H, Ishikawa S, Homma Y, Fukayama M.. Clinicopathological and prognostic significance of EZH2 expression in upper urinary tract carcinoma. Virchows Arch. 2014 Apr;464(4):463-71. doi: 10.1007/s00428-014-1541-6. Epub 2014 Jan 21. PubMed PMID: 24446035. 2014.01;

5. Ibrahim R, Matsubara D, Osman W, Morikawa T, Goto A, Morita S, Ishikawa S, Aburatani H, Takai D, Nakajima J, Fukayama M, Niki T, Murakami Y. . Expression of PRMT5 in lung adenocarcinoma and its significance in epithelial-mesenchymal transition. Hum Pathol. 2014 Jul;45(7):1397-405. doi:10.1016/j.humpath.2014.02.013. Epub 2014 Feb 28. PubMed PMID: 24775604.. 2014.02;

6. Ui T, Morishima K, Saito S, Sakuma Y, Fujii H, Hosoya Y, Ishikawa S, Aburatani H, Fukayama M, Niki T, Yasuda Y.. The HSP90 inhibitor 17-N-allylamino-17-demethoxy geldanamycin (17-AAG) synergizes with cisplatin and induces apoptosis in cisplatin-resistant esophageal squamous cell carcinoma cell lines via the Akt/XIAP pathway. Oncol Rep. 2014 Feb;31(2):619-24. doi: 10.3892/or.2013.2899. PubMed PMID: 24317439. 2014.02;

7. Ichimura T, Morikawa T, Kawai T, Nakagawa T, Matsushita H, Kakimi K, Kume H, Ishikawa S, Homma Y, Fukayama M.. Prognostic Significance of CD204-Positive Macrophages in Upper Urinary Tract Cancer. Ann Surg Oncol. 2014 Jun;21(6):2105-12. doi: 10.1245/s10434-014-3503-2. Epub 2014 Feb 4. PubMed PMID: 24492923. 2014.02;

8. Hayashi A, Yamauchi N, Shibahara J, Kimura H, Morikawa T, Ishikawa S, Nagae G, Nishi A, Sakamoto Y, Kokudo N, Aburatani H, Fukayama M. . Concurrent activation of acetylation and tri-methylation of H3K27 in a subset of hepatocellular carcinoma with aggressive behavior. PLoS One. 2014 Mar 10;9(3):e91330. doi:10.1371/journal.pone.0091330. eCollection 2014. PubMed PMID: 24614346; PubMed Central PMCID: PMC3948868.. 2014.03;

9. Tanaka M, Suzuki HI, Shibahara J, Kunita A, Isagawa T, Yoshimi A, Kurokawa M, Miyazono K, Aburatani H, Ishikawa S, Fukayama M.. EVI1 oncogene promotes KRAS pathway through suppression of microRNA-96 in pancreatic carcinogenesis. Oncogene. 2014.05; 33(19); 2454-2463

10. Kakiuchi M, Nishizawa T, Ueda H, Gotoh K, Tanaka A, Hayashi A, Yamamoto S, Tatsuno K, Katoh H, Watanabe Y, Ichimura T, Ushiku T, Funahashi S, Tateishi K, Wada I, Shimizu N, Nomura S, Koike K, Seto Y, Fukayama M, Aburatani H, Ishikawa S. Recurrent gain-of-function mutations of RHOA in diffuse-type gastric carcinoma. Nat. Genet.. 2014.06; 46(6); 583-587

11. Hanihara-Tatsuzawa F, Miura H, Kobayashi S, Isagawa T, Okuma A, Manabe I, MaruYama T.. Control of Toll-like Receptor-Mediated T Cell-Independent Type 1 Antibody Responses by the Inducible Nuclear Protein I κ B-ζ J. Biol. Chem.. 2014.08;

12. Katsuda T, Kurata H, Tamai R, Banas A, Ishii T, Ishikawa S, Ochiya T.. The in vivo evaluation of the therapeutic potential of human adipose tissue-derived mesenchymal stem cells for acute liver disease. Methods Mol Biol. 2014;1213:57-67. doi: 10.1007/978-1-4939-1453-1_6. PMID: 25173374. 2014.08;

13. Totoki Y, Tatsuno K, Covington KR, Ueda H, Creighton CJ, Kato M, Tsuji S, Donehower LA, Slagle BL, Nakamura H, Yamamoto S, Shinbrot E, Hama N, Lehmkuhl M, Hosoda F, Arai Y, Walker K, Dahdouli M, Gotoh K, Nagae G, Gingras MC, Muzny DM, Ojima H, Shimada K, Midorikawa Y, Goss JA, Cotton R, Hayashi A, Shibahara J, Ishikawa S, Guiteau J, Tanaka M, Urushidate T, Ohashi S, Okada N, Doddapaneni H, Wang M, Zhu Y, Dinh H, Okusaka T, Kokudo N, Kosuge T, Takayama T, Fukayama M, Gibbs RA, Wheeler DA, Aburatani H, Shibata T. Trans-ancestry mutational landscape of hepatocellular carcinoma genomes. Nat Genet. 2014 Dec;46(12):1267-73. doi: 10.1038/ng.3126. Epub 2014 Nov 2. PMID: 25362482 . 2014.11;

[Conference Activities & Talks]

1. K Soma, N Takeda, T Isagawa, H Abe, H Senba, K Koyama,I Manabe, I Komuro, R Nagai. The Role of Macrophage Polarization in Hypoxia Induced Pulmonary Arterial Remodeling. Keystone Symposia Conferenc Sensing and Signaling of Hypoxia: Interfaces with Biology and Medicine 2014.01.07 Beaver Run Resort • Breckenridge, Colorado USA

2. H Abe, N Takeda, T Isagawa, H Semba, K Soma, K Koyama, I Manabe, I Komuro, R Nagai. Roles of macrophages hypoxia signaling in cardiac remodeling. Keystone Symposia Conferenc Sensing and Signaling of Hypoxia: Interfaces with Biology and Medicine 2014.01.07 Beaver Run Resort • Breckenridge, Colorado USA

3. Shumpei Ishikawa. Discovery of Frequent Gain-offunction Mutation in Diffuse-type Gastric Carcinoma. 2014 SNUCRI Cancer Symposium April 16th-19th, 2014 Hotel Hyundai in Mokpo 2014.04.16

4. Kenji Tatsuno, Hiroki Ueda, Shogo Yamamoto, Genta Nagae, Shingo, Tsuji, Kohtarou Sonoda, Akimasa Hayashi, Yutaka Midorikawa, Yasushi Totoki, Shumpei Ishikawa, David Wheeler, Tatsuhiro Shibata, Hiroyuki Aburatani.. Integrated analysis of exome plus virus capture sequencing and transcriptome sequencing in hepatocellular carcinoma. COLD SPRING HARBOR ASIA CONFERENCES THE BIOLOGY OF GENOMES May 6–May 10, 2014 2014.05.06

5. Shumpei Ishikawa, Miwako Kakiuchi, Hiroki Ueda, Hiroto Katoh,Hiroyuki Aburatani.. Discovery of frequent driver mutations in diffuse-type gastric carcinoma. COLD SPRING HARBOR ASIA CONFERENCES THE BIOLOGY OF GENOMES May 6–May 10, 2014 2014.05.06

6. Ryohei Suzuki, Daisuke Komura, Kazuki Yamamoto and Shumpei Ishikawa. MOLding: Gesture-based InteractiveMolecular Dynamics for Protein Stracture Manipulation. 13th European Conference on Computational Biology, Strasbourg, France, Sep.7-Sep.10, 2014 2014.09.07

7. Kazuki Kishi, Daisuke Komura, Takayuki Isagawa and Ishikawa shumpei. Visualizing whole cancer-stromal interactome. 13th European Conference on Computational Biology, Strasbourg, France, Sep.7-Sep.10, 2014 2014.09.07

8. Kakiuchi M, Ueda H, Hayashi A, Yamamoto S, Tatsuno K, Koike K, Ishikawa S. Genomic charactarization of diffuse-type gastric cancer. 2014.09.25

9. Ishikawa S, Kakiuchi M, Ueda H, Katoh H, Fukayama M, Aburatani H. Discovery of recurrent gain-of-function mutations of RHOA in diffuse-type gastric cancer. 2014.09.25

10. Hiroto Katoh, Miwako Kakiuchi, Shumpei Ishikawa. Discovery of Altered Protein-Protein Interactions Involving RHOA in Diffuse Type Gastric Carcinoma.. 12th Annual Discovery on Target, Boston, Massachusetts, USA, Oct.7-Oct.10, 2014 2014.10.07

11. Ishikawa S, Kakiuchi M, Ueda H, Katoh H, Fukayama M, Aburatani H. Driver somatic mutations of RHOA in diffuse-type gastric carcinoma. 2014.11.19

12. Takayuki Isagawa, Sayuki Yokota, Kazuki Kishi, Ryohei Suzuki, Daisuke Komura, Shumpei Ishikawa. Tumor-derived WNT signaling suppresses the Macrophage infammatory response. 12th. The Japanese Association for Cancer and Hypoxia Reasearch 2014.11.21

Human Genetics and Disease Diversity

Professor, Toshihiro Tanaka
Tenure Track Junior Associate Professor, Yukinori Okada
Tenure Track Junior Associate Professor, Kevin Urayama

(1) Research

1) Elucidation of genetic architecture of human metabolic diseases using genome and meta-genome information
2) Identification of biomarkers for personalized medicine
3) Pharmacogenomics
4) Functional genomics
5) Statistical genetics and genome drug discovery

(2) Lectures & Courses

As we say "Every human is different", human genetic diversity has essential impacts on clinical fields, e.g. disease risk, clinical efficacy, and drug responses. Our laboratory aims to elucidate the diversity of human being through comprehensive research activities including genome and epi-genome analyses of human diseases, methodological development of statistical genetics, and human resources cultivation to achieve personalized medicine.

(3) Publications

[Original Articles]

1. Pamela Thompson, Kevin Urayama, Jie Zheng, Peng Yang, Matt Ford, Patricia Buffler, Anand Chokkalingam, Tracy Lightfoot, Malcolm Taylor. Differences in meiotic recombination rates in childhood acute lymphoblastic leukemia at an MHC class II hotspot close to disease associated haplotypes. PLoS ONE. 2014; 9(6); e100480

2. W Cozen, M N Timofeeva, D Li, A Diepstra, D Hazelett, M Delahaye-Sourdeix, C K Edlund, L Franke, K Rostgaard, D J Van Den Berg, V K Cortessis, K E Smedby, S L Glaser, H-J Westra, L L Robison, T M Mack, H Ghesquieres, A E Hwang, A Nieters, S de Sanjose, T Lightfoot, N Becker, M Maynadie, L Foretova, E Roman, Y Benavente, K A Rand, B N Nathwani, B Glimelius, A Staines, P Boffetta, B K Link, L Kiemeney, S M Ansell, S Bhatia, L C Strong, P Galan, L Vatten, T M Habermann, E J Duell, A Lake, R N Veenstra, L Visser, Y Liu, K Y Urayama, D Montgomery, V Gaborieau, L M Weiss, G Byrnes, M Lathrop, P Cocco, T Best, A D Skol, H-O Adami, M Melbye, J R Cerhan, A Gallagher, G M Taylor, S L Slager, P Brennan, G A Coetzee, D V Conti, K Onel, R F Jarrett, H Hjalgrim, A van den Berg, J D McKay. A meta-analysis of Hodgkin lymphoma reveals 19p13.3 TCF3 as a novel susceptibility locus. Nat Commun. 2014; 5; 3856

3. Yukinori Okada, Dorothee Diogo, Jeffrey D Greenberg, Faten Mouassess, Walid A L Achkar, Robert S Fulton, Joshua C Denny, Namrata Gupta, Daniel Mirel, Stacy Gabriel, Gang Li, Joel M Kremer, Dimitrios A Pappas, Robert J Carroll, Anne E Eyler, Gosia Trynka, Eli A Stahl, Jing Cui, Richa Saxena, Marieke J H Coenen, Henk-Jan Guchelaar, Tom W J Huizinga, Philippe Dieudé, Xavier Mariette, Anne Barton,

Helena Canhão, João E Fonseca, Niek de Vries, Paul P Tak, Larry W Moreland, S Louis Bridges, Corinne Miceli-Richard, Hyon K Choi, Yoichiro Kamatani, Pilar Galan, Mark Lathrop, Towfique Raj, Philip L De Jager, Soumya Raychaudhuri, Jane Worthington, Leonid Padyukov, Lars Klareskog, Katherine A Siminovitch, Peter K Gregersen, Elaine R Mardis, Thurayya Arayssi, Layla A Kazkaz, Robert M Plenge. Integration of sequence data from a Consanguineous family with genetic data from an outbred population identifies PLB1 as a candidate rheumatoid arthritis risk gene. PLoS ONE. 2014; 9(2); e87645

4. Kwangwoo Kim, So-Young Bang, Hye-Soon Lee, Yukinori Okada, Buhm Han, Woei-Yuh Saw, Yik-Ying Teo, Sang-Cheol Bae. The HLA-DR β 1 amino acid positions 11-13-26 explain the majority of SLE-MHC associations. Nat Commun. 2014; 5; 5902

5. Kevin Y Urayama, Atsushi Manabe. Genomic evaluations of childhood acute lymphoblastic leukemia susceptibility across race/ethnicities. Rinsho Ketsueki. 2014; 55(10); 2242-2248

6. Takeuchi T, Nemoto K, Takahashi O, Urayama KY, Deshpande GA, Izumo H. Calculated LDL-Cholesterol is superior to direct assay in predicting cardiovascular diseases Journal of Clinical Lipidology. 2014; 8(15); 501-509

7. Yasushi Ishida, Miho Maeda, Kevin Y Urayama, Chikako Kiyotani, Yuki Aoki, Yoko Kato, Shoko Goto, Sachi Sakaguchi, Kenichi Sugita, Mika Tokuyama, Naoya Nakadate, Eizaburo Ishii, Masahiro Tsuchida, Akira Ohara, . Secondary cancers among children with acute lymphoblastic leukaemia treated by the Tokyo Children's Cancer Study Group protocols: a retrospective cohort study. Br. J. Haematol. 2014.01; 164(1); 101-112

8. Yukinori Okada, Di Wu, Gosia Trynka, Towfique Raj, Chikashi Terao, Katsunori Ikari, Yuta Kochi, Koichiro Ohmura, Akari Suzuki, Shinji Yoshida, Robert R Graham, Arun Manoharan, Ward Ortmann, Tushar Bhangale, Joshua C Denny, Robert J Carroll, Anne E Eyler, Jeffrey D Greenberg, Joel M Kremer, Dimitrios A Pappas, Lei Jiang, Jian Yin, Lingying Ye, Ding-Feng Su, Jian Yang, Gang Xie, Ed Keystone, Harm-Jan Westra, Tõnu Esko, Andres Metspalu, Xuezhong Zhou, Namrata Gupta, Daniel Mirel, Eli A Stahl, Dorothée Diogo, Jing Cui, Katherine Liao, Michael H Guo, Keiko Myouzen, Takahisa Kawaguchi, Marieke J H Coenen, Piet L C M van Riel, Mart A F J van de Laar, Henk-Jan Guchelaar, Tom W J Huizinga, Philippe Dieudé, Xavier Mariette, S Louis Bridges, Alexandra Zhernakova, Rene E M Toes, Paul P Tak, Corinne Miceli-Richard, So-Young Bang, Hye-Soon Lee, Javier Martin, Miguel A Gonzalez-Gay, Luis Rodriguez-Rodriguez, Solbritt Rantapää-Dahlqvist, Lisbeth Arlestig, Hyon K Choi, Yoichiro Kamatani, Pilar Galan, Mark Lathrop, , , Steve Eyre, John Bowes, Anne Barton, Niek de Vries, Larry W Moreland, Lindsey A Criswell, Elizabeth W Karlson, Atsuo Taniguchi, Ryo Yamada, Michiaki Kubo, Jun S Liu, Sang-Cheol Bae, Jane Worthington, Leonid Padyukov, Lars Klareskog, Peter K Gregersen, Soumya Raychaudhuri, Barbara E Stranger, Philip L De Jager, Lude Franke, Peter M Visscher, Matthew A Brown, Hisashi Yamanaka, Tsuneyo Mimori, Atsushi Takahashi, Huji Xu, Timothy W Behrens, Katherine A Siminovitch, Shigeki Momohara, Fumihiko Matsuda, Kazuhiko Yamamoto, Robert M Plenge. Genetics of rheumatoid arthritis contributes to biology and drug discovery. Nature. 2014.02; 506(7488); 376-381

9. Lubitz SA, Lunetta KL, Lin H, Arking DE, Trompet S, Li G, Krijthe BP, Chasman DI, Barnard J, Kleber ME, Dörr M, Ozaki K, Smith AV, Müller M, Walter S, Agarwal SK, Bis JC, Brody JA, Chen LY, Everett BM, Ford I, Franco OH, Harris TB, Hofman A, Kääb S, Mahida S, Kathiresan S, Kubo M, Launer LJ, MacFarlane PW, Magnani JW, McKnight B, McManus DD, Peters A, Psaty BM, Rose LM, Rotter JI, Silbernagel G, Smith JD, Sotoodehnia N, Stott DJ, Taylor K, Tomaschitz A,Tsunoda T, Uitterlinden AG, VanWagoner DR, Völker U, Völzke H, Murabito JM, Sinner MF, Gudnason V, Felix SB, März W, Chung M, Albert CM, Stricker BH, Tanaka T, Heckbert SR, Jukema JW, Alonso A, Benjamin EJ, Ellinor PT. Novel genetic markers associate with atrial fibrillation risk in Europeans and Japanese. J Am Coll Cardiol. 2014.04; 63(12); 1200-1210

10. Buhm Han, Dorothée Diogo, Steve Eyre, Henrik Kallberg, Alexandra Zhernakova, John Bowes, Leonid Padyukov, Yukinori Okada, Miguel A González-Gay, Solbritt Rantapää-Dahlqvist, Javier Martin, Tom W J Huizinga, Robert M Plenge, Jane Worthington, Peter K Gregersen, Lars Klareskog, Paul I W de Bakker, Soumya Raychaudhuri. Fine mapping seronegative and seropositive rheumatoid arthritis to shared and distinct HLA alleles by adjusting for the effects of heterogeneity. Am. J. Hum. Genet. 2014.04; 94(4); 522-532

11. Towfique Raj, Katie Rothamel, Sara Mostafavi, Chun Ye, Mark N Lee, Joseph M Replogle, Ting Feng, Michelle Lee, Natasha Asinovski, Irene Frohlich, Selina Imboywa, Alina Von Korff, Yukinori Okada,

Nikolaos A Patsopoulos, Scott Davis, Cristin McCabe, Hyun-il Paik, Gyan P Srivastava, Soumya Raychaudhuri, David A Hafler, Daphne Koller, Aviv Regev, Nir Hacohen, Diane Mathis, Christophe Benoist, Barbara E Stranger, Philip L De Jager. Polarization of the effects of autoimmune and neurodegenerative risk alleles in leukocytes. Science. 2014.05; 344(6183); 519-523

12. Hara M, Sakata Y, Nakatani D, Suna S, Usami M, Matsumoto S, Sugitani T, Ozaki K, Nishino M, Sato H, Kitamura T, Nanto S, Hamasaki T, Tanaka T, Hori M, Komuro I. Renin-angiotensin-aldosterone system polymorphisms and 5-year mortality in survivors of acute myocardial infarction: a report from the Osaka Acute Coronary Insufficiency Study. International Heart Journal. 2014.05; 55; 190-196

13. Hirokawa M, Morita H, Tajima T, Takahashi A, Ashikawa K, Miya F, Shigemizu D, Ozaki K, Sakata Y, Nakatani D, Suna S, Imai Y, Tanaka T, Tsunoda T, Matsuda K, Kadowaki T, Nakamura Y, Nagai R, Komuro I, Kubo M. A genome-wide association study identifies PLCL2 and AP3D1-DOT1L-SF3A2 as new susceptibility loci for myocardial infarction in Japanese. Eur J Hum Genet. 2014.06;

14. Chen P, Takeuchi F, Lee JY, Li H, Wu JY, Liang J, Long J, Tabara Y, Goodarzi M, Pereira MA, Kim YJ, Go MJ, Stram DO, Vithana E, Khor CC, Liu J, Liao J, Ye X, Wang Y, Lu L, Young TL, Lee J, Thai AC, Cheng CY, van Dam RM, Friedlander Y, Heng CK, Koh WP, Chen CH, Chang LC, Pan WH, Qi Q, Isono M, Zheng W, Cai Q, Gao Y, Yamamoto K, Ohnaka K, Takayanagi R, Kita Y, Ueshima H, Hsiung CA, Cui J, Sheu WH, Rotter JI, Chen YD, Hsu C, Okada Y, Kubo M, Takahashi A, Tanaka T, van Rooij FJ, Ganesh SK, Huang J, Huang T, Yuan J, Hwang JY; CHARGE Hematology Working Group, Gross MD, Assimes TL, Miki T, Shu XO, Qi L, Chen YT, Lin X, Aung T, Wong TY, Teo YY, Kim BJ, Kato N, Tai ES.. Multiple nonglycemic genomic loci are newly associated with blood level of glycated hemoglobin in East Asians. Diabetes. 2014.07; 63(7); 2551-2562

15. Masayoshi Fukuda, Tomohiro Mizutani, Wakana Mochizuki, Taichi Matsumoto, Kengo Nozaki, Yuriko Sakamaki, Shizuko Ichinose, Yukinori Okada, Toshihiro Tanaka, Mamoru Watanabe, Tetsuya Nakamura. Small intestinal stem cell identity is maintained with functional Paneth cells in heterotopically grafted epithelium onto the colon. Genes Dev. 2014.08; 28(16); 1752-1757

16. Yukinori Okada, Buhm Han, Lam C Tsoi, Philip E Stuart, Eva Ellinghaus, Trilokraj Tejasvi, Vinod Chandran, Fawnda Pellett, Remy Pollock, Anne M Bowcock, Gerald G Krueger, Michael Weichenthal, John J Voorhees, Proton Rahman, Peter K Gregersen, Andre Franke, Rajan P Nair, Gonçalo R Abecasis, Dafna D Gladman, James T Elder, Paul I W de Bakker, Soumya Raychaudhuri. Fine mapping major histocompatibility complex associations in psoriasis and its clinical subtypes. Am. J. Hum. Genet. 2014.08; 95(2); 162-172

17. Makita N, Yagihara N, Crotti L, Johnson CN, Beckmann BM, Roh MS, Shigemizu D, Lichtner P, Ishikawa T, Aiba T, Homfray T, Behr ER, Klug D, Denjoy I,Mastantuono E, Theisen D, Tsunoda T, Satake W, Toda T, Nakagawa H, Tsuji Y, Tsuchiya T, Yamamoto H, Miyamoto Y, Endo N, Kimura A, Ozaki K, Motomura H, Suda K, Tanaka T, Schwartz PJ, Meitinger T, Kääb S, Guicheney P, Shimizu W, Bhuiyan ZA, Watanabe H, Chazin WJ, George AL Jr. Novel calmodulin mutations associated with congenital arrhythmia susceptibility. Circ Cardiovasc Genet. 2014.08; 7(4); 466-474

18. Sinner MF, Tucker NR, Lunetta KL, Ozaki K, Smith JG, Trompet S, Bis JC, Lin H, Chung MK, Nielsen JB, Lubitz SA, Krijthe BP, Magnani JW, Ye J, Gollob MH, Tsunoda T, Müller-Nurasyid M, Lichtner P, Peters A, Dolmatova E, Kubo M, Smith JD, Psaty BM, Smith NL, Jukema JW, Chasman DI, Albert CM, Ebana Y, Furukawa T, Macfarlane PW, Harris TB, Darbar D, Dörr M, Holst AG, Svendsen JH, Hofman A, Uitterlinden AG, Gudnason V, Isobe M, Malik R, Dichgans M, Rosand J, Van Wagoner DR; METASTROKE Consortium; AFGen Consortium, Benjamin EJ, Milan DJ, Melander O, Heckbert SR, Ford I, Liu Y, Barnard J, Olesen MS, Stricker BH, Tanaka T, Kääb S, Ellinor PT.. Integrating Genetic, Transcriptional, and Functional Analyses to Identify Five Novel Genes for Atrial Fibrillation. Circulation. 2014.08;

19. Kolek MJ, Edwards TL, Muhammad R, Balouch A, Shoemaker MB, Blair MA, Kor KC, Takahashi A, Kubo M, Roden DM, Tanaka T, Darbar D. A genome-wide association study to identify genomic modulators of rate control therapy in patients with atrial fibrillation. Am J Cardiol. 2014.08; 114(4); 593-600

20. Nisha Esakimuthu Pillai, Yukinori Okada, Woei-Yuh Saw, Rick Twee-Hee Ong, Xu Wang, Erwin Tantoso, Wenting Xu, Trevor A Peterson, Thomas Bielawny, Mohammad Ali, Koon-Yong Tay, Wan-Ting Poh,

Linda Wei-Lin Tan, Seok-Hwee Koo, Wei-Yen Lim, Richie Soong, Markus Wenk, Soumya Raychaudhuri, Peter Little, Francis A Plummer, Edmund J D Lee, Kee-Seng Chia, Ma Luo, Paul I W De Bakker, Yik-Ying Teo. Predicting HLA alleles from high-resolution SNP data in three Southeast Asian populations. Hum. Mol. Genet. 2014.08; 23(16); 4443-4451

21. Hara M, Sakata Y, Nakatani D, Shinichiro Suna S, Usami M, Matsumoto S, Ozaki K, Nishino M, Sato H, Kitamura T, Nanto S, Hamasaki T, Tanaka T, Hori M, Komuro I. Reduced risk of recurrent myocardial infarction in homozygous carriers of the chromosome 9p21 rs1333049 C risk allele in the contemporary percutaneous coronary intervention era: a prospective observational study. BMJ Open. 2014.08; 4(8); e005438

22. Wen W, Zheng W, Okada Y, Takeuchi F, Tabara Y, Hwang JY, Dorajoo R, Li H, Tsai FJ, Yang X, He J, Wu Y, He M, Zhang Y, Liang J, Guo X, Sheu WH, Delahanty R, Guo X, Kubo M, Yamamoto K, Ohkubo T, Go MJ, Liu JJ, Gan W, Chen CC, Gao Y, Li S, Lee NR, Wu C, Zhou X, Song H, Yao J, Lee IT, Long J, Tsunoda T, Akiyama K, Takashima N, Cho YS, Ong RT, Lu L, Chen CH, Tan A, Rice TK, Adair LS, Gui L, Allison M, Lee WJ, Cai Q, Isomura M, Umemura S, Kim YJ, Seielstad M, Hixson J, Xiang YB, Isono M, Kim BJ, Sim X, Lu W, Nabika T, Lee J, Lim WY, Gao YT, Takayanagi R, Kang DH, Wong TY, Hsiung CA, Wu IC, Juang JM, Shi J, Choi BY, Aung T, Hu F, Kim MK, Lim WY, Wang TD, Shin MH, Lee J, Ji BT, Lee YH, Young TL, Shin DH, Chun BY, Cho MC, Han BG, Hwu CM, Assimes TL, Absher D, Yan X, Kim E, Kuo JZ, Kwon S, Taylor KD, Chen YD, Rotter JI, Qi L, Zhu D, Wu T, Mohlke KL, Gu D, Mo Z, Wu JY, Lin X, Miki T, Tai ES, Lee JY, Kato N, Shu XO, Tanaka T. Meta-analysis of genome-wide association studies in East Asian-ancestry populations identifies four new loci for body mass index. Hum Mol Genet. 2014.10; 23(20); 5492-5504

23. Panos Roussos, Amanda C Mitchell, Georgios Voloudakis, John F Fullard, Venu M Pothula, Jonathan Tsang, Eli A Stahl, Anastasios Georgakopoulos, Douglas M Ruderfer, Alexander Charney, Yukinori Okada, Katherine A Siminovitch, Jane Worthington, Leonid Padyukov, Lars Klareskog, Peter K Gregersen, Robert M Plenge, Soumya Raychaudhuri, Menachem Fromer, Shaun M Purcell, Kristen J Brennand, Nikolaos K Robakis, Eric E Schadt, Schahram Akbarian, Pamela Sklar. A role for noncoding variation in schizophrenia. Cell Rep. 2014.11; 9(4); 1417-1429

24. Sarah J Dunstan, Nguyen Thi Hue, Buhm Han, Zheng Li, Trinh Thi Bich Tram, Kar Seng Sim, Christopher M Parry, Nguyen Tran Chinh, Ha Vinh, Nguyen Phu Huong Lan, Nga Tran Vu Thieu, Phat Voong Vinh, Samir Koirala, Sabina Dongol, Amit Arjyal, Abhilasha Karkey, Olita Shilpakar, Christiane Dolecek, Jia Nee Foo, Le Thi Phuong, Mai Ngoc Lanh, Tan Do, Tin Aung, Do Nu Hon, Yik Ying Teo, Martin L Hibberd, Katherine L Anders, Yukinori Okada, Soumya Raychaudhuri, Cameron P Simmons, Stephen Baker, Paul I W de Bakker, Buddha Basnyat, Tran Tinh Hien, Jeremy J Farrar, Chiea Chuen Khor. Variation at HLA-DRB1 is associated with resistance to enteric fever. Nat. Genet. 2014.12; 46(12); 1333-1336

25. Margaux F Keller, Alexander P Reiner, Yukinori Okada, Frank J A van Rooij, Andrew D Johnson, Ming-Huei Chen, Albert V Smith, Andrew P Morris, Toshiko Tanaka, Luigi Ferrucci, Alan B Zonderman, Guillaume Lettre, Tamara Harris, Melissa Garcia, Stefania Bandinelli, Rehan Qayyum, Lisa R Yanek, Diane M Becker, Lewis C Becker, Charles Kooperberg, Brendan Keating, Jared Reis, Hua Tang, Eric Boerwinkle, Yoichiro Kamatani, Koichi Matsuda, Naoyuki Kamatani, Yusuke Nakamura, Michiaki Kubo, Simin Liu, Abbas Dehghan, Janine F Felix, Albert Hofman, André G Uitterlinden, Cornelia M van Duijn, Oscar H Franco, Dan L Longo, Andrew B Singleton, Bruce M Psaty, Michelle K Evans, L Adrienne Cupples, Jerome I Rotter, Christopher J O'Donnell, Atsushi Takahashi, James G Wilson, Santhi K Ganesh, Mike A Nalls. Trans-ethnic meta-analysis of white blood cell phenotypes. Hum. Mol. Genet. 2014.12; 23(25); 6944-6960

26. Yukinori Okada, Kwangwoo Kim, Buhm Han, Nisha E Pillai, Rick T-H Ong, Woei-Yuh Saw, Ma Luo, Lei Jiang, Jian Yin, So-Young Bang, Hye-Soon Lee, Matthew A Brown, Sang-Cheol Bae, Huji Xu, Yik-Ying Teo, Paul I W de Bakker, Soumya Raychaudhuri. Risk for ACPA-positive rheumatoid arthritis is driven by shared HLA amino acid polymorphisms in Asian and European populations. Hum. Mol. Genet. 2014.12; 23(25); 6916-6926

[Books etc]

1. Hwang AE, Urayama KY, McKean-Cowdin R, Cozen W.. Epidemiology and Etiology of Acute Lymphoblastic Leukemia, In Contemporary Management of Acute Lymphoblastic Leukemia (1st ed., pp. 10-48). Jaypee Brothers Medical Publishers, 2014.05

[Misc]

1. Dorothée Diogo, Yukinori Okada, Robert M Plenge. Genome-wide association studies to advance our understanding of critical cell types and pathways in rheumatoid arthritis: recent findings and challenges. Curr Opin Rheumatol. 2014.01; 26(1); 85-92
2. Y Okada. From the era of genome analysis to the era of genomic drug discovery: a pioneering example of rheumatoid arthritis. Clin. Genet. 2014.11; 86(5); 432-440

[Conference Activities & Talks]

1. Urayama KY. CLIC Meta-analysis of ALL Genome-wide Association Studies: an Update. Childhood Leukemia International Consortium 2014 Specific Annual Meeting 2014 Montoreal, Canada
2. Urayama KY. My Road to Becoming an Epidemiologist. Find-Your-Role-Model Session 2014 Tokyo Medical and Dental University
3. Urayama KY. Immunomodulatory exposures and genetic susceptibility in childhood acute lymphoblastic leukemia etiology. 2nd Lecture Meeting of Hard Tissue Genome Research Center 2014 Tokyo Medical and Dental University
4. Okada Y, Terao C, Ikari K, Kochi Y, Ohmura K et al. Genetic Architecture of Rheumatoid Arthritis Contribute to Novel Biological Insights and Drug Discovery. The 58th Annual General Assembly and Scientific Meeting of the Japan Colledge of Rheumatology. 2014.04.24
5. Urayama KY. Integrating the environment with genomics to understand disease etiology . Tokyo Medical and Dental University 40th Graduate School Seminar 2014.05 Tokyo Medical and Dental University
6. Okada Y. Genetic architectures of rheumatoid arthritis identified by trans-ethnic GWAS meta-analysis contribute to novel biological insights and drug discovery. The Japan Colledge of Rheumatology International School 2014.07.31
7. Okada Y, Kanai M, Higuchi C, Tanaka T. Evaluation of synthetic effects of risk rare variants by utilizing discrepancy of Hardy-Weinberg equilibrium deviations between cases and controls. Genetic Analysis Workshop 19. 2014.08.24
8. Okada Y. Meta-analysis identifies multiple loci associated with kidney function-related traits in East Asian populations. ISN Forefronts Symposium Boston 2014.09.12
9. Urayama KY. Genomic Contributions to Childhood ALL Susceptibility: The Japanese Perspective. The 5th Childhood Cancer Academic Symposium 2014.09.13 Kyoto
10. Urayama KY. Introduction to Methods in Epidemiolgocal Research. MEXT Funded Seminar on the Future of Nursing Research 2014.10 St. Luke's International University
11. Ozaki K, Sakata Y, Suna S, Onouchi Y, Tsunoda T, Kubo M, Komuro I, Tanaka T. A replication study for fifteen coronary artery disease susceptible loci in a Japanese population. ASHG 2014 2014.10 San Diego
12. Rouby N, McDonough C, Gong Y, Pepine C, Takahashi A, Tanaka T, Kubo M, Cooper-DeHoff R, Johnson J. Genome-wide association study of resistant hypertension in INVEST. ASHG 2014 2014.10 San Diego
13. Johnson T, Boroevich K, Tanaka T, Qi L, He, Xu M, Wu T, Kubo M, Tsunoda T. Integrated analysis of known height association signals with novel signals from an East Asian GWAS decodes the genetic architecture of height through in silico functional candidate prioritization and gene network analysis. ASHG 2014 2014.10 San Diego
14. Urayama KY. Genomic Evaluations of Childhood Acute Lymphoblastic Leukemia Susceptibility across Race/Ethnicities. The 76th Annual Meeting of the Japanese Society of Hematology, Educational Sesssion 2014.10.31 Osaka
15. Aiba T, Makimoto H, Makiyama T, Watanabe H, Hayashi K, Nakano Y, Miyauchi Y, Morita H, Aonuma K, Hagiwara N, Fukuda K, Yoshinaga M, Horigome H, Sumitomo N, Tanaka T, Sekine A, Shiraishi I, Kusano K, Miyamoto Y, Kamakura S, Yasuda S, Ogawa H, Makita N, Horie M, Shimizu W. Diverse gender difference of arrhythmic risk in patients with congenital Long QT Syndrome: from Japanese congenital LQTS multicenter registry. AHA 2014 2014.11 Chicago

16. Okada Y. Construction of the HLA imputation reference panel for east Asian populations and its application to ACPA-positive rheumatoid arthritis risk - ethnically shared risk HLA amino acid polymorphisms. International RA Genetic Meeting 2014. 2014.11.15

17. Okada Y, Kim K, Han B, Pillai NE, Ong RTH et al. Histocompatibility Complex Associations in ACPA-Positive Rheumatoid Arthritis Identified Shared HLA Amino Acid Polymorphisms in Asian and European Populations. American Colledge of Rheumatology Annual Meeting 2014. 2014.11.18

18. Okada Y. Comprehensive strategies to utilize large scale human genetic studies for elucidation of novel disease biology and drug discovery. The 14th Meeting of East Asian Union of Human Genetics 2014.11.20

19. Urayama KY. Prevailing Hypothesis on the Role of Infections in the Risk of Childhood Cancers. NIRS/WHO-CC Symposium on Children and Radiation in Medicine 2014.12.08 Tokyo

Applied Regenerative Medicine

Professor:Ichiro SEKIYA
Assistant Professor:Masafumi HORIE, Koji OTABE, Hisako KATANO
Project Assistant Professor:Nobutake OZEKI
Project Researcher:Keiichiro KOMORI, Mitsuru MIZUNO
Graduate Student:Kenta KATAGIRI,Yuji KONO
Technical Staff : Miyoko OJIMA, Yukie MATSUMOTO, Fumika KAWAMATA
Shizuka FUJII
Assistant Clerk:Mika WATANABE, Rei NISHIDA,Kimiko TAKANASHI

(1) Outline

Our purpose is to support and advance stem cell research and regenerative medicine for the discovery and development of cures, therapies, diagnostics and research technologies to relieve human suffering from chronic disease and injury.

(2) Research

1) Development of regenerative medicine with stem cells.
2) Realization and industrialization of cell and regenerative therapy.
3) Establishment of safety test for regenerative medicine.
4) Translational research.

(3) Clinical Services & Other Works

We started transplantation of synovial stem cells to enhance meniscus healing after meniscus suture.

(4) Publications

[Original Articles]

1. Yamada Jun, Tsuji Kunikazu, Miyatake Kazumasa, Matsukura Yu, Abula Kahaer, Inoue Makiko, Sekiya Ichiro, Muneta Takeshi. Follistatin alleviates synovitis and articular cartilage degeneration induced by carrageenan. Int J Inflam. 2014; 2014; 959271

2. Matsukura Yu, Muneta Takeshi, Tsuji Kunikazu, Koga Hideyuki, Sekiya Ichiro. Mesenchymal stem cells in synovial fluid increase after meniscus injury. Clin Orthop Relat Res. 2014.05; 472(5); 1357-1364

3. Hideyuki Koga, Takeshi Muneta, Kazuyoshi Yagishita, Toshifumi Watanabe, Tomoyuki Mochizuki, Masafumi Horie, Tomomasa Nakamura, Ichiro Sekiya. Effect of Notchplasty in Anatomic Double-Bundle Anterior Cruciate Ligament Reconstruction. Am J Sports Med. 2014.06; 42(8); 1813-1821

4. D Hatsushika, T Muneta, T Nakamura, M Horie, H Koga, Y Nakagawa, K Tsuji, S Hishikawa, E Kobayashi, I Sekiya. Repetitive allogeneic intraarticular injections of synovial mesenchymal stem cells promote meniscus regeneration in a porcine massive meniscus defect model. Osteoarthr. Cartil.. 2014.07; 22(7); 941-950

5. Nobuharu Suzuki, Chihiro Mizuniwa, Kana Ishii, Yusuke Nakagawa, Kunikazu Tsuji, Takeshi Muneta, Ichiro Sekiya, Chihiro Akazawa. Teneurin-4, a transmembrane protein, is a novel regulator that suppresses chondrogenic differentiation. J. Orthop. Res.. 2014.07; 32(7); 915-922

6. Makiko Okuno, Takeshi Muneta, Hideyuki Koga, Nobutake Ozeki, Yusuke Nakagawa, Kunikazu Tsuji, Shinichi Yoshiya, Ichiro Sekiya. Meniscus regeneration by syngeneic, minor mismatched, and major mismatched transplantation of synovial mesenchymal stem cells in a rat model. J. Orthop. Res.. 2014.07; 32(7); 928-936

7. Takeshi Muneta, Hideyuki Koga, Tomomasa Nakamura, Masafumi Horie, Toshifumi Watanabe, Kazuyoshi Yagishita, Ichiro Sekiya. A new behind-remnant approach for remnant-preserving double-bundle anterior cruciate ligament reconstruction compared with a standard approach. Knee Surg Sports Traumatol Arthrosc. 2014.09;

8. Hideyuki Koga, Takeshi Muneta, Kazuyoshi Yagishita, Toshifumi Watanabe, Tomoyuki Mochizuki, Masafumi Horie, Tomomasa Nakamura, Koji Otabe, Ichiro Sekiya. Mid- to Long-term Results of Single-Bundle Versus Double-Bundle Anterior Cruciate Ligament Reconstruction: Randomized Controlled Trial. Arthroscopy. 2014.09;

9. Hideyuki Koga, Takeshi Muneta, Kazuyoshi Yagishita, Toshifumi Watanabe, Tomoyuki Mochizuki, Masafumi Horie, Tomomasa Nakamura, Ichiro Sekiya. Effect of femoral tunnel position on graft tension curves and knee stability in anatomic double-bundle anterior cruciate ligament reconstruction. Knee Surg Sports Traumatol Arthrosc. 2014.11; 22(11); 2811-2820

[Misc]

1. Ichiro Sekiya, Seth S Leopold. Editor's spotlight/Take 5: Mesenchymal stem cells in synovial fluid increase after meniscus injury. Clin. Orthop. Relat. Res.. 2014.05; 472(5); 1353-1356

[Conference Activities & Talks]

1. Ichiro Sekiya. Cartilage and meniscus regeneration with synovial stem cells. GCOE Symposium 2014.02.18 Tokyo, Japan

2. Ichiro Sekiya. Introduction for the "Center for Stem Cell and Regenerative Medicine" at TMDU: "Cartilage and meniscus regeneration with synovial MSCs" as a representative case to establish a platform for the realization of regenerative medicine . GCOE Symposium 2014.02.18 Tokyo, Japan

3. Ichiro Sekiya. Synovial stem cells promote healing after surgical meniscal repair. International Early Knee OA Symposium 2014.11.05 Tokyo, Japan

JFCR Cancer Biology

Collaborative Professor Takuro NAKAMURA
Collaborative Professor Kiyotaka SHIBA
Collaborative Professor Akihiro TOMIDA
Collaborative Professor Eiji HARA
Collaborative Professor Toru HIROTA
Collaborative Associate Professor Kengo TAKEUCHI
Graduate Student Yuki TOGASHI

(1) Research

Understanding the mechanisms of carcinogenesis and cancer progression. Studying the basics of personalized medicine for innovative cancer therapy.

(2) Education

We are committed to training talented and motivated graduate students, helping launch careers in basic and translational cancer research.

1. Molecular mechanisms of carcinogenesis and identification of cell-of-origin of cancer (Nakamura)
2. Pathological and genetic analysis of human cancer such as malignant lymphoma and lung cancer (Takeuchi)
3. Application of nanobiotechnology in cancer diagnostics (Shiba)
4. Strategy for innovative drug therapy based on cancer biology (Tomida)
5. Signaling pathways that induce cellular senescence in vivo and to elucidate how these pathways are perturbed in cancer cells
6. Understanding mitotic chromosome dynamics in cancer, to exploit mitotic control to cancer intervention (Hirota)

(3) Publications

[Original Articles]

1. Ito, M., Hayashi, K., Adachi, E., Minamisawa, T., Homma, S., Koido, S. and Shiba, K. Combinatorial contextualization of peptidic epitopes for enhanced cellular immunity. PLoS One 9, e110425, 2014.
2. Matsumura, S., Yuge, R., Sato, S., Tomida, A., Ichihashi, T., Irie, H., Iijima, S., Shiba, K. and Yudasaka, M. Ultrastructural localization of intravenously injected carbon nanohorns in tumor. Int J Nanomed 9, 3499-508, 2014.
3. Nakamoto-Matsubara R, Sakata-Yanagimoto M, Enami T, Yoshida K, Yanagimoto S, Shiozawa Y, Nanmoku T, Satomi K, Muto H, Obara N, Kato T, Kurita N, Yokoyama Y, Izutsu K, Ota Y, Sanada M, Shimizu S, Komeno T, Sato Y, Ito T, Kitabayashi I, Takeuchi K, Nakamura N, Ogawa S, Chiba S. Detection of the G17V RHOA mutation in angioimmunoblastic T-cell lymphoma and related lymphomas using quantitative allele-specific PCR. ***PLoS One.*** 9:e109714, 2014.
4. Katayama R, Friboulet L, Koike S, Lockerman EL, Khan TM, Gainor JF, Iafrate AJ, Takeuchi K, Taiji M, Okuno Y, Fujita N, Engelman JA, Shaw AT. Two novel ALK mutations mediate acquired resistance to the next-generation ALK inhibitor alectinib. Clin Cancer Res 20:5686-5696, 2014.
5. Hashimoto T, Fujimoto M, Nishikori M, Takeuchi K, Kimura M, Nakajima N, Miyagawa-Hayashino A, Takaori-Kondo A, Haga H. Plasmacytic ALK-positive large B-cell lymphoma: a potential mimic of extramedullary plasmacytoma. Pathol Int 64:292-294, 2014.
6. Sakata S, Tsuyama N, Takeuchi K. Pathology of indolent B-cell neoplasms other than follicular lymphoma. J Clin Exp Hematop 54:11-22, 2014.
7. Nakada T, Okumura S, Kuroda H, Uehara H, Mun M, Takeuchi K, Nakagawa K. Imaging Characteristics in ALK Fusion-Positive Lung Adenocarcinomas by Using HRCT. Ann Thorac Cardiovasc Surg 2014.

8. Sakurai H, Sugimoto KJ, Shimada A, Imai H, Wakabayashi M, Sekiguchi Y, Ota Y, Izutsu K, Takeuchi K, Komatsu N, Noguchi M. Primary CNS CCND1/MYC-Positive Double-Hit B-Cell Lymphoma: A Case Report and Review of the Literature. J Clin Oncol. 2014.
9. Yamamoto W, Nakamura N, Tomita N, Takeuchi K, Ishii Y, Takahashi H, Watanabe R, Takasaki H, Motomura S, Kobayashi S, Yokose T, Ishigatsubo Y, Sakai R. Human leukocyte antigen-DR expression on flow cytometry and tumor-associated macrophages in diffuse large B-cell lymphoma treated by rituximab, cyclophosphamide, doxorubicin, vincristine and prednisone therapy: retrospective cohort study. Leuk Lymphoma 55:2721-2727, 2014.
10. Tomita N, Kodama F, Tsuyama N, Sakata S, Takeuchi K, Ishibashi D, Koyama S, Ishii Y, Yamamoto W, Takasaki H, Hagihara M, Kuwabara H, Tanaka M, Hashimoto C, Yamazaki E, Koharazawa H, Fujimaki K, Sakai R, Fujisawa S, Ishigatsubo Y. Biweekly THP-COP therapy for newly diagnosed peripheral T-cell lymphoma patients. Hematol Oncol 2014.
11. Hong M, Kim RN, Song JY, Choi SJ, Oh E, Lira ME, Mao M, Takeuchi K, Han J, Kim J, Choi YL. HIP1-ALK, a novel fusion protein identified in lung adenocarcinoma. J Thorac Oncol 9:419-422, 2014.
12. Lee SE, Kang SY, Takeuchi K, Ko YH. Identification of RANBP2-ALK fusion in ALK positive diffuse large B-cell lymphoma. Hematol Oncol 32:221-224, 2014.
13. Sakata-Yanagimoto M, Enami T, Yoshida K, Shiraishi Y, Ishii R, Miyake Y, Muto H, Tsuyama N, Sato-Otsubo A, Okuno Y, Sakata S, Kamada Y, Nakamoto-Matsubara R, Tran NB, Izutsu K, Sato Y, Ohta Y, Furuta J, Shimizu S, Komeno T, Sato Y, Ito T, Noguchi M, Noguchi E, Sanada M, Chiba K, Tanaka H, Suzukawa K, Nanmoku T, Hasegawa Y, Nureki O, Miyano S, Nakamura N, Takeuchi K, Ogawa S, Chiba S. Somatic RHOA mutation in angioimmunoblastic T cell lymphoma. Nat Genet 46:171-175, 2014.
14. Sugiyama H, Maeda Y, Nishimori H, Yamasuji Y, Matsuoka K, Fujii N, Kondo E, Shinagawa K, Tanaka T, Takeuchi K, Teshima T, Tanimoto M. Mammalian target of rapamycin inhibitors permit regulatory T cell reconstitution and inhibit experimental chronic graft-versus-host disease. Biol Blood Marrow Transplant 20:183-191, 2014.
15. Chang ST, Lu YH, Lu CL, Weng SF, Lin SH, Kuo SY, Chuang YT, Takeuchi K, Ohshima K, Chuang SS. Epstein-Barr virus is rarely associated with diffuse large B cell lymphoma in Taiwan and carries a trend for a shorter median survival time. J Clin Pathol 67:326-332, 2014.
16. Kozu Y, Isaka M, Ohde Y, Takeuchi K, Nakajima T. Epithelioid inflammatory myofibroblastic sarcoma arising in the pleural cavity. Gen Thorac Cardiovasc Surg 62:191-194, 2014.
17. Migita T, Okabe S, Ikeda K, Igarashi S, Sugawara S, Tomida A, Soga T, Taguchi R,and Seimiya H. Inhibition of ATP citrate lyase induces triglyceride accumulation with altered fatty acid composition in cancer cells. Int J Cancer 135,37, 2014.
18. Tsukumo Y, Tsukahara S, Furuno A, Iemura S, Natsume T, and Tomida A. TBL2 is a novel PERK-binding protein that modulates stress-signaling and cell survival during endoplasmic reticulum stress. PLoS One, 9, e112761, 2014.
19. Ariki R, Morikawa S, Mabuchi Y, Suzuki S, Nakatake M, Yoshioka K, Hidano S, Nakauchi H, Matsuzaki Y, Nakamura T, Goitsuka R. Homeodomain transcription factor Meis1 is a critical regulator of adult bone marrow hematopoiesis. PLOS One 9: e87646, 2014.
20. Hirayama T, Asano Y, Iida H, Watanabe T, Nakamura T, Goitsuka R. Meis1 is required for the maintenance of postnatal thymic epithelial cells. PLOS One 9:e89885, 2014.
21. Tanaka M, Yamazaki Y, Kanno Y, Igarashi K, Aisaki K, Kanno J, Nakamura T. Ewing's sarcoma precursors are highly enriched in embryonic osteochondrogenic progenitors. J Clin Invest 121:3061-3074, 2014.
22. Okumura K, Saito M, Isogai E, Aoto Y, Hachiya T, Sakakibara Y, Katsuragi Y, Hirose S, Kominami R, Goitsuka R, Nakamura T, Wakabayashi Y. Meis1 regulates epidermal stem cells and is required for skin tumorigenesis. PLoS One 9:e102111, 2014.
23. Tanaka M, Aisaki K, Kitajima S, Igarashi K, Kanno J, Nakamura T. Gene expression response to EWS-FLI1 in mouse embryonic cartilage. Genomics Data 2:296-298, 2014.
24. Demaria, M., Ohtani, N., Youssef, S.A., Rodier, F., Toussaint, W., Mitchell, J.R., Laberge, R.M., Vijg, J., Van Steeg, H., Dollé,.T., Hoeijmakers, J.H.J., de Bruin, A., Hara, E. and Campisi, J. An essential role for senescent cells in optimal wound healing through secretion of PDGF-AA. Dev Cell 31, 722-733, 2014.
25. Johmura, Y., Shimada, M., Misaka, T., Naiki-Ito, A., Miyoshi, H., Motoyama, N., Ohtani, N., Hara, E., Nakamura, M., Takahashi, S. and Nakanishi, M. Necessary and sufficient role for a mitosis skip in senescence induction. Mol Cell 55: 73-84, 2014.
26. Imai, Y., Takahashi, A., Hanyu, A., Hori, S., Sato, S., Naka, K., Hirao, A., Ohtani, N. and Hara, E.

Crosstalk between the RB-pathway and AKT signalling forms a quiescence-senescence switch. Cell Rep 7: 194-207, 2014.
27. Gallego-Paez, LM., Tanaka, H., Bando, M., Takahashi, M., Nozaki, N., Nakato,R., Shirahige, K., Hirota, T. Smc5/6-mediated replication progression contributes to chromosome assembly in human cells. Mol Biol Cell 25: 302-317, 2014.

[Review Articles]

1. Ohtani, N., Yoshimoto, S. and Hara, E. Obesity and cancer: a gut microbial connection. Cancer Res 74: 1885-1889, 2014.

[Conference Activities & Talks]

1. Nakamura T. Modeling fusion gene-related bone and soft tissue sarcomas. 2014 SNUCRI Cancer Symposium (Mokpo, South Korea) April, 2014
2. Nakamura T. The role of Sytl1, a downstream target of Meis1, in myeloid leukemogenesis. Tenth Annual Myeloid Meeting (Cincinnati, USA) May, 2014
3. Nakamura T. Modeling the cancer gene network and disease progression in vivo. 73rd Annual Meeting of the Japanese Cancer Association JCA-AACR Joint Symposium (Yokohama) September, 2014
4. Tanaka M, Nakamura T. miR214 cooperates with SYT-SSX1 in malignant progression of synovial sarcoma. 73rd Annual Meeting of the Japanese Cancer Association Symposium on Specific Tumors (Yokohama) September, 2014
5. Nakamura T. Modeling fusion gene-associated bone and soft tissue sarcoma. The 4th Japan-France Cancer Workshop (Kyoto) November, 2014
6. Nakamura T. Histogenesis of Ewing's sarcoma The Japan-United States International Workshop on the Sarcoma Research and Therapy (Honolulu, USA) December, 2014
7. Eiji Hara. Crosstalk between the Rb-pathway and AKT signaling forms a Quiescence- Senescence switch. 73rd Annual Meeting of the Japanese Cancer Association Core Symposium (Yokohama) September, 2014
8. Akiko Takahashi & Eiji Hara. The roles of cellular senescence in aging and cancer 37th Annual Meeting of the Molecular Biology Society of Japan (Yokohama) November, 2014 (Akiko Takahashi)
9. Eiji Hara, "Obesity-induced gut microbial metabolite promotes liver cancer *via* senescence secretome" Cold Spring Harbor Asia Conference (Suzhou, China) May, 2014
10. Eiji Hara, "Relationship between obesity, gut microbiome and HCC development" Falk Gastro-Conference, (Freiburg, Germany) October, 2014
11. Hirota T. Control of chromosome structure outside mitosis. 2014 Asia Genome Check Conference, Suwon (Korea).
12. Hirota T. A molecular lesion of chromosome missegregation in mitosis. 73rd Japanese Cancer Association, Annual Meeting (Yokohama) September, 2014
13. Hirota T. An origin of chromosome missegregation in mitosis. 37th Annual Meeting of the Molecular Biology Society of Japan (Yokohama) November, 2014

Biomedical Devices and Instrumentation

Professor: Kohji Mitsubayashi
Junior Associate Professor: Takahiro Arakawa
Assistant Professor: Koji Toma
Lecturer (part-time): Kazuyoshi Yano
Postdoctoral Researcher: Kumiko Miyajima
Research Staff: Mei Ye

(1) Outline

Our research is based on a broad range of areas such as electrochemistry, mechanical engineering, electrical engineering, material science and biochemistry. The group aims to pursue interdisciplinary research in bio-MEMS, bio-optics, bio-electronics or bioinformatics by combining biotechnology and information technology.

(2) Research

1. Soft contact-lens biosensor
Based on advanced polymer microelectromechanical systems (MEMS) techniques, a soft contact-lens biosensor have been developed. The biosensor provides novel biomonitoring such as glucose monitoring in tear fluids.

2. Biochemical gas sensor (Bio-sniffer) and spatiotemporal gas visualization system (Sniffer-camera) for imaging of 'odor' information
High selective gas-sensors - "Bio-sniffers" – have been constructed with molecular recognition of enzyme in human liver. Potential applications of the bio-sniffer and –nose includes halitosis analysis, breath alcohol & aldehyde measurement, environmental VOC monitoring, etc. Applying the technique of Bio-sniffer, a visualization system for spatial distribution of volatile chemicals (Sniffer-camera) have been developed. The visualization system is expected to be used in future medical screening or dental health.

3. Immunosensor system for applications in environmental medicine
A sensor which utilizes immunoreaction to measure chemical compounds or proteins has been developed. The sensor is used to develop a system for environmental medicine through testing in experiments for allergen monitoring.

4. "Organic engine" based on chemo-mechanical energy conversion
A novel chemo-mechanical energy conversion system (organic engine) that utilizes enzyme reactions and active transport of chemicals have been constructed. Biomedical applications (chemical pumps, drug release systems, etc.) are also investigated.

(3) Education

In advanced medicine, technologies enabling to accurately measure biological information are highly demanded. The development of "human-friendly" non-invasive measurement methods could release patients from the pain and the risks of sampling. The students will learn the basic knowledge and skills of biological information measurement through the lectures (e.g., "Biomedical Device Science and Engineering", "Practice in Global Linkage

between University and Industry" and "Nanobiotechnology"), seminars and practical training. Especially research including biochemical measurement, the development of biosensing devices and their applications to medicine will be carried out based on "sensor and biomedical engineering.

(4) Lectures & Courses

The students will learn the basic technology related to advanced medicine and biological information measurement. Through practical training, they will also engage in research activities for biochemical measurement, the development of biosensing devices and their applications to medicine based on "sensor and biomedical engineering". The objective of this course is to help the students be able to think about and conduct a research by themselves throughout the activities with academic researches.

(5) Publications

[Original Articles]

1. Saito H, Goto T, Miyajima K, Munkhjargal M, Arakawa T, Mitsubayashi K. Odourless Watermark (Digital Chemocode) System with Biochemical Sniff Scanner Sensors and Materials. 2014; 26; 109-119
2. Saito H, Suzuki Y, Gessei T, Miyajima K, Arakawa T, Mitsubayashi K. Bioelectronic Sniffer (Biosniffer) Based on Enzyme Inhibition of Butyrylcholinesterase for Toluene Detection Sensors and Materials. 2014; 26; 121-129
3. Gessei T, Arakawa T, Kudo H, Saito H, Mitsubayashi K. Amperometric Biosensor based on Enzyme Immobilization with Post Process for Medical and Multiple Applications Analytical Letters. 2014.05; 47; 1361-1374
4. Kumiko Miyajima, Yurika Suzuki, Daisuke Miki, Moeka Arai, Takahiro Arakawa, Hiroji Shimomura, Kiyoko Shiba, Kohji Mitsubayashi. Direct analysis of airborne mite allergen (Der f1) in the residential atmosphere by chemifluorescent immunoassay using bioaerosol sampler. Talanta. 2014.06; 123; 241-246
5. Koji Toma, Hiroshi Kano, Andreas Offenhäusser. Label-free measurement of cell-electrode cleft gap distance with high spatial resolution surface plasmon microscopy. ACS Nano. 2014.12; 8(12); 12612-12619
6. Jonas Albers, Koji Toma, Andreas Offenhäusser. Engineering connectivity by multiscale micropatterning of individual populations of neurons. Biotechnol J. 2014.12;

[Misc]

1. Bauch Martin, Toma Koji, Toma Mana, Zhang Qingwen, Dostalek Jakub. Plasmon-Enhanced Fluorescence Biosensors: a Review PLASMONICS. 2014.08; 9(4); 781-799

[Conference Activities & Talks]

1. Mitsubayashi K. Novel biosensors with Soft-MEMS and polymer techniques for human bio-monitoring,. ICP 15th IC PACKAGING TECHNOILOGY EXPO 2014.01.15
2. Mitsubayashi K. Real time gas-imaging with enzyme mesh for breath ethanol after drinking. IMCS 2014 The 15th International Meeting on Chemical Sensors, Buenos Aires 2014.03.16
3. Miyajima K, Suzuki Y, Miki D, Arai M, Arakawa T, Shimomura H, Mitsubayashi K. Airborne allergen determination for Der f1 by chemifluorescent immunoassay with bioaerosol sampler. IMCS 2014 The 15th International Meeting on Chemical Sensors, Buenos Aires 2014.03.16
4. Miyajima K, Suzuki Y, Miki D, Arai M, Arakawa T, Shimomura H, Mitsubayashi K. Airborne allergen determination for Der f1 by chemifluorescent immunoassay with bioaerosol sampler. IMCS 2014 The 15th International Meeting on Chemical Sensors 2014.03.16
5. Arakawa T, Wang W, Sato T, Miyajima K, Munkhjargal M, Mitsubayashi K. Optical imaging of breath ethanol using real time biochemical luminescence for evaluation of alcohol metabolic capability. EUROPT(R)ODE XII 2014.04.13

6. Munkhjargal M, Sato R, Takagi H, Matsuura Y, Hatayama K, Arakawa T, Mitsubayashi K. Glucose powered "Organic Engine" (chemo-mechanical device) with multi-enzymatic amplification for autonomous drug release system (artificial pancreas). Biosensors 2014 2014.05.27

7. Arakawa T, Wang X, Kajiro T, Miyajima K, Yano K, Mitsubayashi K. Direct imaging system of gaseous ethanol from exhaled human breath for non-invasive analysis of alcohol metabolism. Biosensors 2014 2014.05.27

8. Munkhjargal M, Sato R, Takagi H, Matsuura Y, Hatayama K, Arakawa T, Mitsubayashi K. Glucose powered "Organic Engine" (chemo-mechanical device) with multi-enzymatic amplification for autonomous drug release system (artificial pancreas). Biosensors 2014 2014.05.27

9. Arakawa T, Wang X, Kajiro T, Miyajima K, Yano K, Mitsubayashi K. Direct imaging system of gaseous ethanol from exhaled human breath for non-invasive analysis of alcohol metabolism. Biosensors 2014 2014.05.27

10. Sato T, Wang X, Miyajima K, Toma K, Munkhjargal M, Arakawa T, Mitsubayashi K. Breath alcohol imaging with enzyme mesh after drinking. Breath Analysis 2014 2014.07.06

11. Munkhjargal M, Sato R, Takagi H, Miyajima K, Arakawa T, Mitsubayashi K. Biocatalysis-based chemo-mechanical actuator for autonomous drug release system for blood sugar control in Diabetes. IUMRS-ICA 2014 2014.08.24

12. Arakawa T, Wang X, Miyajima K, Munkhjargal M, Mitsubayashi K. 2-dimensional gaseous ethanol visualization system for noninvasive analysis of alcohol metabolism from exhaled human breath. IUMRS-ICA 2014 2014.08.24

13. Suzuki Y, Miyajima K, Arai M, Arakawa T, Shimomura H, Shiba K, Mitsubayashi K. Fiber-optic chemi-fluorescent immunoassay system for measurement of mite allergen Der f1. IUMRS-ICA 2014 2014.08.24

14. Jen Chien P, Ye M, Miyajima K, Arakawa T, Mitsubayashi K. A high-sensitive fiber-optic formaldehyde gas biosensor (bio-sniffer) for indoor continuous monitoring. IUMRS-ICA 2014 2014.08.24

15. Mitsubayashi K. Novel Biosensing Devices for Medical Applications - Soft Contact-Lens Sensors for Monitoring Tear Sugar. International Conference on Simulation of Semiconductor Processes and Devices 2014.09.11

16. Mitsubayashi K. Novel approaches of biosensor techniques for diametes, International Conference on BioSensors. BioElectronics, BioMedical Devices, BioMEMS/NEMS and Applications (Bio4Apps) 2014 2014.11.17

17. Arakawa T, Kita K, Wang X, Miyajima K, Toma K, Mitsubayashi K. Gaseous ethanol imaging system from human breath and skin for evaluation of alcohol metabolism. International Conference on BioSensors, BioElectronics, BioMedical Devices, BioMEMS/NEMS and Applications (Bio4Apps) 2014 2014.11.17

18. Jen Chien P, Miyajima K, Munkhjargal M, Toma K, Arakawa T, Kudo H, Mitsubayashi K. Highly sensitive fiber-optic formaldehyde gas sensor (biosniffer) for food-sample detection. International Conference on BioSensors, BioElectronics, BioMedical Devices, BioMEMS/NEMS and Applications (Bio4Apps) 2014 2014.11.17

19. Miyajima K, Arai M, Toma K, Arakawa T, Shimomura H, Mitsubayashi K. Fiber-optic Immunosensing device for house dust mite allergen in air, International Conference on BioSensors. International Conference on BioSensors, BioElectronics, BioMedical Devices, BioMEMS/NEMS and Applications (Bio4Apps) 2014 2014.11.17

20. Arakawa T, Kuroki Y, Nitta H, Toma K, Mitsubayashi K. Mouth guard-type biosensor for monitoring of saliva glucose, International Conference on BioSensors. International Conference on BioSensors, BioElectronics, BioMedical Devices, BioMEMS/NEMS and Applications (Bio4Apps) 2014 2014.11.17

21. Xie R, Takagi H, Munkhjargal M, Toma K, Arakawa T, Mitsubayashi K. Glucose sensing and driven autonomous drug release system (artificial pancreas) for diabetes. International Conference on BioSensors, BioElectronics, BioMedical Devices, BioMEMS/NEMS and Applications (Bio4Apps) 2014 2014.11.17

22. Toma K, Suzuki Y, Miyajima K, Arakawa T, Kudo H, Mitsubayashi K. Biochemical gas sensor (Bio-Sniffer) for monitoring formaldehyde in indoor air, International Conference on BioSensors. International Conference on BioSensors, BioElectronics, BioMedical Devices, BioMEMS/NEMS and Applications (Bio4Apps) 2014 2014.11.17

23. Mitsubayashi K. Glucose-driven "Organic Engine" with enzyme membrane for autonomous drug release system for diabetes as self-sustainable artificial pancreases. Energy Materials Nanotechnology (EMN) Fall Meeting 2014.11.22

24. Mitsubayashi K. Cavitas sensors and Smell camera for human biosensing. The UK-Japan Workshop on Biosensing Technologies for the Innovative Healthcare 2014.12.01

25. Mitsubayashi K. Cavitas (cavity) sensors for safe and convenient bio/chemical monitoring; no wearable, no implantable. T-Sensors summit 2014.12.08

26. Arakawa T, Sato T, Wang X, Kita K, Munkbayar M, Toma K, Mitsubayashi K. "Scent camera" for real-time imaging of breath (body) ethanol after alcohol drinking. DOS 2014 2014.12.08

27. Jen Chien P, Mori H, Ye M, Toma K, Sawada S, Arakawa T, Akiyoshi K, Mitsubayashi K. Bio-sniffer (biochemical gas sensor) with fiber-optic fluorometry for odorless formaldehyde vapor in residential atmosphere. DOS 2014 2014.12.08

[Awards & Honors]

1. Bio4Apps 2014 Best Paper Award, 2014.11

Biomedical Information

Professor Kenji YASUDA
Associate Professor Fumimasa NOMURA
Assistant Professor Hideyuki TERAZONO
Project Assistant Professor
Graduate Student

(1) Research

1) Studies on Epigenetic Information Stored Living System.
2) Constructing "On-chip Organ Model" using Nano-Bio Technology.
3) Bio-computing using "Real Neural Network on Chip".
4) New Drug Discovery Technology applying Single Molecule Measurement.

(2) Publications

[Original Articles]

1. Kaneko T, Nomura F, Hamada T, Abe Y, Takamori H, Sakakura T, Takasuna K, Sanbuissho A, Hyllner J, Sartipy P, Yasuda K.. On-chip in vitro cell-network pre-clinical cardiac toxicity using spatiotemporal human cardiomyocyte measurement on a chip Sci. Rep. 2014.01; 4; 4670
2. Terazono H, Matsuura K, Kim H, Takei H, Hattori A, Nomura F, Yasuda K. Homogenous measurement during a circulation-water-based ultrahigh-speed polymerase chain reaction and melting curve analysis device Jpn J Appl Phys. 2014.04; 53; 06JM08
3. Kim H, Terazono H, Takei H, Yasuda K. DNA Hybridization Efficiency on Concave Surface Nano-Structure in Hemispherical Janus Nanocups Langmuir. 2014.04; 30 (5); 1272-1280
4. Hattori A, Kim H, Terazono H, Odaka M, Girault M, Yasuda K . Identification of Cells using Morphological Information of Bright Field/Fluorescent Milti-imaging Flow Cytometer Images Jpn J Appl Phys. 2014.05; 53; 06JL03
5. Kim H, Terazono H, Takei H, Yasuda K. Fabrication of multilayered superparamagnetic particles based on sequential thermal deposition method Jpn J Appl Phys. 2014.05; 53; 06JJ01
6. Kim H, Terazono H, Nakamura Y, Sakai K, Hattori A, Odaka M, Mathias George Girault, Arao T, Nishio K, Miyagi Y, Yasuda K. Development of On-Chip Multi-Imaging Flow Cytometry for Identification of Imaging Biomarkers of Clustered Circulating Tumor Cells PLoS One. 2014.08; 9; e104372
7. Kim H, Terazono H, Takei H, Yasuda K. Cup-Shaped Superparamagnetic Hemispheres for Size-Selective Cell Filtration Sci. Rep. 2014.09; 4; 6362

[Books etc]

1. Kenji Yasuda. Chapter 61 Advanced Photonics Optical Trapping Techniques in Bioanalysis. Biomedical Photonics Handbook vol.3, Tuan Vo-Dinh(Ed.). CRC Press, 2014.07

[Conference Activities & Talks]

1. Nano-Cups: Fabrication and Application of Cup-Shaped Functional Nano-Particles for Cell Biology. 1st International Symposium on Nanoparticles/Nanomaterial and Applications 2014.01

2. Two-Dimensionally Indexed Precise-Size-Controlled Multi-Metal Nano-Particle Probe Set with Adaptive-Electron Microscopy for Identification of Genome/Proteome Expression Profiles. 1st International Symposium on Nanoparticles/Nanomaterial and Applications 2014.01

3. Hyonchol Kim, Hideyuki Terazono, Hiroyuki Takei, Kenji Yasuda. Development of "Adaptive SEM" Technology for in situ Genome/Proteome Expression Analysis in Single Cell Level. IMC2014 2014.02 Prague, Czech Republic

4. Hyonchol Kim, Hideyuki Terazono, Hiroyuki Takei, Kenji Yasuda. Application Of Cup Shaped Superparamagnetic Hemispheres For Size Selective Cell Purification. 58th Annual Meeting of Biophysical Society 2014.02.18 San Francisco, USA

5. Jeremy J Hawkes, Sara Baldock, Kenji Yasuda. Live demonstration: Some acoustic properties of cooked spaghetti. Acoustofluidics 2014 2014.09.11

6. Hyonchol Kim, Hideyuki Terazono, Yoshiyasu Nakamura, Kazuko Sakai, Akihiro Hattori, Masao Odaka, Girault Mathias, Kazuto Nishio, Youhei Miyagi, Kenji Yasuda . Development of On-Chip Multi-Imaging Cell Sorter System for Identification of Clustered Circulating Tumor Cells. ACTC2014 2014.10.10 Crete, Greece

7. Fumimasa Nomura, Kenji Matsuura, Akihiro Hattori, Hiromi Kurotobi, Hideyuki Terazono, Kenji Yasuda. Electrophysiological Impedance Spectrum Analysis of Cardiomyocytes using on-chip Multimicroelectrode Impedance Analyzer. 27th International Microprocesses and Nanotechnology Conference (MNC2014) 2014.11.06 Fukuoka, Japan

8. M. Odaka, H. Kim, M. Girault, A. Hattori, H. Terazono, K. Matsuura, K. Yasuda. Development of the Algorithm for Recognition and Identification of Target Cells Using Imaging Biomarkers for On-Chip Multi-Imaging Cell Sorter. 27th International Microprocesses and Nanotechnology Conference (MNC2014) 2014.11.06 Fukuoka, Japan

9. K. Matsuura, H. Terazono, H. Kim, A. Hattori, F. Nomura, K. Yasuda. High-Throughput Nano-droplet Array Polymerase Chain Reaction System with Fast and Homogeneous Temperature Control for 24/96/384 Sample Plate. 27th International Microprocesses and Nanotechnology Conference (MNC2014) 2014.11.06 Fukuoka, Japan

10. M. Girault, A. Hattori, H. Kim, S. Kawada, K. Matsuura, M. Odaka, H. Terazono, K. Yasuda. Control the formation of micro-droplets with homogenous size in on-chip microfluidics system: a pressure-controlled approach. 27th International Microprocesses and Nanotechnology Conference (MNC2014) 2014.11.06 Fukuoka, Japan

11. H. Terazono, H. Kim, K. Matsuura, H. Takei, A. Hattori, K. Yasuda. Electrophysiological Analysis of Single Neurons in Genetically Micropatterned Constructive Neuronal Networks. 27th International Microprocesses and Nanotechnology Conference (MNC2014) 2014.11.06 Fukuoka, Japan

12. H. Kim, H. Terazono, H. Takei, K. Yasuda. Size-Specific Target Cell Purification Exploiting Depletion Effect on Cup-Shaped Superparamagnetic Hemispheres. 27th International Microprocesses and Nanotechnology Conference (MNC2014) 2014.11.07 Fukuoka, Japan

13. Kenji YASUDA. On-chip quasi-in vivo cardiomyocyte network screening assay for predictive cardiotoxicity beyond hERG and QT assays. 13th Surugadai International Symposium & Joint Usage/Research Program of Medical Research Institute International Symposium 2014.11.28

14. H. Terazono, H. Kim, F. Nomura, Y. Wada, Y. Kurihara, H. Kurihara, K. Yasuda. Development of single strand DNA aptamer for cell surface of human umbilical vein endothelial cell. ASCB2014 2014.12.07 Philadelphia, USA

Bioelectronics

Staff
Yuji Miyahara (Professor)
Akira Matsumoto (Associate Professor)
Tatsuro Goda (Assistant Professor)
Mai Sanjoh (Project Assistant Professor)
Miyuki Tabata (Project Assistant Professor)
Hiroko Matsumoto (Assoiate Research Scientist)
Kayoko Nakagawa (Office Staff)

Graduate student
Takahiro Arai, Yuki Imaizumi, Daisuke Iizuka, Katayama Yurika, Keitaro Nagasaka
Chindanai RATANAPORNCHAROEN, Dilinaer AINIWAER

(1) Outline

Bioelectronics group is engaged in developing methodologies to determine and analyze functions of biomolecules and their relationships to diseases based on solid-state biosensor technology. Our interests include design & understanding of physicochemical properties of the interface between biomolecules and the device materials, signal-transduction mechanism as well as the pursuit of improved sensitivity and selectivity. These technologies involve many different disciplines of science and engineering, through which we propose new solutions to future medicine.

(2) Research

1. Bioelectronics for Next-generation DNA Sequencing
Our research is focused on the development of nano-interfaces between biomolecules and semiconducting materials for label-free and highly sensitive electrical monitoring of nucleotide base sequences and their amplification processes. The goal of the project is to provide a smaller and cheaper alternative next-generation DNA sequencer to the traditional techniques that involve optical sensing using fluorescence and bioluminescence.
2. Devices for Early Cancer Diagnosis
For applications to early-stage diagnostics of cancers, we aim to establish the device technology enabling detection of small amount of cancer markers out of blood samples with remarkable quickness and sensitivity. The focus is on the design of nano-interfaces that involves chemical modification of biomolecular targets as well as solid/ liquid interfaces in order to achieve efficient biomolecular recognitions on the electrode surfaces. We also pursue optimized materials and the surface property of the electrode in order to obtain remarkably target-specific signals out of complicated electrical signals obtained from raw biological samples.
3. Discovering Intra/Extracellular Molecular Dynamics on Inflammatory Response
Molecular dynamics at inflammation and bacterial infection is investigated using biomimetic surfaces. The term “biomimetics” in this context represents mimicking the interplay between biomolecules and local changes of microenvironment that has evolved as a mechanism for inauguration of immune responses. Our new nano-biotechnology will reveal unidentified active molecular dynamics in pathophysiology.
4. “Artificial Pancreas” to Treat Diabetes
Development of self-regulated insulin delivery systems to treat diabetes is a long-standing challenge of biomedical engineering. We propose a synthetic gel based solution, which could offer a remarkably simple, “electronics-

free" and thus significantly low-cost alternative to the ongoing efforts of artificial pancreas.

(3) Education

1. Engagement: we are engaged in teaching a part of Biomedical Engineering course and mentoring master & doctor students.

2. Course objective: Serum components play crucial roles in metabolic cycles and their concentration homeostasis reflects dynamic equilibrium of life. On occasion of abnormal metabolic pathway, it is manifested as a fluctuation of each specific serum component. Our lecture provides an overview of advanced materials and engineering aimed at determination of body fluids including serum components and mechanisms for their concentration homeostasis.

3. Deepen knowledge of theory, mechanisms, methodologies, application, and limitation of detection technology for biomolecules in various clinical samples. Learn integrative technology of advanced materials/devices and biology/medicine, present problems and future perspective in bioelectronics. Familiarize each student with other related techniques, lab skills including planning of experiments, presenting research results and preparing reports.

(4) Publications

[Original Articles]

1. Akira Matsumoto, Yusuke Tsurui, Hiroko Matsumoto, Yasuhiro Maeda, Toru Hoshi, Takashi Sawaguchi, and Yuji Miyahara. Chemo-electrical Signal Transduction by using Stimuli-responsive Polymer Gate-Modified Field Effect Transistor. Chemosensors. 2014; 2(2); 97-107

2. Miyuki Tabata, Kozue Nogami, Tatsuro Goda, Akira Matsumoto and Yuji Miyahara. Fabrication of Self-assembled Monolayer/AgCl Mixed Surface and It's Electrochemical Properties IEEJ Transactions on Sensors and Micromachines. 2014; 134(10); 315-319

3. Tatsuro Goda, Mikiya Oohashi, Akira Matsumoto, Toru Hoshi, Takashi Sawaguchi, Martin Pumera and Yuji Miyahara. Chemical Optimization for Simultaneous Voltammetric Detection of Molybdenum and Silver Nanoparticles in Aqueous Buffer Solutions ChemElectroChem. 2014; 1(12); 2110-2115

4. Tatsuro Goda, Adriano Ambrosi, Yuji Miyahara and Martin Pumera. Simultaneous Electrochemical Detection of Silver and Molybdenum Nanoparticles ChemElectroChem. 2014; 1(3); 529-531

5. Yasuhiko Iwasaki, Toshihiro Kimura, Masaki Orisaka, Hideya Kawasaki, Tatsuro Goda and Shinichi Yusa. Label-free Detection of C-reactive Protein using Highly Dispersible Gold Nanoparticles Synthesized by Reducible Biomimetic Block Copolymers Chem. Commun. 2014; 50(42); 5656-5658

6. Bo Yao, Yichen Liu, Miyuki Tabata, Huangtianzhi Zhu and Yuji Miyahara. Sensitive detection of microRNA by chronocoulometry and rolling circle amplification on a gold electrode. Chem Commun . 2014.09; 50(68); 9704-9706

7. Tatsuro Goda, Peter Kjall, Kazuhiko Ishihara, Agneta Richter-Dahlfors and Yuji Miyahara,. Biomimetic interfaces reveal activation dynamics of C-reactive protein in local microenvironments. Adv Healthc Mater. 2014.11; 3(11); 1733-1738

[Books etc]

1. Yuji Miyahara, Akira Matsumoto, Tatsuro Goda, Yasuhiro Maeda, Miyuki Tabata, Mai Sanjoh. Design of Supermolecular Structures and Development for the Application. CMC publishing Co., 2014.09 (ISBN : 978-4-7813-0973-6)

[Misc]

1. Mai Sanjoh, Yuji Miyahara, Kazunori Kataoka, Akira Matsumoto. Phenylboronic acids-based Diagnostic and Therapeutic Applications. Analytical Sciences. 2014; 30(1); 111-117
2. Yuji Miyahara, Akira Matsumoto, Tatsuro Goda, Yasuhiro Maeda, Miyuki Tabata, Mai Sanjoh. Biotransistors with Supermolecular Interface Design of Supermolecular Structures and Development for the Application, (ed.: A. Harada). 2014; 78-90
3. Tatsuro Goda, Yuji Miyahara. Biotransistor Human Sensing for Smart Life Care -Sensor, Information & Energy Technologies on Health Conscious Society with Big Data- (ed.: K. Mitsubayashi) . 2014; 123-130
4. Akira Matsumoto, Kazunori Kataoka, Yuji Miyahara. New Directions in the Design of Phenylboronate-Functionalized Polymers for Diagnostic and Therapeutic Applications Polymer Journal. 2014; 46(8); 483-491
5. Akira Matsumoto, Yuji Miyahara. Development of a Totally Synthetic "Artificial Pancreas Human Sensing for Smart Life Care -Sensor, Information & Energy Technologies on Health Conscious Society with Big Data- (ed.: K. Mitsubayashi) . 2014; 233-240

[Conference Activities & Talks]

1. Miyahara Y, Matsumoto A, Goda T, Maeda Y, Tabata M, Sanjoh M. Detection of Biomolecular Recognition Using Bio-Transistor. PITTCON2014 2014.03.02 Chicago,USA
2. Tabata M, Yao B, Goda T, Matsumoto A, Miyahara Y. Chronocoulometric Detection of Nucleic Acid with Solid-Phase Rolling Circle Amplification Using Thin-Film Au Electrodes. PITTCON2014 2014.03.02 Chicago, USA
3. Matsumoto A. A synthetic gel based approach toward self-regulated insulin delivery system. International Symposium on Smart Biomaterials 2014.03.24 NIMS, Japan
4. Matsumoto A. Boronolectin" Based Strategies for Drug Delivery and Biosensing. RSC Carbohydrate 2014 2014.04.29 Bath, UK
5. Matsumoto A. Boronolectin" Based Strategies for Drug Delivery and Biosensing. Seminar at Birmingham University 2014.05.02 Birmingham, UK
6. Miyahara Yuji. Cell-based Field Effect Transistor for Functional Analyses of Cell Membrane. Matrafured international Conference on Electrochemical Sensors 2014 2014.06.19 Budapest, Hungary
7. Tabata M, Yao B, Gada T, Matsumoto A, Miyahara Y. Development of electrochemical devices for detection of nucleic acid with solid-phase rolling circle amplification. APCOT2014 2014.06.29 Daegu, Korea
8. Sanjoh M, Matsumoto A, Miyahara Y. A new molecular basis for specific pyrophosphate chemosencing. APCOT2014 2014.06.29 Daegu, Korea
9. Matsumoto A,. Borono-lectin" Based Strategies for Smart Drug Delivery Systems and Biosensing. 6th TMDU International Summer Program (ISP 2014) 2014.08.25 TMDU
10. Miyahara Yuji. Detection of Biomolecular Recognition using Bio-transistors.. The 7th International Symposium on Surface Science (ISSS-7) 2014.11.02 Matsue,Japan
11. Arai T, Y Maejima, Goda T, Matsumoto A, Otsuka H, Miyahara Y. Sialic Acid-sensitive Bio-transistor based on Phenylboronic Acid-functionalized Polymeric Layer. MNC 2014 2014.11.04 Fukuoka,Japan
12. Imaizumi Y, Goda T, Matsumoto A, Miyahara Y. Evaluating Barrier Property of Cell Membrane via Ammonia Diffusion using pH Sensor. MNC 2014 2014.11.04 Fukuoka,Japan
13. Matsumoto A, Ishii T, Matsumoto H, Suganami T, Tanaka M, Ogawa Y, Kataoka K, Miyahara Y. A Synthetic Gel Based Approach Toward Self-regulated Insulin Delivery. PN&G 2014.11.10 Tokyo, Japan
14. Yuasa M, Matsumoto A, Goda T, Hoshi T, Sawaguchi T, Miyahara Y. Phenylboronate Based Glucose-responsive Gel with Improved Stability in Performance against Thermal Fluctuation. PN&G 2014.11.10 Tokyo, Japan

15. Sato S, Matsumoto A, Goda T, Kikuchi A, Miyahara Y. Preparation of poly(N-isopropylacrylamide) Gel from the Four-arm-branched Macromer. PN&G 2014.11.10 Tokyo, Japan
16. Tabata M, Asano A, Kitasako Y, Ikeda M, Tagami J, Goda T, Matsumoto A, Miyahara Y. Miniaturized Ir/IrOx pH Sensor for Quantitative Diagnosis of Dental Caries. AMDI-5 & 6th IBB Frontier Symposium 2014.11.19 Tokyo, Japan
17. Matsumoto A, Miyahara Y. Borono-lectin" Based Strategies for Biosensing and Smart Drug Delivery Systems. AMDI-5 & 6th IBB Frontier Symposium 2014.11.19 Tokyo, Japan
18. Matsumoto A, Ishii T, Matsumoto H, Suganami T, Tanaka M, Ogawa Y, Kataoka K, Miyahara Y. A Synthetic Gel Based Approach Toward Self-Regulated Insulin Delivery. 2014 MRS Fall Meeting & Exhibit 2014.11.30 Boston, USA
19. Goda T. Cell Membrane-Mimetic Interfaces for Biomaterials and Bioengineering. International Polymer Conferences (IPC) 2014 2014.12.02 Tsukuba, Japan

[Patents]

1. Biosensor, detection method for biological substance by biosensor, and its kit, Patent Number：5467312
2. Phenylboronic acid monomer and phenylboronic acid polymer, Patent Number：5622188
3. Block copolymer having phenylboronic acid group introduced therein, and use thereof, Patent Number：5481614
4. Sugar-responsive gel and medicine administering device, Patent Number：5696961

[Awards & Honors]

1. 63th Symposium on Macromolecules Poster Award (Akira Matsumoto), The Society of Polymer Science, 2014.09
2. IPC 2014 Young Scientist Poster Award(Akira Matsumoto), 2014.12

Material-Based Medical Engineering

Prof. Akio KISHIDA
Assoc. Prof. Tsuyoshi KIMURA
Assist. Prof. Kwangoo NAM

Division of Acellular Tissue and Regenerative Medical Material
Assoc. Prof. Seiichi FUNAMOTO
Lecturer Akitatsu YAMASHITA
Assist. Prof. Yoshihide HASHIMOTO

Secretary Naomi HIWATARI

Doctor Course Student
Naoko NAKAMURA
Ping-Li WU
Mitsuki UEKI
Yongwei ZHANG
Masaki WATANABE

(1) Outline

In our laboratory, we treats many research topics from the basic study of biomaterials from the point of view of material engineering to the application study of the medical devices. The key words of our policy are "contribution to medical care" and "exploration of basic science".

(2) Research

In order to develop technologies that contribute to the medical and dental care, there is a need for a system to build up the design concepts at the molecular level and to realize it. Based on polymer chemistry, organic chemistry, and physical chemistry, we proceed a research aimed at specific clinical applications using cell engineering, genetic engineering techniques. Target area are new medical material development, regenerative medicine, gene therapy, and the treatment engineering.
(1) Regenerative medicine using decellularized biological tissue
In order to remove the xenogeneic cells, the living tissue is decellularized using a new processing method, high-hydrostatic pressure (HHP) method has been developed. Using this process, complete removal of infectious bacteria, viruses, and cells was accomplished.
(2) Molecular aggregates formed by the high-hydrostatic pressure process.
Hydrogen bond assembles molecular assembly under high pressure. Using the HHP processing of more than 6,000 atmospheres, we prepare the nucleic acid assembly and apply them as gene delivery system.
(3) Extracellular matrix remodeling
We are conducting research on tissue remodeling using artificially reconstructed extracellular matrix structure. Specifically, we are researching the application of as artificial skin and artificial cornea of precision design artificial extracellular matrix structure.
(4) Immune control system: technology of specific cell capture and release

In cancer immunotherapy, by removing regulatory T cells (Treg) that negatively regulates immune reactions, to be able to enhance the anti-tumor immune responses have been revealed. We are developing technologies to capture and recover Treg using interfacial science.

(3) Education

In the Graduate School of Medical and Dental Sciences, we provide the lectures entitled “biological functional materials science”, “human environment medical engineering”, and “functional materials science”.

(4) Publications

[Original Articles]

1. Naoko Nakamura, Kiriko Sugano, Kwangwoo Nam, Tsuyoshi Kimura, Toshiya Fujisato, Akio Kishida. A Basic Study of Osteogenesis between Decellularized Cortical Bone Pieces for Bone Graft Construction Advanced Biomedical Engineering. 2014.01; 2; 95-100

2. Rie Matsushima, Kwangwoo Nam, Yukiko Shimatsu, Tsuyoshi Kimura, Toshiya Fujisato, Akio Kishida. Decellularized dermis-polymer complex provides a platform for soft-to-hard tissue interfaces. Mater Sci Eng C Mater Biol Appl. 2014.02; 35; 354-362

3. Yuki Nagaoka, Hiroshi Yamada, Tsuyoshi Kimura, Akio Kishida, Toshiya Fujisato, Kazuo Takakuda. Reconstruction of small diameter arteries using decellularized vascular scaffolds. J Med Dent Sci. 2014.03; 61(1); 33-40

4. Y.Sawa, E.Tatsumi, T.Tsukiya, K.Matsuda, K.Fukunaga, A.Kishida, T.Masuzawa, G.Matsumiya, A.Myoui, M.Nishimura, T.Nishimura, T.Nishinaka, E.Okamoto, S.Tokunaga, T.Tomo, Y.Yagi, T.Yamaoka. Journal of Artificial Organs 2013:the year in review Journal of Artificial Organs. 2014.03; 17(1); 1-8

5. Satoru Nishino, Akio Kishida, Hidekazu Yoshizawa, Koichiro Shiomori. A Protein Extraction System with Water/Oil Microemulsion formed by a Biodegradable Polymer Surfactant Solvent Extraction Research and Development, Japan . 2014.05; 21(1); 47-54

6. Erna G. Santoso, Keita Yoshida, Yasushi Hirota, Masanori Aizawa, Osamu Yoshino, Akio Kishida, Yutaka Osuga, Shigeru Saito, Takashi Ushida, Katsuko S.Furukawa. Application of Detergents or High Hydrostatic Pressure PLOS ONE. 2014.07; 9(7); e103201

7. Jun Negishi, Yoshihide Hashimoto, Kwangwoo Nam, Tsuyoshi Kimura, Seiichi Funamoto, Akio Kishida. Application of a vacuum pressure impregnation technique for rehydrating decellularized tissues. Tissue Eng Part C Methods. 2014.09; 20(9); 724-730

8. Marie Shimada, Masaaki Ozawa, Kojiro Iwamoto, Yoshiyasu Fukuyama, Akio Kishida, Ayumi Ohsaki. A Lanostane Triterpenoid and Three Cholestane Sterols from Tilia kiusiana Chemical and Pharmaceutical Bulletin . 2014.09; 62(9); 937-941

9. Jun Negishi, Kwangwoo Nam, Tsuyoshi Kimura, Yoshihide Hashimoto, Seiichi Funamoto, Tetsuya Higami, Toshiya Fujisato, Akio Kishida. Fabrication of a heparin-PVA complex hydrogel for application as a vascular access. J Biomed Mater Res B Appl Biomater. 2014.10; 102(7); 1426-1433

10. Ping Li Wu, Tsuyoshi Kimura, Hiroko Tadokoro, Kwangwoo Nam, Toshiya Fujisato, Akio Kishida. Relation between the tissue structure and protein permeability of decellularized porcine aorta. Mater Sci Eng C Mater Biol Appl. 2014.10; 43; 465-471

11. Tsuyoshi Kimura, Akira Okuno, Yuichi Ohya, Akio Kishida. Assembly of poly(vinyl alcohol) and DNA via Hydrogen Bonds Induced by High Hydrostatic Pressurization Sensors and Materials. 2014.10; 26(8); 607-614

12. Kwangwoo Nam, Takuya Iwata, Tsuyoshi Kimura, Hiroki Ikake, Shigeru Shimizu, Toru Masuzawa, Akio Kishida. Adhesion Between Polymer Surface Modified by Graft Polymerization and Tissue During Surgery Using an Ultrasonically Activated Scalpel Device Journal of Applied Polymer Science . 2014.10; 131(20);

13. Kwangwoo Nam, Yukiko shimatsu, Rie Matsushima, Tsuyoshi Kimura, Akio Kishida. In-situ polymerization of PMMA inside decellularized dermis using UV photopolymerization European Polymer Journal. 2014.11; 60; 163-171

14. Kwangwoo Nam, Ji-Hun Seo, Tsuyoshi Kimura, Nobuhiko Yui, Akio Kishida. Relationships between molecular mobility, fibrillogenesis of collagen molecules, and the inflammatory response: An experimental study in vitro and in vivo Journal of Colloid and Interface Science . 2014.11; 433; 16-25

15. Kwangwoo Nam, Rie Matsushima, Tsuyoshi Kimura, Toshiya Fujisato, Akio Kishida. In vivo characterization of a decellularized dermis-polymer complex for use in percutaneous devices. Artif Organs. 2014.12; 38(12); 1060-1065

[Misc]

1. Aki Matsuhashi, Kwangwoo Nam, Tsuyoshi Kimura, Akio Kishida. Fundamental study on controlling preparative condisition of fibrillized collagen microsphere resembling the extracellular matrix mcrostructure Annual Reports of the Institute of Biomaterials and Bioengineering. 2014.12; 48; 17-21

[Conference Activities & Talks]

1. K.Nam、T.Kimura、A.Kishida. Preparation of an Artificial Skin by Replication of Its Native Structure Using Collagen-GAG Complex. SFB 2014 ANNUAL MEETING AND EXPOSITION 2014.04.16 Denver,USA

2. T.Kimura、M.Ueki、N.Nakamura、K.Nam、T.Fujisato、A.Kishida. Preparation of a Decellularized Tumor using High Hydrostatic Pressure (HHP) Technology. SFB 2014 ANNUAL MEETING AND EXPOSITION 2014.04.16 Denver,USA

3. N.Nakamura、K.Nam、T.Kimura、T.Fujisato、T.Tsuji、H.Iwata、A.Kishida. Preparation of Microenvironment for HSPC homing using HHP Decellularization Method. SFB 2014 ANNUAL MEETING AND EXPOSITION 2014.04.16 Denver,USA

4. P.Wu、T.Kimura、H.Tatokoro、K.Nam、A.Kishida. Study on the Physical Properties of Intimamedia of Decellularized Porcine Aorta. SFB 2014 ANNUAL MEETING AND EXPOSITION 2014.04.16 Denver,USA

5. K.Nam、R.Matsushima、Y.Shimatsu、T.Kimura、A.Kishida. Preparation and Characterization of a Decellularized Dermis-polymer Complex for the use in Percutaneous Devices. SFB 2014 ANNUAL MEETING AND EXPOSITION 2014.04.16 Denver,USA

6. Kimura T、Honda S、Nakamura N、Soma T、Nam K、Fujisato T、Kishida A. Neural cell culture on decellularized brain prepared using high hydrostatic pressure method. TERMIS EU 2014/CHAPTER MEETING 2014.06.10 JENOVA、ITALY

7. Akio Kishida. Study on the adhension between the surface-modified polymer and tissues using ultrasonically activated scalpel. MACRO2014 2014.07.06 CHIANG MAI,THAILAND

8. Tsuyoshi Kimura、Satoshi Honda、Naoko Nakamura、Takaahiro Soma、Kwangwoo Nam、Ikuro Suzuki、Toshiya Fujisato、Akio Kishida. Preparation of a decellularized brain using high hydrostatic pressure and cellular culture on it. IUMRAS-ICA2014 2014.08.24 Fukuoka,Japan

9. Naoko Nakamura、Kwangwoo Nam、Tsuyoshi Kimura、Toshiya Fujisato、Takashi Tsuji、Hiroo Iwata、A.Kishida. HSCs Recruited by Decellularized Cancellous Bonce Induces Ectopic Hematopoiesis. IUMRAS-ICA2014 2014.08.24 Fukuoka,JAPAN

10. K.Nam、T.Kimura、A.Kishida. PREPARATION OF FIBRILLZED COLLAGEN-GLYCOSAMINOGLYCAN COMPLEX GEL FOR TISSUE REGENERATION . Polymer Networks Group Meeting and the Gel Symposium 2014 2014.11.10 Tokyo,Japan

11. N.Nakamura、K.Nam、T.Kimura、T.Fujisato、T.Tsuji、H.Iwata、A.Kishida. The appropriate Microenvironment Prepared by Decellularized Cancellous bone Induced Ectopic Itematoposiesis. TERMIS-AM Annual Conference and Exposition 2014.12.13 Washington,USA

12. A.Matsuhashi、K.Nam、T.Kimura、A.Kishida. Preparation of Fibrillized Collagen Microsphere and Evaluation of Physical and Biological Properties. TERMIS-AM Annual Conference and Exposition 2014.12.13 Washington,USA

13. T.Kimura、S.Honda、T.Soma、K.Nam、T.Fujisato、I.Suzuki、A.Kishida. Neural Cell Behavior on a Decellularized Brain Prepared by High-hydrostatic Pressure. TERMIS-AM Annual Conference and Exposition 2014.12.13 Washington,USA

Organic and Medicinal Chemistry

Professor Hiroyuki KAGECHIKA
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Assistant Professor Mari YUASA
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Yumeto Yamauchi
Hidekazu Yokoo

(1) Outline

1) Medicinal Chemistry of Retinoids
Retinoids regulates various significant biological phenomena, such as cell differentiation, proliferation, morphogenesis, metabolism and homeostasis. We have developed novel synthetic retinoid, Am80 (tamibarotene) as drug for acute promyelocytic leukemia. Novel synthetic retinoids have been developed foe clinical use in the field of autoimmune diseases, neurodegenerative diseases, metabolic syndromes.
2) Medicinal Chemistry of Nuclear Receptors
Small hydrophobic molecules such as steroid hormones and activated vitamins A/D control various biological phenomena, including growth, development, metabolism, and homeostasis, by binding to and activating specific nuclear receptors. Nuclear receptors have become one of the most significant molecular targets for drug discovery in the fields of cancer, metabolic syndrome, autoimmune diseases, and so on. In this project, novel ligands of various nuclear receptors have been developed.
3) Development of Novel Functional Fluorescent Molecules for Elucidation of Intracellular Signal Transduction Pathways
Functional fluorescent molecules useful in many fields of scientific research, including analytical chemistry or cell biology have been developed.
4) Aromatic Architecture Based on the Steric Properties of N-Methylated Amides
The amide bond structure of amide derivatives often plays a key role in functions such as molecular recognition events or biological activities. In contrast to the extended trans structures of most secondary amides, the corresponding N-methylated compounds exist in cis form in the crystals and predominantly in cis form in various solvents. The cis conformational preference is useful as a building block to construct aromatic molecules with unique crystal or solution structures.

(2) Lectures & Courses

Organic and Medicinal Chemistry covers several aspects of organic chemistry, medicinal chemistry and chemical biology. Through this course, students are expected to understand the fundamental knowledge, recent topics, and experimental techniques related to these fields.

(3) Publications

[Original Articles]

1. Ma, F.; Liu, S.-Y.; Razani, B.; Arora, N.; Li, B.; Kagechika, H.; Tontonoz, P.; Nunez, V.; Ricote, M.; Cheng, G.. Retinoid X receptor a attenuates host antiviral response by suppressing type I interferon Nature Communication. 2014; 5; 5494

2. Mori, S.; Takagaki, R.; Fujii, S.; Matsumura, M.; Tanatani, A.; Kagechika, H.. Lipase-catalyzed asymmetric acylation of boron cluster-containing secondary alcohols Tetrahedron Asymmetry. 2014; 25; 1505-1512

3. Canavan, M.; McCarthy, C.; Ben Larbi, N.; Dowling, J. K.; Collins, L.; O'Sullivan, F.; Hurley, G.; Murphy, C.; Quinlan, A.; Moloney, G.; Darby, T.; MacSharry, J.; Kagechika, H.; Moynagh, P.; Melgar, S.; Loscher, C. E.. Activation of liver X receptor suppresses the production of the IL-12 family of cytokines by blocking nuclear translocation of NF-kappa Bp50 Innate Immunology. 2014; 20; 675-687

4. Shiraishi, T.; Saito, T.; Kagechika, H.; Hirano, T.. Development of a novel fluorescent sensor to detect a specific range of pH Tetrahedron Letters. 2014; 55; 6784-6786

5. Fujii, S.; Sekine, R.; Kano, A.; Masuno, H.; Songkram, C.; Kawachi, E.; Hirano, T.; Tanatani, A.; Kagechika, H.. Structural development of p-carborane-based potent non-secosteroidal vitamin D analogs Bioorganic Medicinal Chemistry. 2014; 22; 5891-5901

6. Fujii, S.; Nakano, E.; Yanagid, N.; Mori, S.; Masuno, H.; Kagechika, H.. Development of p-carborane-based nonsteroidal progesterone receptor antagonists Bioorganic Medicinal Chemistry. 2014; 22; 5329-5337

7. Fujii, S.; Kano, A.; Masuno, H.; Songkram, C.; Kawachi, E.; Hirano, T.; Tanatani, A.; Kagechika, H.. Design and synthesis of tetraol derivatives of 1,12-dicarba-closo-dodecaborane as non-secosteroidal vitamin D analogs Bioorganic Medicinal Chemistry Letters. 2014; 24; 4515-4519

8. Fujii, S.; Yamada, A.; Nakano, E.; Takeuchi, Y.; Mori, S.; Masuno, H.; Kagechika, H.. Design and synthesis of nonsteroidal progesterone receptor antagonists based on C,C' -diphenylcarborane scaffold as a hydrophobic pharmacophore Europian Journol of Medicinal Chemistry. 2014; 84; 264-277

9. Fujii, S.; Kobayashi, T.; Nakatsu, A.; Miyazawa, H.; Kagechika, H.. Synthesis and Structure–Activity Relationship Study of Triazine-Based Inhibitors of the DNA Binding of NF-κ B Chemical Pharmaceutical Bulletin. 2014; 62; 700-708

10. Yang, Z. Y.; Nakagawa, K.; Sarkar, A.; Maruyama, J.; Iwasa, H.; Bao, Y. J.; Ishigami-Yuasa, M.; Ito, S.; Kagechika, H.; Hata, S.; Nishina, H.; Abe, S.; Kitagawa, M.; Hata, Y.. Screening with a Novel Cell-Based Assay for TAZ Activators Identifies a Compound That Enhances Myogenesis in C2C12 Cells and Facilitates Muscle Repair in a Muscle Injury Model Molecular Cellular Biology. 2014; 34; 1607-1621

11. Uruno, A.; Saito-Hakoda, A.; Yokoyama, A.; Kogure, N.; Matsuda, K.; Parvin, R.; Shimizu, K.; Sato, I.; Kudo, M.; Yoshikawa, T.; Kagechika, H.; Iwasaki, Y.; Ito, S.; Sugawara, A.. Retinoic acid receptor-α up-regulates proopiomelanocortin gene expression in AtT20 corticotroph cells. Endocrine Journol. 2014; 61; 1105-1114

12. Shinya Fujii, Atsushi Kano, Chalermkiat Songkram, Hiroyuki Masuno, Yoshiyuki Taoda, Emiko Kawachi, Tomoya Hirano, Aya Tanatani, Hiroyuki Kagechika. Synthesis and structure-activity relationship of p-carborane-based non-secosteroidal vitamin D analogs. Bioorg. Med. Chem.. 2014.02; 22(4); 1227-1235

[Misc]

1. Hiroyuki Kagechika. medicinal chemistry of nuclear receptors 2014; 32; 299-305
2. Mari Yuasa, Hiroyuki Kagechika. Tecknology in Chemical Biology Research 2014; 53; 407-410
3. Minoru Imai, Hiroyuki Kagechika. Develpmnt of anticancer drugs targeting retinoid nuclear receptors 2014; 249; 1189-1193
4. Shinya Fujii, Aya Tanatani, Tomoya Hirano, Hiroyuki Kagechika. Development of nonsecosteroidal vitamin D derivatives bearing carborane as hydrophobic pharmacophore 2014; 88; 389-395

[Conference Activities & Talks]

1. Takashi Fujiwara, Asuka Takaguchi, Syuichi Mori, Tomoya Hirano, Hiroyuki Kagechika. Development of screening method for histone methyl transferase activity. 2014.03 Nagoya, Japan
2. Takuya Shiraishi, Tomoya Hirano, Takashi Fujiwara, Hiroyuki Kagechika. Development of Fluorescent ligands for estrogen receptors. 2014.03 Kumamoto, Japan
3. Toshiki Saito, Takuya Shiraishi, Tomoya Hirano, Hiroyuki Kagechika. Development of novel fluorescent sensors whose functions change by Click reaction. 2014.03 Kumamoto, Japan
4. Kenji Hatta, Emiko Kawachi, Hiroyuki Masuno, Fujii Shinya, Hiroyuki Kagechika. Development of novel vitamin D analogs with carborane moiety. 2014.03 Kumamoto, Japan
5. Yohei Watanabe, Syuichi Mori, Mari Yuasa, Hiroyuki Kagechika. Development of novel Ca modulators. 2014.03 Kumamoto, Japan
6. Tomoya Hirano, Takuya Shiraishi, Toshiki Saito, Hiroyuki Kagechika. Development of fluorescent sensors based on Fluorescent molecule library. 2014.06 Osaka, Japan
7. Shinya Fujii, Ayumi Yamada, Shuichi Mori, Hiroyuki Kagechika. Development of novel PR antagonists based on the structure of curcumin. 2014.06 Osaka, Japan
8. Syuichi Mori, Yohei Watanabe, Mari Yuasa, Hiroyuki Kagechika. Novel Store-Operated Calcium Entry (SOCE) inhibitors. 2014.06 Osaka, Japan
9. Shigeru Ito, Kentaro Nakagawa, Zeyu Yang, Mari Yuasa, Hiroyuki Kagechika, Yutaka Hata. Development of modulators of TAZ. 2014.06 Osaka, Japan
10. Hiroyuki Kagechika. Development of Novel Synthetic Retinoids with Unique Hydrophobic Core Structure. FASEB 2nd International retinoid meeting 2014.06.05 Chicago, USA
11. Mari Yuasa, Shuichi Mori, Yohei Watanabe, Hiroyuki Kagechika. Novel Store-Operated Calcium Entry (SOCE) inhibitors having the retinoid-like structure. FASEB 2nd International retinoid meeting 2014.06.05 Chicago, USA
12. Shinya Fujii, Kenji Hatta, Hiroyuki Masuno, Emiko Kawachi, Hiroyuki Kagechika. Development of nonsecosteroidal vitamin D analogs. 2014.06.14 Himeji, Japan
13. Hiroyuki Kagechika, Eiichi Nakano, Ayumi Yamada, Yuki Takeuchi, Shuichi Mori, Hiroyuki Masuno, Shinya Fujii. Design and Synthesis of C,C' -Diphenylcarborane Derivatives as Novel Progesterone Receptor Antagonists. IMEBoron XV 2014.08 Prague, Czech Republic
14. Shinya Fujii, Shotaro Iihama, Hiroyuki Kagechika. Synthesis and Characterization of Novel m-Ccarborane-Containing Porphyrinoid. IMEBoron XV 2014.08 Prague, Czech Republic
15. Shigeru Ito, Kentaro Nakagawa, Zeyu Yang, Mari Yuasa, Yutaka Hata, Hiroyuki Kagechika. Investigation of regulatory compounds toward transcriptional co-activator TAZ. EMBO Conference Series: Chemical Biology 2014 2014.08 Heidelberg, Germany
16. Tomoya Hirano, Takuya Shiraishi, Toshiki Saito, Hiroyuki Kagechika. Development of multi-functional fluorescent sendors based on fluorescent molecule library. 2014.09 Okayama, Japan

17. Syuichi Mori, Mari Yuasa, Yohei Watanabe, Yuki Oshida, Hiroyuki Kagechika. Inhibition of SOCE by synthetic retinoids. 2014.10.08 Akita, Japan

18. Yumeto Yamauchi, Shinya Fujii, Emiko Kawachi, Hiroyuki Masuno, Hiroyuki Kagechika. Development of AR antagonists bearing silanol functionality. 2014.10.08 Akita, Japan

19. Hitomi Koga, Marie Kinoshita, Shinya Fujii, Hiroyuki Kagechika, Aya Tanatani. Development of AR antagonists bearing coumarin moiety. 2014.10.08 Akita, Japan

20. Tomoya Hirano, Takuya Shiraishi, Toshiki Saito, Hiroyuki Kagechika. Development of Fluorescent Sensors with its Functions Regulated by Chemical or Enzymatic Reaction. 3rd Intrnational Chemical Biology Meeting 2014.11 San Francisco, USA

21. Shuichi Mori, Ryohei Takagaki, Shinya Fujii, Mio Matsumura, Aya Tanatani, Hiroyuki Kagechika. Lipase-catalyzed optical resolution and biological activity of boron-cluster-based progesterone receptor ligands. 3rd Intrnational Chemical Biology Meeting 2014.11 San Francisco, USA

22. Syuichi Mori, Yohei Watanabe, Yuki Oshida, Mari Yuasa, Hiroyuki Kagechika. Development of novel SOCE modulators. 2014.11.27 Kobe, Japan

23. DILiHUMAER AINIWAER, Shigeru Ito, Kentaro Nakagawa, Zeyu Yang, Mari Yuasa, Yutaka Hata, Hiroyuki Kagechika. Development of novel TAZ modulators in Hippo signaling. 2014.11.27 Kobe, Japan

24. Honoka Suzuyama, Yuko Watanabe, Takayasu Mori, Eriko Kikuchi, Mari Yuasa, Shinya Fujii, Shinichi Uchida, Hiroyuki Kagechika. Development of novel inhibitors of WNK signaling. 2014.11.27 Kobe, Japan

25. Yumeto Yamauchi, Shinya Fujii, Hiroyuki Masuno, Emiko Kawachi, Hiroyuki Kagechika. Development of silanol derivatives with AR antagonistic activity. 2014.11.27 Kobe, Japan

26. Hitomi Koga, Marie Kinoshita, Shinya Fujii, Hiroyuki Kagechika, Aya Tanatani. Development of AR antagonists based on coumarin skeleton. 2014.11.27 Kobe, Japan

27. Shuichi Mori, Ryohei Takagaki, Shinya Fujii, Mio Matsumura, Aya Tanatani, and Hiroyuki Kagechika. Lipase-catalyzed asymmetric acylation of boron cluster-containing secondary alcohols. Active Enzyme Molecule 2014 2014.12 Toyama, Japan

28. Synthesis of novel retinoid and relsated compounds. 2014.12.05 Kyoto, Japan

Chemical Bioscience

Professor	Takamitsu HOSOYA
Assistant Professor	Suguru YOSHIDA, Yuto SUMIDA, Takahisa YANO
PD	Fumika KARAKI
Technical Assistant	Tomoe KATO, Yoshihiro MISAWA, Miyuki OKUYAMA, Koji MITSUI, Yuki Hazama
Graduate Students	Takamoto MORITA, Junko TANAKA, Yasutomo HATAKEYAMA, Keisuke UCHIDA, Ken SHIMOMORI, Tomohiro MEGURO, Sayuri GOTO
Undergraduate Student	Fumio TSUKAMOTO
Collaborators	Yasuyuki SUGIMURA, Akira NAGAI

(1) Outline

Development of new organic synthetic methods, new chemical methodologies, and new chemical tools, those are useful for biological and drug discovery researches.

(2) Research

1) Development of new generation and application methods of aryne for the synthesis of various aromatic compounds.
2) Development of new bioconjugation methods using strained alkynes.
3) Target identification of drugs or drug candidates by photoaffinity labeling based on diazido probe method..
4) Development of new molecular ligation methods based on new azido chemistry.
5) Design and synthesis of efficient substrates for bioluminescence reactions and fluorescent probes for bioimaging and diagnosis of diseases.
6) Design and synthesis of new PET (positron emission tomography) probe candidates for in vivo imaging to promote drug discovery.

(3) Publications

[Original Articles]

1. Yoshida S, Uchida K, Hosoya T. Generation of arynes triggered by sulfoxide-metal exchange reaction of ortho-sulfinylaryl triflates. Chem Lett. 2014; 43(1); 116-118

2. Inouye S, Sato J, Sahara-Miura Y, Yoshida S, Hosoya T. Luminescence enhancement of the catalytic 19kDa protein (KAZ) of Oplophorus luciferase by three amino acid substitutions. Biochem Biophys Res Commun. 2014.02; 445(1); 157-162

3. Sumi K, Inoue Y, Nishio M, Naito Y, Hosoya T, Suzuki M, Hidaka H. IOP-lowering effect of isoquinoline-5-sulfonamide compounds in ocular normotensive monkeys. Bioorg Med Chem Lett. 2014.02; 24(3); 831-834

4. Takahashi K, Hosoya T, Onoe K, Doi H, Nagata H, Hiramatsu T, Li XL, Watanabe Y, Wada Y, Takashima T, Suzuki M, Onoe H, Watanabe Y. 11C-Cetrozole: An Improved C-11C-Methylated PET Probe for Aromatase Imaging in the Brain. J Nucl Med. 2014.03; 55(5); 852-857

5. Yoshida S, Misawa Y, Hosoya T. Formal C–H-Azidation Based Shortcut to Diazido Building Blocks for the Versatile Preparation of Photoaffinity Labeling Probes. Eur J Org Chem. 2014.05; (19); 3991-3995

6. Yamamoto M, Onogi H, Kii I, Yoshida S, Iida K, Sakai H, Abe M, Tsubota T, Ito N, Hosoya T, Hagiwara M. CDK9 inhibitor FIT-039 prevents replication of multiple DNA viruses. J Clin Invest. 2014.08; 124(8); 3479-3488

7. Inouye S, Sato J-i, Sahara-Miura Y, Hosoya T, Suzuki T. Unconventional secretion of the mutated 19 kDa protein of Oplophorus luciferase (nanoKAZ) in mammalian cells. Biochem Biophys Res Commun. 2014.08; 450(4); 1313-1319

8. Yoshida S, Nonaka T, Morita T, Hosoya T. Modular synthesis of bis- and tris-1,2,3-triazoles by permutable sequential azide-aryne and azide-alkyne cycloadditions. Org Biomol Chem. 2014.10; 12(38); 7489-7493

9. Yoshida S, Hatakeyama Y, Johmoto K, Uekusa H, Hosoya T. Transient protection of strained alkynes from click reaction via complexation with copper. J Am Chem Soc. 2014.10; 136(39); 13590-13593

10. Yoshida S, Uchida K, Igawa K, Tomooka K, Hosoya T. An efficient generation method and remarkable reactivities of 3-triflyloxybenzyne. Chem Commun (Camb.). 2014.11; 50(95); 15059-15062

11. Sumida Y, Harada R, Kato-Sumida T, Johmoto K, Uekusa H, Hosoya T. Boron-Selective Biaryl Coupling Approach to Versatile Dibenzoxaborins and Application to Concise Synthesis of Defucogilvocarcin M. Org Lett. 2014.11; 16(23); 6240-6243

12. Xu F, Peng L, Shinohara K, Morita T, Yoshida S, Hosoya T, Orita A, Otera J. Substituted 5,6,11,12-Tetradehydrodibenzo[a,e] cyclooctenes: Syntheses, Properties, and DFT Studies of Substituted Sondheimer-Wong Diynes. J Org Chem. 2014.11; 79(23); 11592-11608

[Misc]

1. Suzuki M, Doi H, Koyama H, Zhang Z, Hosoya T, Onoe H, Watanabe Y. Pd0-mediated rapid cross-coupling reactions, the rapid C-[11C] methylations, revolutionarily advancing the syntheses of short-lived PET molecular probes. Chem Rec. 2014.06; 14(3); 516-541

[Conference Activities & Talks]

1. Yoshida S, Shiraishi A, Kanno K, Matsushita T, Johmoto K, Uekusa H, Hosoya T. Molecular conjugation based on enhanced clickability of doubly sterically-hindered aryl azides. 20th International Conference on Organic Synthesis (ICOS-20) 2014.07

2. Yoshida S, Hatakeyama Y, Johmoto K, Uekusa H, Hosoya T. A Transient Protection of Strained Alkyne from Click Reaction by the Complexation with Copper. 26th International Conference on Organometallic Chemistry (ICOMC2014) 2014.07

3. Takahashi K, Hosoya T, Takashima T, Tanaka M, Ishii A, Nakatomi Y, Tazawa S, Takahashi K, Shiomi S, Wada Y, Watanabe Y. PET Imaging of aromatase expression in human brain and its associations with characters and traits. World Molecular Imaging Congress 2014 (WMIC 2014) 2014.09

4. Hosoya T. Novel synthetic approaches to diazido probes for target identification by photoaffinity labeling. The 3rd International Symposium on Chemical Biology of Natural Products: Target ID and Regulation of Bioactivity 2014.10

5. Morooka S, Okuno Y, Hosoya T, Hagiwara M, Yoshimura N. Development of new anti-VEGF drug by SRPK1 inhibitor screening. European Association for Vision and Eye Research (EVER 2014) 2014.10

Metallic Biomaterials

Yusuke TSUTSUMI Assoc Prof
Takao HANAWA Prof
Maki ASHIDA Assist Prof
Peng CHEN Assist Prof
Hisashi DOI Assist Prof
Toshie NAKANISHI Secretary
Tomoko SETOGUCHI Secretary

(1) Outline

1. Bio-functionilization of metals with surface modification
Bio-functionalization of metals is investigated with surface treatment techniques, such as molecule immobilization and anodic oxidation. These surface treatments make it possible to inhibit protein adsorption, platelet adhesion, and biofilm formation, and to enhance wear resistance and hard-tissue compatibility.
2. Development of novel alloys and porous composites for biomedical applications
Novel alloy systems for biomedical applications are designed from the viewpoints of mechanical properties and biocompatibility. Co-Cr-Mo alloys having high strength and ductility for dental applications are developed. The porous alloys having low Young' s modulus are obtained with selective laser melting technique.
3. Development of Zr-based alloys for minimizing MRI artifacts
Zr-based alloys with low magnetic susceptibility, high strength and corrosion resistance are investigated for minimizing MRI artifact by controlling their microstructure and constituent phase for aneurysm clips, artificial joints, and dental implants, etc.
4. Effort to minimalize metal allergy
Countermeasure techniques for metal ion release from metallic biomaterials which causes metal allergy are investigated. Novel reagents of patch testing for the detection of sensitization to metal ions are developed.

(2) Lectures & Courses

Metallic biomaterials play an important role as medical devices. Our laboratory mainly deals with effects of crystal structure, process, and thermal treatment on mechanical properties (e.g. strength or toughness). We also focus on structure and property of nanometer-scaled surface phenomena: Formation of living tissue on metals, especially, reactions between biomolecules or cells and metals, changes in surface oxide layers in living tissues, and electrochemical property of metallic biomaterials. The aim of the education is perfect understanding of metallic biomaterials, enabling students to select a proper material for medical treatments or researches.

(3) Publications

[Original Articles]

1. Hayashi R, Ueno T, Migita S, Tsutsumi Y, Doi H, Ogawa T, Hanawa T, Wakabayashi N. Hydrocarbon deposition attenuates osteoblast activity on titanium J. Dent. Res.. 2014; 93; 698-703

2. Hieda J, Niinomi M, Nakai M, Cho K, Mohri T, Hanawa T. Adhesive strength of medical polymer on anodic oxide nanostructures fabricated on biomedical β-type titanium alloy Mater. Sci. Eng. C. 2014; C36; 244- 251

3. Park JW, Kim JM, Lee HI, Jeong SH, Suh JY, Hanawa T. Bone healing with oxytocin-loaded microporous alpha-TCP bone substitute in ectopic bone formation model and crirical-sized osseous defect of rat J. Clin. Periodontol. 2014; 41; 181-190

4. Shimogishi M, Tsutsumi Y, Kuroda S, Munakata M, Hanawa T, Kasugai S. Effects of acidic sodium fluoride-treated, commercially pure titanium on periodontal pathogens and rat bone marrow cells Dent. Mater. J.. 2014; 33; 70-78

5. Miyara K, Yahata Y, Hayashi Y, Tsutsumi Y, Ebihara A, Hanawa T, Suda H. The influence of heat treatment on the mechanical properties of Ni-Ti file materials Dent. Mater. J.. 2014; 33; 27-31

6. Shinonaga T, Tsukamoto M, Nagai A, Yamashiata K, Hanawa T, Matsushita N, Xie G, Abe N. Cell apreading on titanium dioxide film formed and modified with aerosol beam and femtosecond laser Appl. Surf. Sci.. 2014; 288; 649-653

7. Hastuty S, Tada E, Nishikata A, Tsutsumi Y, Hanawa T. Improvement of pitting corrosion resistance of Type 430 stainless steel by electrochemical treatments in a concentrated nitric acid ISIJ Int.. 2014; 54; 199-205

8. Piao J, Miyara K, Ebihara A, Nomura N, Hanawa T. Correlation between cyclic fatigue and the bending properties of nickel titanium endodontic instruments Dent. Mater. J.. 2014; 33; 539-544

9. Yu M, Chen P, Tsutsumi Y, Doi H, Ashida M, Kasugai S, Hanawa T. Formation of white oxide layer on Zr-14Nb alloy using thermal treatment Dent. Mater. J.. 2014; 33; 490-498

10. Kawabe A, Nakagawa I, Kanno Z, Tsutsumi Y, Hanawa T, Ono T. Evaluation of biofilm formation in the presence of saliva on poly(ethylene glycol)-deposited titanium Dent. Mater. J.. 2014; 33; 638-647

11. Nagai A, Suzuki Y, Tsutsumi Y, Nozaki K, Wada N, Katayama K, Hanawa T, Yamashita K. Anodic oxidation of a Co-Ni-Cr-Mo alloy and its inhibitory effect on platelet activation J Biomed. Mater. Res. B . 2014; 102B; 659-666

12. Edalati K, Ashida M, Horita Z, Matsui T, Kato H. Wear resistance and tribological features of pure aluminum and Al-Al_2O_3 composites consolidated by high-pressure torsion Wear. 2014.02; 310; 83-89

13. Tsutsumi Y. Corrosion resistance of Zr as metallic biomaterials Corros Eng. 2014.06; 63(6); 281-286

14. Tsutsumi Y. Buofunctionalization using inorganic-metallic composite surface -Formation of porous oxide layer on metal surface by micro-arc oxidation treatment- Journal of Japanese Society for Biomaterials. 2014.07; 32(3); 188-195

15. Kajima Y, Doi H, Takaichi A, Hanawa T, Wakabayashi N. Surface characteristics and castability of Zr-14Nb alloy dental castings Dent. Mater. J.. 2014.10; 33(5); 631-637

16. Ahmed Jamleh, Alireza Sadr, Naoyuki Nomura, Arata Ebihara, Yoshio Yahata, Takao Hanawa, Junji Tagami, Hideaki Suda. Endodontic instruments after torsional failure: nanoindentation test. Scanning. 36(4); 437-443

[Misc]

1. Niinomi M, Nakai M, Hieda J, Cho K, Goto T, Hanawa T. Biofunctional surface layer and its bonding strength in low modulus β-type titanium alloy for biomedical applications Mater Sci Forum. 2014; 783-786; 78-84

2. Niinomi M, Nakai M, Hieda J, Cho K, Kasuga T, Hattori T, Goto T, Hanawa T. A review of surface modification of a novel low modulus β-type titanium alloy for biomedical applications Int. J. Surf. Sci. Eng.. 2014; 8; 138-151

[Conference Activities & Talks]

1. Hanawa T. Biofunctionalization of artificial metallic materials. The 5th International Symposium for Interface Oral Health Science "Innovative Research for Biosis-Abiosis Intelligent Interface Symposium" 2014.01.20
2. Hanawa T. The TMDU and research on biomaterials at TMDU. 2014.03.10
3. Hanawa T. Research and development of metallic biomaterials meeting clinical demands. 2014.03.11
4. Hanawa T. Metallic biomaterials-current status and future. 2014.03.12
5. Hanawa T. Biofunctionalizxation of metallic materials and comparison with zirconia -Trap into ready-made results and bottleneck for utilization. The 9th Scientific Meeting of Asian Academy of Osseointegration (AAO2014) 2014.07.04
6. Hanawa T. Creation on biosis-abiosis intelligent interface. 9th International Workshop on Biomaterials in Interface Science 2014.08.26 Hong Kong, China
7. Hanawa T, Fukushima O, Tsutsumi Y, Doi H, Ashida M. Mechanism of electrodeposition of poly(ethylene glycol) to titanium surface. 26th Annual Conference of the European Society for Biomaterials (ESB 2014) 2014.08.31 Liverpool, UK
8. Tsutsumi Y, Niizeki N, Chen P, Ashida M, Doi H, Noda K, Hanawa T. Electrochemical surface treatment for making antibacterial porous oxide layer on Ti. 26th Annual Conference of the European Society for Biomaterials (ESB 2014) 2014.08.31 Liverpool, UK
9. Ashida M, Chen P, Doi H, Tsutsumi Y, Hanawa T, Horita Z. Microstructures and mechanical properties of Ti-6Al-7Nb processed by high-pressure torsion. 11th International Conference on Technology of Plasticity, ICTP 2014 2014.10.23 Nagoya, Japan
10. Fukuhara Y, Inoue Y, Tsutsumi Y, Chen P, Ishihara K, Hanawa T. Electrodeposition of phospholipid polymer to titanium to improve the platelet adhesion. The 7th International Symposium on Surface Science(ISSS) 2014.11.03 Shimane, Japan
11. Chen P, Ashida M, Tsutsumi Y, Doi H, Hanawa T. In vitro differentiation and calcification of osteoblast -like cell cultured on metals. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5) 2014.11.19 Tokyo, Japan
12. Niizeki N, Tsutsumi Y, Chen P, Ashida M, Doi H, Noda K, Hanawa T. Development of antibacterial titanium surface by simple electrochemical treatment. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5) 2014.11.19 Tokyo, Japan
13. Tanaka Y, Tsutsumi Y, Chen P, Ashida M, Doi H, Shimojo M, Hanawa T. Real-time analysis of protein adsorption behavior on metals by electrochemical impedance spectroscopy. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5) 2014.11.19 Tokyo, Japan
14. Tsutsumi Y, Ashida M, Chen P, Doi H, Hanawa T. Enhancement of bioactivity of zirconium by combination of simple electrochemical treatments. The 5th International Symposium on Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (AMDI-5) 2014.11.19 Tokyo
15. Chen P, Tsutsumi Y, Ashida M, Doi H, Hanawa T. Cellular and gene expression responses in osteoblast-like cells to metals. Society for Biomaterials 2015 Annual Meeing and Exposition (SFB2015) Charlotte, NC, USA

[Patents]

1. Co-Cr-Mo alloy for a living body, Announcement Number：CN 201280051075

Medical Robotics

Gen Endo

(1) Outline

Medical Robotics Lab. focuses on the development of practical medical devices and systems based on robotics. Our research interests cover mechanical design and its control, wire-driven mechanism, welfare robotics and multidisciplinary collaborative research among medical, dental and engineering.

(2) Research

1) Study on a Mobile Robot to Support Home Oxygen Therapy Patients
2) Wire-driven Mechanism with High Strength Synthetic Fiber Ropes – Basic Characteristics and its Application
3) Development of a Minimal Invasive Forceps Manipulator
4) Development of a New Medical Devices

(3) Education

Learn design and control of medical devices based on robotics. Especially, actual demands from medical / welfare practices have the first priority for the development. Practice and experience from initial idea to final hardware prototyping so as to cultivate basic abilities as an engineer.

(4) Lectures & Courses

Enhance the ability to design and develop medical devices based on robotics.

(5) Publications

[Original Articles]

1. Alex M. Kaneko, Gen Endo, Edwardo F. Fukushima. A Discrimiation Method for Landmines and Metal Fragments Using Metal Detectors The Journal of ERW and Mine Action. 2014.04; 18(1); 59-65
2. Yasuyuki Yamada, Gen Endo, Edwardo F. Fukushima. Pneumatic walking assistive device for use over long period Advanced Robotics. 2014.07;

[Conference Activities & Talks]

1. Yasuyuki Yamada, Gen Endo, Edwardo F. Fukushima. Blade-Type Crawler Vehicle Bio-Inspired by a Wharf Roach. International Conference on Robotics and Automation 2014 2014.05.31 Hong Kong
2. Hirotaka Komura, Satoshi Kitano, Hiroya Yamada, Gen Endo. Gliding, Swimming and Walking: Development of Multi-Functional Underwater Robot Glide Walker. International Conference on Robotics and Automation 2014 2014.05.31 Hong Kong

3. Atsushi Horigome, Hiroya Yamada, Gen Endo, Shin Sen, Shigeo Hirose, Edwardo F. Fukushima. Development of a Coupled Tendon-Driven 3D Multi-Joint Manipulator. International Conference on Robotics and Automation 2014 2014.05.31 Hong Kong

Molecular Cell Biology

Professor Hiroshi Shibuya
Associate Professor Toshiyasu Goto
Assistant Professor Atsushi Sato

(1) Lectures & Courses

Various signaling molecules inducing the cell-growth and differentiation regulate morphogenesis and organogenesis of the vertebrate. The failure of these signal molecules has also been caused with induction of the diseases. Therefore, the elucidation of signal transduction network regulating generation and differentiation is important upon clarifying the mechanism of morphogenesis, organogenesis and diseases. Our research aim is to clarify the signal transduction network regulating the mechanisms of morphogenesis and organogenesis in developmental process. We serve these research and following education to provide graduate students who will become senior scientists in life sciences.

(2) Publications

[Original Articles]

1. Nobuyuki Shimizu, Shizuka Ishitani, Atsushi Sato, Hiroshi Shibuya, Tohru Ishitani. Hipk2 and PP1c cooperate to maintain Dvl protein levels required for Wnt signal transduction. Cell Rep. 2014.09; 8(5); 1391-1404

2. Ogawa Y., Nonaka Y., Goto T., Ohnishi E., Hiramatsu T., Kii I., Yoshida M., Ikura T., Onogi H., Shibuya H., Hosoya T., Ito N., Hagiwara M.. Development of a novel selective inhibitor of the Downsyndrome-related kinase Dyrk1A. (INPRES) Nat. Commun..

[Conference Activities & Talks]

1. Shimizu N, Ishitani S, Sato A, Shibuya H, Ishitani T. Hipk2 and PP1c-mediated dephosphorylation of Dishevelled sustains Wnt signal transduction. 11th International Conference on Zebrafish Development and Genetics 2014.06.27 Madison, Wisconsin, USA

Developmental and Regenerative Biology

Professor Hiroshi Nishina, Ph.D.
Associate Professor Jun Hirayama, Ph.D.
Assistant Professor Yoichi Asaoka, Ph.D.
Postdoctoral fellow Norio Miyamura, Ph.D.
Technical Assistants Misako Namae
Secretary Keiko Otaka

(1) Outline

Our goal is to define the molecular basis for the mechanism of organ formation and regeneration using knockout mice and mutant fishes. To accomplish this goal, we have focused on defining signaling molecules and pathways that regulate liver formation and stress responses. Moreover, we are trying to establish a cell therapy for intractable diseases such as liver failures using self-bone marrow cells. Our study will provide new insights into understanding the precise molecular mechanisms that underlie organ failures found in human disease and will lead to the development of new rational therapy for the diseases.

(2) Research

1) Studies on the stress-activated protein kinase (SAPK/JNK) signaling pathway
2) Studies on the Hippo signaling pathway
3) Studies on the cell differentiation of mouse ES cells
4) Studies on liver formation using a small fish, Medaka, Oryzias Latipes
5) Studies on liver regeneration using mice
6) Studies on circadian clock using zebrafish and mice

(3) Publications

[Original Articles]

1. Yoichi Asaoka, Shoji Hata, Misako Namae, Makoto Furutani-Seiki, Hiroshi Nishina. The Hippo pathway controls a switch between retinal progenitor cell proliferation and photoreceptor cell differentiation in zebrafish. PLoS ONE. 2014; 9(5); e97365

2. Tadanori Shimomura, Norio Miyamura, Shoji Hata, Ryota Miura, Jun Hirayama, Hiroshi Nishina. The PDZ-binding motif of Yes-associated protein is required for its co-activation of TEAD-mediated CTGF transcription and oncogenic cell transforming activity. Biochem. Biophys. Res. Commun.. 2014.01; 443(3); 917-923

3. Keita Nakanaga, Kotaro Hama, Kuniyuki Kano, Takanao Sato, Hiroshi Yukiura, Asuka Inoue, Daisuke Saigusa, Hidetoshi Tokuyama, Yoshihisa Tomioka, Hiroshi Nishina, Atsuo Kawahara, Junken Aoki. Over-expression of autotaxin, a lysophosphatidic acid-producing enzyme, enhances cardia bifida induced by hypo-sphingosine-1-phosphate signaling in zebrafish embryo. J. Biochem.. 2014.04; 155(4); 235-241

4. Zeyu Yang, Kentaro Nakagawa, Aradhan Sarkar, Junichi Maruyama, Hiroaki Iwasa, Yijun Bao, Mari Ishigami-Yuasa, Shigeru Ito, Hiroyuki Kagechika, Shoji Hata, Hiroshi Nishina, Shinya Abe, Masanobu

Kitagawa, Yutaka Hata. Screening with a novel cell-based assay for TAZ activators identifies a compound that enhances myogenesis in C2C12 cells and facilitates muscle repair in a muscle injury model. Mol. Cell. Biol.. 2014.05; 34(9); 1607-1621

5. Shuji Terai, Taro Takami, Naoki Yamamoto, Koichi Fujisawa, Tsuyoshi Ishikawa, Yohei Urata, Haruko Tanimoto, Takuya Iwamoto, Yuko Mizunaga, Takashi Matsuda, Takashi Oono, Miho Marumoto, Guzel Burganova, Luiz Fernando Quintanilha, Isao Hidaka, Yoshio Marumoto, Issei Saeki, Koichi Uchida, Takahiro Yamasaki, Kenji Tani, Yasuho Taura, Yasuhiko Fujii, Hiroshi Nishina, Kiwamu Okita, Isao Sakaida. Status and prospects of liver cirrhosis treatment by using bone marrow-derived cells and mesenchymal cells. Tissue Eng Part B Rev. 2014.06; 20(3); 206-210

Immunology

Professor : Takeshi TSUBATA, M.D., Ph.D.
Associate Professor : Takahiro ADACHI, Ph.D.
Assistant Professor : Mitsuhiro SUZUKI, Ph.D.
Assistant Professor :
Naoko MATSUBARA
Miduo XU
Chizuru AKATSU
Lecturer : Ji-Yang WANG
Researcher : Zhihong LIU

Technician :
Yukie KURUSU
Shigeko NAKANO
Haruka MIYAKE
Secretary : Hiroko TAKAHASHI

Graduate Student :
Miao TANG
Toshitaro TAKATA
Aslam MOHAMMMAD
Nazim MEDZHIDOV
Xuyang JIAO
Mayo YOSHIOKA
Yang-Yang FENG

(1) Research

The nature of immune responses depends on whether they respond to protein or non-protein antigens because T lymphocytes recognize only protein antigens. Normal immune system removes pathogens and cancer cells but does not respond to non-microbial foreign substances or self-antigens. Immune responses to non-microbial foreign substances and self-antigens cause allergy and autoimmune diseases, respectively. How the immune system distinguishes pathogens from non-microbial antigens and self-antigens is already clarified for protein antigens. However, little is know about such distinction for non-protein antigens. Immune responses to non-protein antigens play crucial roles in host defense against pathogens such as tuberculosis bacilli and meningococci, and autoimmune diseases such as lupus and immuno-neurological disorders. Thus, immune responses to non-protein antigens constitute a remaining frontier in immunology research. Followings are our research subjects.
1) Elucidation of the mechanisms for humoral immune responses to glycans, glyco-lipids and nucleic acids-related antigens.
2) Elucidation of the role of glycan signals in the regulation of humoral immune responses, and application of glycan signals to therapy.
3) Analysis of pathogenesis of lupus and immuno-neurological disorders.

(2) Education

Lecture course on immunology at the master course aims at giving the students the basic ideas how immune system recognize and respond to the antigens, and how immune system efficiently remove pathogens without responding to self-antigens and environmental antigens. In the lecture course in bioscience at the doctor course, lectures on immune responses are given so that the students are introduced with the current topics in the field of humoral immune responses. Research projects in both master and doctor courses aims at training the students to acquire basic research techniques on immunology, molecular biology and biochemistry, and abilities to conduct cutting-edge research in the field of immunology by themselves under supervision.

(3) Publications

[Original Articles]

1. Naito-Matsui, Y., Takada, S., Kano, Y., Iyoda, T., Sugai, M, Shimizu, A., Inaba, K., Nitschke, L., Tsubata, T., Oka, S., Kozutsumi, Y. and Takematsu, H. . Functional evaluation of activation-dependent alterations in the sialogylcan composition of T cells. J. Biol. Chem. . 2014; 289; 1564-1579

2. Aslam, M., Kishi, Y. and Tsubata, T. . Excess CD40L does not rescue anti-DNA B cells from clonal anergy. F1000Res. 2014.01; 2; 218

3. Tsubata, T. . Siglecs and B cell regulation. In: Taniguchi N., Endo T., Hart G., Seeberger P., Wong C. (Ed.) Glycoscience: Biology and Medicine SpringerReference (www.springerreference.com). Springer-Verlag Berlin Heidelberg. . 2014.04;

4. Kawai, Y., Ouchida, R., Yamasaki, S., Dragone, L., Tsubata, T. and Wang, J.-Y.. LAPTM5 promotes lysosomal degradation of intracellular CD3zeta but not of cell surface CD3 ζ. Immunol. Cell Biol. . 2014.07; 92; 527-534

5. Ouchida. R., Lu. Q., Liu. J., Li. Y., Chu. Y., Tsubata. T. and Wang, J.Y.. Fc μ R interacts and cooperates with the B cell receptor to promote B cell survival. J. Immunol. . 2014.12; 194; 3096-3101

6. Muro R, Nitta T, Okada T, Ideta H, Tsubata T, Suzuki H.. The Ras GTPase-Activating Protein Rasal3 Supports Survival of Naive T Cells. PLoS One.. 2014.12; 10; e0119898.

[Conference Activities & Talks]

1. Mohammad, A., Kishi Y., Weigert, M. G. and Tsubata, T.. Distinct tolerance mechanisms for anti-DNA and anti-Sm B cells.. The 29th Autoimmune Conference 2014.07.12

2. Matsubara, N., Ishida, H. and Tsubata, T.. Synthetic sialosides that regulate CD22/Siglec-2, a B lymphocyte membrane molecule activating SH2-containing phosphatases.. 11th International Conference on Protein Phosphatase. 2014.11.12 Sendai

3. Matsubara, N., Takematsu, H., Ishida, H., Tsubata, T.. Role of CD22/Siglec2 and its ligand in B lymphocyte activation. . Joint annual meeting of SFG &JSCR, Integrating Glycoscience from Biology and Chemistry to Medicine. 2014.11.16 Honolulu, Hawaii (USA)

4. Adachi. T., Yoshikawa. S., Onodera. T., Takahashi. Y. and Karasuyma. H.. In vivo imaging of calcium signaling in B cells of mice expressing the genetically encoded YC3.60 calcium indicator. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.26 Yokohama

5. Matsubara, N., Ishida, H. and Tsubata, T.. CD22-binding synthetic sialosides as a tool to elucidate the role of CD22 cis-ligand and as a novel immunostimulan. Medical Research Institute 40th Anniversary, 13th Surugadai International Symposium & Joint Usage/Research Program of Medical Research Institute International Symposium. 2014.11.28 Tokyo

6. Adachi. T., Yoshikawa. S., Onodera. T., Takahashi. Y. and Karasuyama. H.. In vivo imaging of calcium signaling in B cells of mice expressing the genetically encoded YC3.60 calcium indicator. The 43rd Annual Meeting of the Japanese Society for Immunology 2014.12.08 Kyoto

Epigenetics

Professor Fumitoshi Ishino
Associate Professor Takashi Kohda
Assistant Professor Ryu-ichi Ono
Project Lecturere Jiyoung Lee
Project Assistant Professor Mie Naruse
Project Assistant Professor Masahito Irie
Adjanct Lecturere Shin Kobayashi

(1) Outline

"Epigenetics" coupled with "Genetics" enables us to elucidate several 'genomic functions' in inheritance, development and evolution of organisms including our human beings. Genomic imprinting is one of the mammalian specific gene regulation mechanisms that gives rise to functional differences between paternally- and maternally-derived genomes in development, behavior and growth. Somatic cloned animals give us unique chances to examine 'genetically identical but epigenetically diverged animals'. These studies show us how Epigenetics is important in mammalian biology. Our department focuses these mammalian specific genomic functions to elucidate how these genomic functions work and how new genomic functions have been evolved during evolution. Our final goal is to contribute to the 21th' s medicine and human biology by novel understanding of genomic functions.

(2) Research

1) Genomic imprinting in human and mammalian development.
2) Placenta function and its evolution in mammals.
3) Somatic cloning: its epigenetic effects and application to regenerative medicine.
4) Assisted reproductive technology: its epigenetic effects and safer application.
5) Role of retrotransposon-derived genes in mammalian specific genomic functions.

(3) Education

Graduate School of Medical and Dental Science
Life Science and Technology Track
Bioscience I
Medical and Dental Science and Technology Track
Molecular and Cellular Biology
Develeopmenta and Regenerative Bioscience
Molecular Cell Biology
    Introduction to Human Molecular Genetics

Faculty of Medicine
Molecular Genetics

(4) Lectures & Courses

Obtain basic and applicative knowledges and techniques by challenging cutting-edge themes.

(5) Clinical Services & Other Works

Molecular Biology Society of Japan, Secretary General
Japan Society for Epigenetics, Secretary

(6) Publications

[Original Articles]

1. Kawasaki Y, Lee J, Matsuzawa A, Kohda T, Kaneko-Ishino T, Ishino F.. Active DNA demethylation is required for complete imprint erasure in primordial germ cells. Sci Rep. 2014.01; 4; 3658

2. Oikawa M, Inoue K, Shiura H, Matoba S, Kamimura S, Hirose M, Mekada K, Yoshiki A, Tanaka S, Abe K, Ishino F, Ogura A.. Understanding the X chromosome inactivation cycle in mice: a comprehensive view provided by nuclear transfer. 2014.02; 9(2); 204-211

3. Soma M, Fujihara Y, Okabe M, Ishino F, Kobayashi S.. Ftx is dispensable for imprinted X-chromosome inactivation in preimplantation mouse embryos. Sci Rep. 2014.06; 4; 5181

4. Takahashi S, Lee J, Kohda T, Matsuzawa A, Kawasumi M, Kanai-Azuma M, Kaneko-Ishino T, Ishino F. Induction of the G2/M transition stabilizes haploid embryonic stem cells. Development. 2014.10; 141(20); 3842-3847

5. Kamimura S, Hatanaka Y, Hirasawa R, Matsumoto K, Oikawa M, Lee J, Matoba S, Mizutani E, Ogonuki N, Inoue K, Kohda T, Ishino F, Ogura A. Establishment of paternal genomic imprinting in mouse prospermatogonia analyzed by nuclear transfer. Biol Reprod. 2014.11; 91(5); 120

6. Naruse M, Ono R, Irie M, Nakamura K, Furuse T, Hino T, Oda K, Kashimura M, Yamada I, Wakana S, Yokoyama M, Ishino F, Kaneko-Ishino T. . Sirh7/Ldoc1 knockout mice exhibit placental P4 overproduction and delayed parturition. Development. 2014.12; 141(24); 4763-4771

[Conference Activities & Talks]

1. Masahito Irie, Mie Naruse, Takashi Kohda, Ryuichi Ono, Shigeharu Wakana, Fumitoshi Ishino, Tomoko Kaneko-Ishino. A sushi-ichi retrotransposon-derived Sirh3 is a eutherian specific gene and its knockout mice display decreased daily activity. . Keystone Symposia, Mobile Genetic Elements and Genome Evolution (C2) 2014.03.09

2. Masahito Irie, Mie Naruse, Takashi Kohda, Ryuichi Ono, Shigeharu Wakana, Fumitoshi Ishino and Tomoko Kaneko-Ishino.. A sushi-ichi retrotransposon- derived Sirh3 is a eutherian specific gene and its knockout mice display decreased daily activity.. Keystone Symposia –Mobile Genetic Elements and Genome Evolution 2014.03.10 Santa Fe, New Mexico, USA

3. Fumitoshi Ishino, Mie Naruse, Ryuichi Ono, Kenji Nakamura, Shigeharu Wakana, Minesuke Yokoyama and Tomoko Kaneko-Ishino.. Sirh7, an acquired gene from an LTR retrotranspson in eutherian mammals, plays an essential role in viviparity.. Keystone Symposia –Mobile Genetic Elements and Genome Evolution 2014.03.11 Santa Fe, New Mexico, USA

4. iyoung Lee, Yuki Kawasaki, Ayumu Matsuzawa, Takashi Kohda, Tomoko Kaneko-Ishino and Fumitoshi Ishino.. Active DNA demethylation for complete imprint erasure in primordial germ cells. . Keystone Symposia –Epigenetic Programming and Inheritance 2014.04.07

5. Fumitoshi Ishino, Tomoko Kaneko-Ishino. Roles of retrotransposon-derived genes in placenta formation. Japanese Conference for Laboratory Animal Science and Technology, Sapporo 2014 2014.05.15

6. Kohda T. Development of a novel method to identify the hydroxymethyl cytosine in single base resolution using DNMT1 enzyme. The 8th Annual Meeting of the Japanese Society for Epigenetics 2014.05.25

7. Jiyoung Lee, Yuki Kawasaki, Ayumi Matsuzawa, Takashi Kohda, Tomoko Kaneko-Ishino. Active DNA demethylation during imprint erasure in primordial germ cells. The 8th Annual Meeting of the Japanese Society for Epigenetics 2014.05.27

8. Ryu-ichi Ono, Masato Ikawa, Moe Kitazawa, Tomoko Kaneko-Ishino, Fumitoshi Ishino. Functional analysis on mammalian-specific Peg10 gene. The 8th Annual Meeting of the Japanese Society for Epigenetics 2014.05.27

9. Fumitoshi Ishino, Tomoko Kaneko-Ishino. Genomic imprinting and mammalian evolution.. Symposium on Epigenomes in evolution, the 16th 2014.08.22

10. Irie M, Kohda T, Ono R, Furuse T, Wakana S, Yoshikawa M, Ishino F, Kaneko-Ishino T. Analysis of LTR retrotransposon-derived eutherian-specific gene, Sirh11.. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25

11. Kawasaki Y, Lee J, Matsuzawa A, Kohda T, Kaneko-Ishino T, Ishino F. Active DNA demethylation is required for complete imprint erasure in primordial germ cells. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25

12. Kuroda Y, Kawasaki Y, Kohda T, Ishino F. New method 'EnIGMA': Quantitative sequencing of 5-hydroxymethylcytosine at single base resolution. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25

13. Kohda T, Takagi K, Oikawa M, Ogonuki N, Inoue K, Kaneko-Ishino T, Ogura A, Ishino F. Zygotic gene activation and gene expression alterations induced by ICSI treatment in early embryo. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25

14. Takahashi S, Suetake I, Engelhardt J, Kohda T, Tajima S. Development of a method for a single base resolution analysis of 5-hydroxymethylcytosine with recombinant DNMT1. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25

15. Irie M, Kohda T, Ono R, Furuse T, Wakana S, Yoshikawa M, Ishino F, Kaneko-Ishino T. Analysis of LTR retrotransposon-derived eutherian-specific gene, Sirh11.. The 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.25

16. Fumitoshi Ishino, Tomoko Kaneko-Ishino. Mammalian evolution promoted by exaptation of LTR retrotransposons.. Symposium on Biological Evolution and Diversity, the 37th Annual Meeting of the Molecular Biology Society of Japan 2014.11.27

Computational Biology

Professor Hiroshi Tanaka
Assistant Professor Masaki Suimye Morioka
Project Associate Professor Fengrong Ren
Project Assistant Professor Takeshi Hase
Graduate Students
Yoshiyuki Kaneko, Arihito Endo, Eiichi Ueno
Yasuha Tanaka, Hajime Sawai, Sakiko Ohta
Chikako Shimizu, Asami Suzuki, Shoko Nukaya
Hiroaki Hasegawa, Noriaki Koizumi, Akihiko Hoshi
Aw Wanping, Norihiko Inoue, Tomohisa Maruyama
Ko Watanabe, Norihiko Satake, Hirozumi Nishibe
Kyoko Sugimoto, Sophia Subat, Miyo Okubo, Asiya Hapaer
Te-cheng Chang

(1) Research

Our mission is "system-level understanding of biological systems" in molecular biology and evolution (systems evolution) and medicine (omics-based medicine, systems pathology). Recently, the whole genome sequences of diverse organisms have become available. Moreover, various "omics" information such as a proteome, transcriptome, and metabolome are currently accumulating. Our goal is to establish a grand-theory of biological sciences from the viewpoint of "evolving networks composed of biological molecules" by integrating omics information. Genomic and omics data are also utilized in the field of medicine. It has been revealed that most diseases are caused by the interaction among abnormalities of multiple genes, those at the tissue level, and environments. It is therefore possible to consider diseases as a system. From this standpoint, we try to establish the omics-based medicine and systems pathology.

(2) Education

Prof. Tanaka is in charge of the education of medical informatics and bioinformatics. For undergraduates, he teaches "Clinical Informatics", "Statistics for Health Sciences", "Practice in Clinical Informatics II", "Project Research", and "Basics of Clinical Informatics". For graduate students, he teaches "Computational Biology", "Systems Pathology", "Clinical Informatics", "Integrated Bioinformatics", "Integrated Translational Research", and "Statistics for Nurses". He also teaches "Cancer Systems Biology" for the "Training Program for Specialists in Cancer". In addition, Prof. Tanaka supervises 23 graduate students in total.

(3) Lectures & Courses

The education policy of our department is to provide the education and training on both Medical Informatics and Genomic Science to the students who are going to play an active role in the research of Omics-based Medicine, which is one of the most rapidly developing research fields in recent years.

(4) Publications

[Original Articles]

1. Watanabe K, Kurihara Y, Watanabe K, Azami T, Nukaya S, Tanaka H. Bio-Signals Sensing by Novel Use of Bi-directional Microphones in a Mobile Phone for Ubiquitous Healthcare Monitoring IEEE Transactions on Human-Machine Systems. 2014; 44(4); 545-550

2. Tsubota A, Mogushi K, Aizaki H, Miyaguchi K, Nagatsuma K, Matsudaira H, Kushida T, Furihata T, Tanaka H, Matsuura T. . Involvement of MAP3K8 and miR-17-5p in Poor Virologic Response to Interferon-Based Combination Therapy for Chronic Hepatitis C PLoS One. 2014; 9(5);

3. Andersson R. et al. FANTOM Consortium (Tanaka H. incl.) . An atlas of active enhancers across human cell type and tissues Nature. 2014; 507(7493); 455-461

4. Alistair R. FANTOM Consortium (Tanaka H. incl.) . A promoter-level mammalian expression atlas Nature. 2014; 507(7493); 462-470

5. T Kobayashi, JS Takeuchi, F Ren, K Matsuda, K Sato, Y Kimura, N Misawa, R Yoshikawa, Y Nakano, E Yamada, H Tanaka, VM Hirsch,Y Koyanagi. Characterization of red-capped mangabey tetherin: implication for the co-evolution of primates and their lentiviruses Scientific Reports . 2014; 4;

6. R Yoshikawa, JS Takeuchi, E Yamada, Y Nakano, F Ren, H Tanaka, C Münk, RS Harris, T Miyazawa, Y Koyanagi, K Sato. Vif determines the requirement for CBF-beta in APOBEC3 degradation Journal of General Virology. 2014;

7. Shoko Nukaya, Manabu Sugie, Yosuke Kurihara, Tomoyuki Hiroyasu, Kajiro Watanabe, Hiroshi Tanaka. A noninvasive heartbeat, respiration, and body movement monitoring system for neonates Artificial Life and Robotics. 2014; 9(4); 414-419

8. Eslami A., Miyaguchi K., Mogushi K.,Watanabe H., Okada N., Shibuya H.,Mizushima H., Miura M., Tanaka H. PARVB overexpression increases cell migration capability and defines high risk for endophytic growth and metastasis in tongue squamous cell carcinoma British Journal of Cancer. 2014;

9. Takeshi Hase, Kaito Kikuchi, Samik Ghosh, Hiroaki Kitano, Hiroshi Tanaka. Identification of drug-target modules in the human protein–protein interaction network Artificial Life and Robotics. 2014; 19(4); 406-413

10. Katsuta E, Tanaka S, Mogushi K, Matsumura S, Ban D, Ochiai T, Irie T, Kudo A, Nakamura N, Tanaka H, Tanabe M, Arii S.. Age-related clinicopathologic and molecular features of patients receiving curative hepatectomy for hepatocellular carcinoma. Am. J. Surg.. 2014.05;

[Conference Activities & Talks]

1. Hiroshi Tanaka. Attractor transition analysis of iPS cell and cancer metastasis in quantified Waddington epigenetic landscape (qWEL). AROB 19th 2014.01.22 Oita, Japan

2. Takeshi Hase. Identification of drug-target modules in the human protein–protein interaction network. AROB 19th 2014.01.22 Oita, Japan

Structural Biology

Professor Nobutoshi ITO
Associate Professor Teikichi IKURA
Assistant Professor Nobutaka NUMOTO
Technical Assistant Michiko HATTORI
Graduate Student Kenrou SHINAGAWA
Project Semester Rina KATO
Souhei MATSUSHITA

(1) Outline

The advance of genome science and proteomic analysis has produced a large amount of information about the primary structure of proteins and their spatial and temporal distributions. On the other hand, most of the proteins only function when they take certain three dimensional structures. As obviously seen in so-called prion diseases, proteins which are chemically correct but structurally incorrect not only fail to function properly but also can harm cells. Our laboratory aims to understand the function of biological macromolecules at atomic level through structure analysis and other methods of physical chemistry, in the hope that accumulation of such knowledge will eventually lead to development of drugs. We are also involved in providing database of such structural data to scientists through the activities of Protein Data Bank Japan.

(2) Research

Collaborating with groups within and outside of the university, we are engaged in various research projects including;

1) Physicochemical analysis on the mechanism of the signal transduction for activation of T cells
2) Structural analyses of B-cell coreceptors
3) Molecular basis of suppression of HIV-1
4) Structural basis of giant hemoglobins
5) Analysis of interactions between tau protein and Pin1
6) Structure based drug design for protein kinases
7) Structural analyses of potential drug targets such as nuclear receptors
8) Improvement in Protein Data Bank

(3) Lectures & Courses

The students learn theoretical basis of structure determination, mainly X-ray crystallography, of proteins and other biological macromolecules. Recent advance in structural biology is also discussed in seminar. Students learn lab techniques related to large-scale production, purification and crystallization of protein samples. They also learn computational methods to determine and refine crystal structures.

(4) Publications

[Original Articles]

1. Kudo T, Ishizawa M, Maekawa K, Nakabayashi M, Watarai Y, Uchida H, Tokiwa H, Ikura T, Ito N, Makishima M, Yamada S. Combination of triple bond and adamantane ring on the vitamin d side chain produced partial agonists for vitamin d receptor J Med Chem. 2014.05; 57(10); 4073-4087

2. Nobutaka Numoto, Taro Nakagawa, Ryota Ohara, Tomoyo Hasegawa, Akiko Kita, Takao Yoshida, Tadashi Maruyama, Kiyohiro Imai, Yoshihiro Fukumori, Kunio Miki. The structure of a deoxygenated 400 kDa haemoglobin reveals ternary- and quaternary-structural changes of giant haemoglobins. Acta Crystallogr. D Biol. Crystallogr.. 2014.07; 70(Pt 7); 1823-1831

3. Yamamoto M, Onogi H, Kii I, Yoshida S, Iida K, Sakai H, Abe M, Tsubota T, Ito N, Hosoya T, Hagiwara M. CDK9 inhibitor FIT-039 prevents replication of multiple DNA viruses. J Clin Invest. 2014.08; 124(8); 3479-3488

[Books etc]

1. Nobutaka Numoto. Crystallography in Japan (II). Crystallographic Society of Japan, 2014.07 (ISBN : 978-4-9903861-2-2)

[Conference Activities & Talks]

1. Manjiri Rabindoura Kurukaruni,Montasiru Elahi,Monirul M Islamu, Nobutoshi Ito, Nobutaka Numoto,Yutaka Kuroda. Epitope-grafted mutants provide molecular insights into sero-specifc interactions of Dengue's ED3 with its monoclonal antibody. The 14th Annual Meeting of the Protein Society of Japan 2014.06 Yokohama

2. Teikichi Ikura,Nobutoshi Ito. Molecular mechanism of cooperativity of Pin1 and PP2A in dephosphorylation of tau protein. The 14th Annual Meeting of the Protein Society of Japan 2014.06 Yokohama

3. Nobutaka Numoto,Taro Nakagawa,Akiko Kita,Nobutoshi Ito,Yoshihiro Fukumori,Kunio Miki. Oxygen dissociation in crystals of giant hemoglobin. The 14th Annual Meeting of the Protein Society of Japan 2014.06 Yokohama

4. Nobutaka Numoto, Taro Nakagawa, Akiko Kita, Nobutoshi Ito, Yoshihiro Fukumori,Kunio Miki. Partial oxygen-dissociation of crystalline giant hemoglobin. Twenty-Third Congress and General Assembly of the International Union of Crystallography 2014.08 Montreal (Canada)

5. Kenro Shinagawa, Nobutaka Numoto, Takeshi Tsubata, Nobutoshi Ito. Crystal structure of the C-type lectin-like domain of CD72. The 52nd Annual Meeting of the Biophysical Society of Japan 2014.09 Sapporo

6. Nobutaka Numoto, Taro Nakagawa, Akiko Kita, Nobutoshi Ito, Yoshihiro Fukumori, Kunio Miki. Transition from oxy to deoxy state in crystalline giant hemoglobin. The 52nd Annual Meeting of the Biophysical Society of Japan 2014.09 Sapporo

7. Teikichi Ikura,Nobutoshi Ito. Relationship between Pin1's peptidyl-prolyl isomerase activity and its aggregation-inhibitory activity for tau protein. The 52nd Annual Meeting of the Biophysical Society of Japan 2014.09 Sapporo

8. Nobutaka Numoto, Taro Nakagawa, Akiko Kita, Nobutoshi Ito, Yoshihiro Fukumori, Kunio Miki. Structural changes caused by oxygen dissociation in crystalline giant hemoglobin. Annual Meeting 2015 of the Crystallographic Society of Japan 2014.11 Tokyo

9. Nobutoshi Ito. Structure depostion at PDBj. CCP4 Crystallography School and Workshop 2014.11 Tsukuba

Neuroscience

Professor Kohichi Tanaka
Associate Professor Hidenori Aizawa
Assistant Professor Tomomi Aida
Project Assistant Professor Miho Soma
Project Assistant Professor Yukiko Ito
Project Assistant Professor Michiko Yanagisawa
Graduate Student (doctor course)
Junya Sugimoto
Cui Wanpeng
Zhao Zhuyang
Graduate Student (master course)
Risa Imahashi
Takaya Katsurayama
Kaori Sugiyama
Technical Staff
Harumi Ishikubo
Masako Hidaka
Secretary Satomi Ohno

(1) Outline

The final goal of our research is to understand molecular, cellular, and neuronal ensemble mechanisms underlying higher order brain functions including learning and memory. For that purpose, we combine molecular genetics, physiological and behavioral methods. The laboratory also studies the mechanism that underlies neuronal cell death and regeneration.

(2) Research

A. Functions of glutamate transporters in the brain
Glutamate is a major excitatory neurotransmitter and plays an important role in neuronal plasticity and neurotoxicity in the central nervous system. Glutamate transport proteins provide the mechanism by which synaptically released glutamate is inactivated and kept below toxic levels in the extracellular space. By now, five subtypes of high-affinity glutamate transporters have been identified in the mammalian brain. Our lab studies the physiological and pathological roles of glutamate transporter subtypes using subtype-specific knockout mice.
We show that astrocyte-specific glutamate transporter GLT1 inducible knockout (iKO) mice exhibit pathological repetitive behaviors including excessive and injurious levels of self-grooming and tic-like head shakes. Electrophysiological studies reveal that excitatory transmission at corticostriatal synapse is normal in a basal state but is increased after repetitive stimulation. Furthermore, treatment with an N-methyl-D-aspartate receptor antagonist memantine ameliorated the pathological repetitive behaviors in iKO mice. These results suggest that astroglial GLT1 plays a critical role in controlling the synaptic efficacy at cortico-striatal synapses and its dysfunction causes pathological repetitive behaviors.
We found that arundic acid induces GLAST expression in vitro and in vivo. In addition, arundic acid treatment prevented RGC death by upregulating GLAST in heterozygous (GLAST+/-) mice. Furthermore, arundic acid

stimulates the human GLAST ortholog, EAAT1, expression in human neuroglioblastoma cells. Thus, discovering compounds that can enhance EAAT1 expression and activity may be a novel strategy for therapeutic treatment of glaucoma.

B. Glial dysfunction of the lateral habenula causes the depressive-like behaviors and sleep disturbance
Lateral habenula (LHb) has recently attracted a surge of interest in psychiatry because recent studies have reported the pathological activation of the habenula in patients with major depression and in animal models. However, how habenular neurons are activated to cause various depression symptoms, such as reduced motivation and sleep disturbance, remain unclear. Since astrocyte primarily regulates the extracellular level of excitatory neurotransmitter glutamate, we hypothesized that dysfunctional astrocytes may cause LHb hyperactivity due to the defective uptake activity of extracellular glutamate, which induces depressive-like behaviors. The habenula-specific inhibition of glial glutamate transporter GLT-1 increased the neuronal firing rate and the level of c-Fos expression in the LHb. Mice with reduced GLT-1 activity in the habenula exhibited a depressive-like phenotype in the tail suspension and novelty-suppressed feeding tests. These animals also displayed increased susceptibility to chronic stress, displaying more frequent avoidant behavior without affecting locomotor activity in the open-field test. Intriguingly, the mice showed disinhibition of rapid eye movement sleep, which is a characteristic sleep pattern in patients with depression. These results provide evidence that disrupting glutamate clearance in habenular astrocytes increases neuronal excitability and depressive-like phenotypes in behaviors and sleep.

C. Development of genome editing technologies
Knockout and knockin mice have drastically improved our understanding of the functions of genes in vivo. However, the generation of knockout and knockin mice relies on homologous recombination in ES cells, which is a time-consuming, laborious, and expensive process. Recent development of genome editing technologies has enabled direct manipulation of the genome in mouse zygotes (in vivo genome editing), thereby providing new avenues for simple, convenient, highly efficient, and ultra-rapid production of knockout and knockin mice. We developed highly efficient CRISPR/Cas (clustered regularly interspaced short palindromic repeat/CRISPR-associated)-mediated in vivo genome editing system. By harnessing these technologies, we can produce any kind of genetically modified mice including gene knockout, human mutation knockin, and gene cassette knockin with extreme high efficiencies. Taken together, our CRISPR/Cas system provides a fast, convenient, efficient, and cost-effective approach to the production of genetically modified mice and brings about drastic developments in the field of genome editing, leading to a boost in functional genomic research.

(3) Education

Goals/Outline:
Students should generate genetically modified animals to comprehensively understand the cognitive mechanisms at the level of molecule to behavior. Then, students should analyze cognitive deficits of mutant animals and those molecular mechanisms.

Available programs:
Participation in the ongoing research project; as needed
Training for cell biology: five times a year 13:00 – 16:00

Experiment:
1. Gene cloning and generation of targeting vector.
2. Generation of genetically modified mice
3. Behavioral analysis of the mice
4. Morphological analysis of central nervous systems.

(4) Lectures & Courses

The aim of this practice is to learn molecular biological, anatomical, electrophysiological and psychological approaches to elucidate the mechanism of cognition. Moreover, based on previous case reports of cognitive deficits, students should plan and discuss what kinds of the researches are possible and meaningful to elucidate

the pathology of these diseases, leading to unveil the mechanism of cognition.

(5) Publications

[Original Articles]

1. Schreiner, AE., Durry, S., Aida, T., Stock, MC., Ruther, U., Tanaka, K., Rose, CR. Kafitz, KW.. Laminar and subcellular heterogeneity of GLAST and GLT-1 immunoreactivity in the developing postnatal mouse hippocampus. J Comp Neurol. 2014.01; 522(1); 204-224

2. Amo R, Fredes F, Kinoshita M, Aoki R, Aizawa H, Agetsuma M, Aoki T, Shiraki T, Kakinuma H, Matsuda M, Yamazaki M, Takahoko M, Tsuboi T, Higashijima S, Miyasaka N, Koide T, Yabuki Y, Yoshihara Y, Fukai T, Okamoto H. The habenulo-raphe serotonergic circuit encodes an aversive expectation value essential for adaptive active avoidance of danger. Neuron. 2014.12; 84; 1034-1048

3. Cui, W., Mizukami, H., Yanagisawa, M., Aida, T., Nomura, M., Isomura, Y., Takayanagi, R., Ozawa, K., Tanaka, K., Aizawa, H. . Glial dysfunction in the mouse habenula causes depressive-like behaviors and sleep disturbance. J Neurosci. 2014.12; 34(49); 16273-16285

[Misc]

1. Aida, T., Imahashi, R., Tanaka, K. . Translating human genetics into mouse: The impact of ultra-rapid in vivo genome editing. Dev Growth Differ. 2014; 56; 34-45

[Conference Activities & Talks]

1. Hidenori Aizawa. Ontogeny and phylogeny of the habenula regulating animal behaviors. . 2014.09

Bio-informational Pharmacology

Associate Professor Junko KUROKAWA

(1) Outline

Bio-informational pharmacology treats diverse area of life sciences by using pharmacological tools. This laboratory focuses on understanding fundamental physiological roles of ion channels and transporters in cardiovascular system. We employ multidisciplinary approach (patch-clamp, cell biology, fluorescent imaging, and comprehensive analysis) in order to seek novel regulatory mechanisms and modulatory molecules/compounds of ion channels and transporters in cardiovascular organs.
Our ultimate goal is to discover novel diagnostic and therapeutic strategy for intractable cardiovascular diseases, such as sudden death, life-threatening arrhythmias, and atherosclerosis, by modulating ion channels and transporters.

(2) Research

(1) Gender specific medicine in cardiovascular diseases
(2) Cardiac arrhythmias and iPS cells
(A) Cardiac disease models of iPS-derived cardiomyocytes from long QT syndrome patients
(B) Drug safety screening system using human iPS cells-derived cardiomyocytes
(3) New technologies in cardiovascular research
(A) In vitro cardiomyocyte contraction assay system using the motion vector technology
(B) Generation of 3-D simulator for cardiac electrical activity

(3) Publications

[Original Articles]

1. Hayakawa T, Kunihiro T, Ando T, Kobayashi S, Matsui E, Yada H, Kanda Y, Kurokawa J, Furukawa T.. Image-based evaluation of contraction-relaxation kinetics of human-induced pluripotent stem cell-derived cardiomyocytes: correlation and complementarity with extracellular electrophysiology. J Mol Cell Cardiol. 2014; 77; 178-191

[Conference Activities & Talks]

1. Junko Kurokawa. Summary of Kirishima Meeting and the Next Step: Computational (in silico) safety pharmacology working group. Speaker & Moderator. 1st Think Tank Meeting on Cardiac Safety 2014 in Kirishima. Kirishima Meeting 2014.01.11 Kirishima

2. Junko Kurokawa. Sex differences in cardiac repolarization and the underlying mechanisms. University of California Davis Seminar at Department of Pharmacology 2014.02.12 Davis, U.S.A.

3. Junko Kurokawa. Evaluation of drug-induced QT-prolongation in human iPS-derived cardiomyocytes. 87th Japanese Biochemical Society Annual Meeting 2014.10.15 Kyoto

4. Junko Kurokawa. Local control of neurohormonal signaling regulation in cardiac ion channels.. The 45th NIPS International symposium 2014.11.26 Okazaki

Epigenetic Epidemiology

Professor: Masaaki MURAMATSU
Associate Professor : Noriko SATO
Assistant Professor : Shinobu IKEDA

Adjunct Instructor : Katsuko SUDO, Fumihiro SATA, Jun-ichi TAGUCHI

Graduate Student: Sariya Dechamethakun, Kaung Si Thu,
Khin Thet Thet Zaw, Yuko Maeda, Fujitani,
Tay Zar Kyaw, Tadaaki Katsuta, Jyun-ya Hagiwara,
Norihiko Satake, Riya Tamura
Research Student: Yuiri Tsubota
Research Resident: Maidina Abudushataer, Ake Ko Ko Minn

(1) Outline

Many common chronic diseases are multifactorial in that they are caused by multiple genetic and environmental factors. By applying the technology and information of human genome to epidemiological studies, we aim to clarify the role of genetic polymorphisms, epigenetic changes, as well as their interaction with environmental factors, which may contribute to the development of these diseases.

(2) Research

Our research subjects are as follows.

1. Gene-environment interaction that affects the onset of metabolic syndrome and its related phenotypes.
2. Genetic factors that affect the severity of pathological atherosclerosis.
3. Responder vs non-responder of prodrugs and polymorphisms of drug metabolizing enzymes.
4. Severe cutaneous adverse response (Stevens-Jhonson' s Syndrome) and HLA genotypes.
5. The role of epigenetic regulation and fetal programming in common diseases.
6. Likelihood ratio based integrated personal risk assessment of type 2 diabetes.

(3) Education

Masaaki Muramatsu:Holistic Study of Disease Prevention I
Masaaki Muramatsu:Environmental/Social Health
Masaaki Muramatsu:Clinical Informatics
Masaaki Muramatsu:Negotiation and Debate in English
Noriko Sato, Masaaki Muramatsu: Bioscience I
Noriko Sato: Molecular and Cellular Biology

(4) Lectures & Courses

We focus on common diseases such as diabetes, hypertension, obesity, metabolic syndrome, and atherosclerosis which are caused by multiple genetic and environmental factors, and aim to decipher these factors as well as their interactions by applying the technology and information of human genome to epidemiology. Our goal is not only to identify disease genes and polymorphisms but also to elucidate gene-environment interactions that contribute to the onset and progression of the diseases. Epigenetic changes in common diseases are also in our scope. A new project has been started to study methods for educating genome-based health literacy by employing information generated from personal genome sequences

(5) Publications

[Original Articles]

1. Zhao C, Ikeda S, Arai T, Naka-Mieno M, Sato N, Muramatsu M, Sawabe M.. Association of the RYR3 gene polymorphisms with atherosclerosis in elderly Japanese population. BMC Cardiovasc Disord. 2014; 14; 6

2. Parlayan C, Ikeda S, Sato N, Sawabe M, Muramatsu M, Arai T. Association analysis of single nucleotide polymorphisms in miR-146a and miR-196a2 on the prevalence of cancer in elderly Japanese: a case-control study. Asian Pac. J. Cancer Prev.. 2014; 15(5); 2101-2107

3. Sato N, Htun NC, Daimon M, Tamiya G, Kato T, Kubota I, Ueno Y, Yamashita H,Fukao A, Kayama T, Muramatsu M. . Likelihood ratio-based integrated personal risk assessment of type 2 diabetes. Endocr. J.. 2014; 61(10); 967-988

4. Ueta M, Kaniwa N, Sotozono C, Tokunaga K, Saito Y, Sawai H, Miyadera H, Sugiyama E, Maekawa K, Nakamura R, Nagato M, Aihara M, Matsunaga K, Takahashi Y, Furuya H, Muramatsu M, Ikezawa Z, Kinoshita S. Independent strong association of HLA-A*02:06 and HLA-B*44:03 with cold medicine-related Stevens-Johnson syndrome with severe mucosal involvement. Sci Rep. . 2014; 4; 4862

5. Htun NC, Miyaki K, Zhao C, Muramatsu M, Sato N. Epistasis effects of COMT and MTHFR on inter-individual differences in mental health: under the inverted U-shaped prefrontal dopamine model. Biochem Biophys Res Commun.. 2014; 451(4); 574-579

6. Yatsuga C, Toyohisa D, Fujisawa TX, Nishitani S, Shinohara K, Matsuura N, Ikeda S, Muramatsu M, Hamada A, Tomoda A.. No association between catechol-O-methyltransferase (COMT) genotype and attention deficit hyperactivity disorder (ADHD) in Japanese children. Brain Dev. 2014; 36(7); 620-625

7. Dechamethakun S, Ikeda S, Arai T, Sato N, Sawabe M, Muramatsu M. . Associations between the CDKN2A/B, ADTRP and PDGFD Polymorphisms and the Development of Coronary Atherosclerosis in Japanese Patients. J. Atheroscler. Thromb.. 2014.07; 21(7); 680-690

8. Yamada M, Sato N, Ikeda S, Arai T, Sawabe M, Mori S, Yamada Y, Muramatsu M, Tanaka M.. Association of the chromodomain helicase DNA-binding protein 4 (CHD4) missense variation p.D140E with cancer: potential interaction with smoking. Genes Chromosomes Cancer.. 2014.12;

[Conference Activities & Talks]

1. Muramatsu M, Hayashi M, Yamashita N. The effect of genetic test for common diseases on the perception of health and illness.. The 3rd Conference on Informatics, Biology, Medicine and Pharmacology 2014.10.02

2. Dechamethakun S, Sato N, Ikeda S, Arai T, Sawabe M, Muramatsu M, Tanaka M.. Association of Macrophage Capping Protein (CAPG) Polymorphisms with Cancer in Elderly Japanese. . The 3rd Conference on Informatics, Biology, Medicine and Pharmacology 2014.10.02

RIKEN Molecular and Chemical Somatology

Visiting Professor	Soichi Kojima
Visiting Professor	Mikiko Sodeoka
Visiting Professor	Nobumoto Watanabe
Visiting Professor	Yoshiki Yamaguchi,
Visiting Professor	Takashi Saito
Visiting Professor	Tetsuro Toyoda
Visiting Lecturer	Tamio Saito
Visiting Lecturer	Masashi Ueki
Visiting Lecturer	Takeshi Nakano
Visiting Lecturer	Kenji Ogawa
Visiting Lecturer	Go Hirai
Visiting Lecturer	Yutaka Furutani
Visiting Lecturer	Arata Takeuchi
Visiting Lecturer	Masamichi Nagae
Graduate Students	D3 Rajan Shresha
	D2 Motonari Sakai, Sayoko Yamasaki,
	Dual Hari Prasad
	D1 Ryo Fukazawa,
	Kruthi Sharamjeet Suvarna
	M2 Syuntaro Kojima
	M1 Daiki Kakumoto, Miki Sawamura

(1) Research

Molecular and Chemical Somatology is an interdisciplinary field to understand basis of Bioorganic Chemistry, Chemical Biology, Structural Biology, Molecular Immunology, and Integrating Bioinformatics as well as their applications to Medicine and Biology by dealing with variety of molecules that regulate cellular functions including low molecular weight organic compounds, proteins, sugars, and hormones. Students will hear and discuss about outlines and/or latest topics on discovery, structure, synthesis, biology, and management of these key molecules/factors, and deepen their understanding of this new study field.

(2) Education

1) Synthetic Organic Chemistry
- Design and synthesis of bioactive molecules based on synthetic organic chemistry and chemical biology research.

2) Chemical Biology
- Discovery, target identification and analyses of mechanism of action of bioactive compounds that regulate biological function.

3) Molecular Cellular Pathology
- Clarification of pathogenesis of diseases at molecular and cellular levels utilizing bioprobes.

4) Structural Biology
- Analyses of structure and functions of bioactive glycoproteins and related proteins

5) Molecular Immunology
- Regulatory mechanisms for the lymphocyte activation and immune responses.

6) Integrating Bioinformatics
- Knowledge discoveries through integrating multiple datasets and information by next generation sequencers.

(3) Publications

[Original Articles]

1. Hayase, H., Watanabe, N., Liang, L., Nogawa, T., Komatsuya, K., Kita, K.and Osada, H. Inhibition of malaria parasite growth by quinomycin A and its derivatives through DNA-intercalating activity. Biosci., Biotech., Biochem. 79: 633-635, 2015.
2. Frédéric Thuaud, Shuntaro Kojima, Go Hirai, Kana Oonuma, Ayako Tsuchiya, Takako Uchida, Teruhisa Tsuchimoto, Mikiko Sodeoka. "RE12 derivatives displaying Vaccinia H1-related phosphatase (VHR) inhibition in the presence of detergent and their anti-proliferative activity against HeLa cells" Bioorg. Med. Chem. 22: 2771-2781, 2014.
3. Hara, M., Kirita, A., Kondo, W., Matsuura, T., Nagatsuma, K., Dohmae, N., Ogawa, S., Imajoh-Ohmi, S., Friedman, S. L., Rifkin, D. B., and Kojima, S. LAP degradation product reflects plasma kallikrein-dependent TGF-β activation in patients with hepatic fibrosis. SpringerPlus 3:221, 2014.
4. Konuma, K., Itoh, M., Suganami, T., Kanai, S., Nakagawa, N., Sakai, T., Kawano, H., Hara, M., Kojima, S., Izumi, Y., and Ogawa, Y. Eicosapentaenoic acid ameliorates non-alcoholic steatohepatitis in a novel mouse model using Melanocortin-4 receptor-deficient mice. PlosOne. 10(3): e0121528, 2015.
5. Arner, E., et al. Dynamics of enhancer and promoter activity during mammalian cellular activation and differentiation. Science 347(6225): 1010-1014, 2015.

[Review Articles]

None

[Books]

1. Hara, M., Matsuura, T., and Kojima, S. (2015) TGF-β LAP degradation products, a novel biomarker and promising therapeutic target for liver fibrogenesis. In Innovative Medicine : Basic Research and Development (Nakao, K., Minato, N., and Umeto, S. eds) Springer Tokyo, in press.

[Conference Activities & Talks]

1. Kojima, S. "Genomic and nongenomic actions of acyclic retinoid in the liver" FASEB 2nd International Conference on Retinoids, IL, USA, June, 2014.
2. Kojima, S. "Transglutaminases as regulators of cell survival and cell death modalities" Gordon Research Conferences on Transglutaminases in Human Disease Processes, Lucca, Italy, July, 2014.

Molecular Biomedicine

Associate Professor
Wataru NOMURA, Ph.D.

Assistant Professor
Takaaki MIZUGUCHI,Ph.D.

Graduate students
D2
Shohei TAKETOMI
D1
Takuya KOBAYAKAWA
Hikaru TAKANO
Takayoshi HIGASHI

(1) Outline

Research in the lab is mainly focused to two topics; 1) development of artificial enzymes for regulation of gene functions and (2) exploration and analyses of cellular functions by methods based on peptide chemistry. Students will learn how to design research, experimental techniques, and analysis methods of research data. Research themes are related to multiple research fields such as molecular biology, chemistry, chemical biology, and synthetic biology.

(2) Research

1) Development of applications of zinc finger protein for gene therapy and nanotechnology.
2) Development of conformational-constrained templates for drug discovery.
3) Development of bio-probes, bio-sensing, medicinal chemistry towards chemical biology.
4) Structural analysis of the interactions between receptors/enzymes and their ligands.

(3) Education

Practice
Goals/Outline:
Presenter reports about the recent topics related to molecular biomedicine from Journals. The report must come with the backgrounds and motivations of research fields. Research designs, experimental methods, data analyses, and perspectives for future development will be discussed about the topics. Students are also encouraged to attend to lectures for the graduate course and discuss about the topics with lecturers.

Available programs:
Lectures for the graduate course: as occasion
Journal Club: Every Thursday from 15:00 to 16:30

Lab
Goals/Outline:
Research in the lab is mainly focused to two topics; 1) development of artificial enzymes for regulation of gene functions and (2) exploration and analyses of cellular functions by methods based on peptide chemistry. Students will learn how to design research, experimental techniques, and analysis methods of research data. Research themes are related to multiple research fields such as molecular biology, chemistry, chemical biology, and synthetic biology.

Available program:
Lab meeting (progress report): every week, about 1 hour per person (will be announced)

(4) Lectures & Courses

Format:
Small group

Venue:
Practice: Seminar room (603) at Institute of Biomaterials and Bioengineering

Lab: Laboratory of Medicinal Chemistry (602) at Institute of Biomaterials and Bioengineering
Grading:
Practice: Attendance and report
Lab: Progress of research and report

(5) Publications

[Original Articles]

1. Tetsuo Narumi, Hikaru Takano, Nami Ohashi, Akinobu Suzuki, Toshiaki Furuta & Hirokazu Tamamura. Isostere-Based Design of 8-Azacoumarin-type Photolabile Protecting Groups: A Hydrophilicity Increasing Strategy for Coumarin-4-ylmethyls. Org. Lett.,. 2014; 16(4); 1184-1187

2. Jun Yamamoto, Nami Maeda, Chiaki Komiya, Tomohiro Tanaka, Masaya Denda, Koji Ebisuno, Wataru Nomura, Hirokazu Tamamura, Youichi Sato, Aiko Yamauchi, Akira Shigenaga & Akira Otaka. Development of a Fluoride-responsive Amide Bond Cleavage Device that is Potentially Applicable to a Traceable Linker. Tetrahedron,. 2014; 70(34); 5122-5127

3. Nami Ohashi, Wataru Nomura, Natsuki Minato & Hirokazu Tamamura . Screening for Protein Kinase C Ligands Using Fluorescence Resonance Energy Transfer. Chem. Pharm. Bull., . 2014; 62(10); 1019-1025

4. Yamamoto J, Denda M, Maeda N, Kita M, Komiya C, Tanaka T, Nomura W, Tamamura H, Sato Y, Yamauchi A, Shigenaga A, Otaka A. Development of a Traceable Linker Containing a Thiol-responsive Amino Acid for the Enrichment and Selective Labelling of Target Proteins. Org. Biomol. Chem. . 2014.06; 12; 3821-3826

5. Takano H., Narumi T., Ohashi N., Suzuki A., Furuta T., Nomura W., Tamamura H. Development of the 8-Aza-3-bromo-7-hydroxycoumarin-4-ylmethyl Group as a New Entry of Photolabile Protecting Groups. Tetrahedron. 2014.07; 70; 4400-4404

6. Yamamoto J, Maeda N, Komiya C, Tanaka T, Denda M, Ebisuno K, Nomura W, Tamamura H, Sato Y, Yamauchi A, Shigenaga A, Otaka A. Development of a Fluoride-responsive Amide Bond Cleavage Device that is Potentially Applicable to a Traceable Linker. Tetrahedron . 2014.08; 70; 5122-5127

7. Ohashi N, Nomura W, Minato N, Tamamura H. Screening for Protein Kinase C Ligands Using Fluorescence Resonance Energy Transfer. Chem. Pharm. Bull.. 2014.08; 62; 1019-1025

8. Jun Yamamoto, Masaya Denda, Nami Maeda, Miku Kita, Chiaki Komiya, Tomohiro Tanaka, Wataru Nomura, Hirokazu Tamamura, Youichi Sato, Aiko Yamauchi, Akira Shigenaga & Akira Otaka. Development of a Traceable Linker Containing a Thiol-responsive Amino Acid for the Enrichment and Selective Labelling of Target Proteins. Org. Biomol. Chem.,. 12(23); 3821-3826
9. Hikaru Takano, Tetsuo Narumi, Nami Ohashi, Akinobu Suzuki, Toshiaki Furuta, Wataru Nomura & Hirokazu Tamamura. Development of the 8-Aza-3-bromo-7-hydroxycoumarin-4-ylmethyl Group as a New Entry of Photolabile Protecting Groups. Tetrahedron, . 70(29); 4400-4404

[Misc]

1. Nomura W, Tamamura H.. Specific Probes Recognizing Target Proteins Kagakukogyo. 2014.11; 65(11); 8-14

[Conference Activities & Talks]

1. Nomura W, Masuda A, Tamamura H.. Enhanced Gene Disruption by Simultaneous Digestion of ZFN or CRISPR/Cas System at hTERT Promoter Region. FASEB SRC "Genome Engineering Cutting-Edge Research and Applications" . FASEB SRC "Genome Engineering Cutting-Edge Research and Applications" 2014
2. Nomura W, Masuda A, Tamamura H.. Enhanced Gene Disruption at Specific Promoter Region by Simultaneous Digestion of ZFN or CRISPR/Cas System.. The Synthetic Biology: Engineering, Evolution & Design (SEED) conference 2014
3. Nomura W, Masuda A, Tamamura H.. Efficient Gene Disruption at hTERT Promoter Region by Simultaneous Digestion by Pairs of ZFNs or Guide RNAs of CRISPR/Cas System.. The 28th annual symposium of protein society. 2014
4. Nomura W, Hashimoto C, Fujino M, Murakami T, Ohashi N, Tamamura H.. Multimerized Peptides Derived from the C-Terminal Region of HIV-1 gp41 as Fusion Inhibitors.. The 33rd European Peptide Society Symposium. 2014
5. Nomura W, Métifiot M, Ohashi N, Fujino M, Mizuguchi T, Yamamoto N, Pommier Y, Komano JA, Murakami T, Tamamura H.. Cell-permeable Stapled Peptides with Integrase Inhibitory Activity Derived from HIV Gene Products.. The 15h Kumamoto AIDS Seminar. 2014
6. Yamada Y, Hashimoto C, Otsuki H, Hirota Y, Yoshimura K, Harada S, Ohashi N, Mizuguchi T, Nomura W, Miura T, Igarashi T, Matsushita S, Tamamura H.. A CD4 Mimic as an HIV Entry Inhibitor: Pharmacokinetics... The 15h Kumamoto AIDS Seminar. 2014
7. Irahara Y, Kotani M, Harada S, Narumi T, Yamada Y, Hirota Y, Ohashi N, Mizuguchi T, Nomura W, Matsushita S, Yoshimura K, Tamamura H.. A New Type of Small CD4 Mimic Molecules Targeting an HIV Envelope Protein gp120.. The 15h Kumamoto AIDS Seminar. 2014
8. Kotani M, Hirota Y, Irahara Y, Harada S, Yamada Y, Ohashi N, Mizuguchi T, Nomura W, Matsushita S, Yoshimura K, Tamamura H.. Structure-activity Relationship Studies of CD4 Mimic Molecules.. The 15h Kumamoto AIDS Seminar. 2014
9. Nomura W, Koseki T, Mizuguchi T, Tamamura H. Design and Synthesis of Trivalent CXCR4 Ligands Utilizing Polyproline Linkers. The 51th Japanese Peptide Symposium 2014
10. Honda Y, Mizuguchi T, Nomura W, Tamamura H. Development of Dimeric Peptide Derivatives Based on gp41 Fragments as HIV-1 Fusion Inhibitors. The 51th Japanese Peptide Symposium 2014
11. Kobayakawa T, Narumi T, Tamamura H. Development of Efficient Synthetic Methodologies of Chloroalkene Dipeptide Isosteres. The 51th Japanese Peptide Symposium 2014
12. Takano H, Narumi T, Nomura W, Furuta T, Tamamura H. Development of 8-Azacoumarin-4-ylmethyl-type Photolabile Protecting Groups Based on Amide-alkene Isosterism.. The 51th Japanese Peptide Symposium 2014
13. Mizuguchi T, Yamazaki Y, Kobayashi K, Ooe H, Iida M, Ninomiya R, Saito K, Akaji K, Tamamura H.. Studies on Identification of Active Sites of an Inhibitory Cyclic Peptide against EGF Receptor Dimerization.. The 51th Japanese Peptide Symposium 2014

NCC Cancer Science

Visiting Professor Hirofumi ARAKAWA
Visiting Professor Kenkichi MASUTOMI
Visiting Associate Professor Masahiro YASUNAGA
Visiting Associate Professor Genichiro ISHII
Visiting Associate Professor Tsutomu OHTA
Visiting Associate Professor Masato ENARI
Visiting Lecturer Tohru KIYONO
Visiting Lecturer Kazunori AOKI
Visiting Lecturer Katsuya TSUCHIHARA
Graduate Students D2 Sachiyo MIMAKI
D1 Kasumi OTSUBO
M1 Yosei RIN

(1) Research

1. Carcinogenesis and molecular mechanism
2. Functions of cancer-associated genes and their alterations
3. Genomic, epigenomic and proteomic analysis of cancer and personalized medicine
4. Tumor microenvironment
5. Cancer stem cells/non-coding RNA/signaling pathway
6. Molecular target/drug delivery/diagnosis and therapy

(2) Education

To learn knowledge and skill for cancer research, students attend lectures and seminars, and attend and/or practice research meeting, journal club, scientific meeting, etc. These practices will enable students to develop an ability to conduct their studies as an independent cancer researcher in the future. To obtain good skills to carry out experiments that are required for cancer research, students belong to one of our research groups, and conduct their own studies under the guidance of the instructor and/or staff. Students perform various experiments involved in genetics, gene technology, biochemistry, cellular biology, molecular biology, physiology, experimental animal, pathology, genomic/epigenomic/proteomic analysis, imaging, next generation sequencing, etc.

(3) Publications

[Original Articles]

1. Maida Y, Yasukawa M, Okamoto N, Ohka S, Kinoshita K, Totoki Y, Ito TK, Minamino T, Nakamura H, Yamaguchi S, Shibata T, and Masutomi K. (2014). Involvement of TERT in heterochromatin maintenance. Mol Cell Biol 34, 1576-1593.
2. Yamaguchi S, Maida Y, Yasukawa M, Kato T, Yoshida M, and Masutomi K. (2014) Eribulin mesylate targets human telorerase reverse transcriptase in ovarian cancer cells. PLoS ONE 9,e112438.
3. Yasunaga M, and Matsumura Y. (2014) Role of SLC6A6 in promoting the survival and multidrug resistance of colorectal cancer. Sci Rep. 4, 4852.
4. Sato R, Obonai T, Tsumura R, Tsumoto K, Koga Y, Yasunaga M, and Matsumura Y. (2014) Preparation and characterization of anti-tissue factor single-chain variable fragment antibody for cancer diagnosis. Cancer Sci. 105,1631-7.
5. Matsuwaki R, Ishii G, Zenke Y, Neri S, Aokage K, Hishida T, Yoshida J, Fujii S, Kondo H, Goya T, Nagai K, and Ochiai A. (2014) Immunophenotypic features of metastatic lymph node tumors to predict recurrence in N2 lung squamous cell carcinoma. Cancer Sci. 105, 905-911.
6. Yoshida T, Ishii G, Goto K, Neri S, Hashimoto H, Yoh K, Niho S, Umemura S, Matsumoto S, Ohmatsu H, Iida S, Niimi A, Nagai K, Ohe Y, and Ochiai A. (2014) Podoplanin-positive cancer-

associated fibroblasts in the tumor microenvironment induce primary resistance to EGFR-TKIs in lung adenocarcinoma with EGFR mutation. Clin. Cancer Res. 21, 642-51.
7. Otomo R., Otsubo C., Matsushima-Hibiya Y., Miyazaki M., Tashiro F., Ichikawa H., Kohno T., Ochiya T., Yokota J., Nakagama H., Taya Y., and Enari M. (2014) TSPAN12 is a critical factor for cancer-fibroblast cell contact-mediated cancer invasion. Proc. Natl. Acad. Sci. USA. 111, 18691-18696.
8. Otsubo C., Otomo R., Miyazaki M., Matsushima-Hibiya Y., Kohno T., Iwakawa R., Takeshita F., Okayama H., Ichikawa H., Saya H., Kiyono T., Ochiya T., Tashiro F., Nakagama H., Yokota J., and Enari M. (2014) TSPAN2 Is Involved in Cell Invasion and Motility during Lung Cancer Progression. Cell Rep. 7, 527-538.
9. Yamamoto Y, Miyamoto M, Tatsuda D, Kubo M, Nakagama H, Nakamura Y, Satoh H, Matsuda K, Watanabe T, and Ohta T. (2014) A Rare Polymorphic Variant of NBS1 Reduces DNA Repair Activity and Elevates Chromosomal Instability. Cancer Res. 74,3707-3715.
10. Umemura S, Mimaki S, Makinoshima H, Tada S, Ishii G, Ohmatsu H, Niho S, Yoh K, Matsumoto S, Takahashi A, Morise M, Nakamura Y, Ochiai A, Nagai K, Iwakawa R, Kohno T, Yokota J, Ohe Y, Esumi H, Tsuchihara K, and Goto K. (2014) Therapeutic priority of the PI3K/AKT/mTOR pathway in small cell lung cancers as revealed by a comprehensive genomic analysis. J Thorac Oncol. 9, 1324-1331.
11. Yamamoto Y, Hiraoka N, Goto N, Rin Y, Miura K, Narumi K, Uchida H, Tagawa M, and Aoki K. (2014) A targeting ligand enhances infectivity and cytotoxicity of an oncolytic adenovirus in human pancreatic cancer tissues. J. Control. Release 192, 284-293.

[Conference Activities & Talks]

1. Yauyuki Nakamura, Hiroki Kamino, Yuri Saito, Hitoya Sano, and Hirofumi Arakawa. P53-dependent and independent functions of Mieap. American Association for Cancer Research Annual Meeting (San Diego, USA) April, 2014.
2. Yasuyuki Nakamura, Hiroki Kamino, Yuri Saito, Noriaki Kitamura, Hitoya Sano, and Hirofumi Arakawa. Specific role of Mieap-alpha in Mieap-induced vacuole generation through an interaction with UVRAG. American Association for Cancer Research Annual Meeting (San Diego, USA) April, 2014.
3. Masahiro Yasunaga, Shino Manabe, David Tarin, Yasuhiro Matsumura. Development of CAST (Cancer stromal targeting) therapy. 4th International Conference on Tumor Progression and Therapeutic Resistance (Boston, USA) May, 2014.
4. Masahiro Yasunaga, Shino Manabe, David Tarin, Yasuhiro Matsumura Y. Tailored antibody drug conjugate (ADC) therapy depending on a quantity of tumor stroma. American Association for Cancer Research Annual Meeting (San Diego, USA) April, 2014.
5. Masahiro Yasunaga, Shino Manabe, David Tarin, Yasuhiro Matsumura. Development of CAST (Cancer stromal targeting) therapy. 25th Antibody Engineering & Therapeutics. (Huntington Beach, USA) December, 2014.
6. Enari M. INACTIVATION OF P53 PATHWAY IN ALK FUSION-POSITIVE TUMORS THROUGH DIRECT TYROSINE PHOSPHORYLATION OF P53, 16th p53 international Workshop, (Stockholm, Sweden) June, 2014.

Lifetime Oral Health Care Sciences

Professor Shinichi ARAKAWA
Junior Associate Professor Keiko KONDO
Graduate Student Mizuki DOINO

(1) Outline

Main objective of Lifetime Oral Health Care Sciences is to understand and learn how oral health care contributes to the preservation of general health and healthy life expectancy. Students also learn the newest knowledge on oralpathology and oral health promotion, and are trained to master the modality of oral health care.

(2) Research

1) Clinical and basic studies on Ozone nano-bubble water (NBW3)
2) Study on virulence factors of periodontopathic bacteria
3) Development of education system for dental (oral) hygienists to prevent oral diseases
4) Development of assessment program in technical education for dental (oral) hygienists

(3) Education

Main objective of Lifetime Oral Health Care Sciences is to understand and learn how oral health care contributes to the preservation of general health and healthy life expectancy. Students also learn the newest knowledge on oralpathology and oral health promotion, and are trained to master the modality of oral health care.

(4) Lectures & Courses

Main objective of Lifetime Oral Health Care Sciences is to understand and learn how oral health care contributes to the preservation of general health and healthy life expectancy. Students also learn the newest knowledge on oralpathology and oral health promotion, and are trained to master the modality of oral health care

(5) Clinical Services & Other Works

Oral care clinic provides prevention of oral diseases, such as dental caries or periodontal diseases for maintaining patients' oral and general health in a lifetime.

(6) Clinical Performances

Oral care clinic provides prevention of oral diseases, such as dental caries or periodontal diseases for maintaining patients' oral and general health in a lifetime.

(7) Publications

[Original Articles]

1. Sae Hayakumo, Shinichi Arakawa, Masayoshi Takahashi, Keiko Kondo, Yoshihiro Mano and Yuichi Izumi. Effects of ozone nano-bubble water on periodontopathic bacteria and oral cells - in vitro studies Science and Technology of Advanced Materials. 2014; 15; 1-7

2. Akiko Endo, Nachiko Ogata, Takayasu Watanabe, Takashi Nozawa, Chihiro Aikawa, Fumito Maruyama, Shinichi Arakawa, Yuichi Izumi and Ichiro Nakagawa. Comparative genome analysis and identification of competitive and cooperative interactions in a polymicrobial disease The ISME Journal. 2014; 1-14

Oral Care for Systemic Health Support

Professor YOSHIMASU Hidemi
Junior Associate Professor

ONODERA Mitsue

(1) Research

1. Oral health care of patients with oral cancer, cleft lip and palate and other oral diseases
2. Oral health related QOL of patients with oral cancer, cleft lip and palate, dry mouth
3. Basic research of tooth brush, peeling sponge and tooth paste
4. Morphological, functional research, and oral health of patients with cleft lip and palate
5. Research for safety in supplements in oral functions
6. Basic research for pathophysiological roles of gap junction

Preventive Oral Health Care Sciences

Professor Kayoko SHINADA
Assistant Professor Hiromi OTSUKA
Graduate Students Master Course
Kyoko AKIYAMA,
Kanako TODA,
Mio NAITO

(1) Outline

In order to cultivate students' abilities to prevent and detect oral diseases at an early stage, which are important to maintain and improve the nation's health, we help students acquire deep academic knowledge and high standard skills in preventive oral health care such as skills to check over the condition of oral cavities. Additionally, we help students develop skills to provide oral health counseling and oral health promotion, and nurture human resources who can actively contribute the development of oral health promotion.

(2) Research

1) Preventive Oral Health Care Sciences
   ① Incident factors and preventive methods on dental caries
   ② Incident factors and preventive methods on periodontal disease
   ③ Incident factors and preventive methods on oral malodor
   ④ Incident factors and preventive methods on other oral diseases
2) Development of education system for the patients to prevent oral diseases and for dental hygiene students.
3) Development of new assessment programs in technical education for dental hygienist students.

(3) Clinical Services & Other Works

In our Oral Health Care Clinic, dental hygienists support patients' oral health care, and prevent dental caries and periodontal diseases, for the patients to maintain their oral health for the entire lifetime.

Oral Health Care Science for Community and Welfare

Junior Associate Professor Keiko Endo

(1) Research

1) Social support to prevent frailty of visually disabled older people.
2) Analysis of policy for long-term cared older people

(2) Lectures & Courses

The goal of the program of Oral Health Care Science for Community and Welfare is to provide oral health optimized for hospitalized, institutionalized, and home-cared patients with inter-professional collaboration in medical treatment, long-term care, and welfare.

Oral Health Care Education

Associate Professor Keiko Endo
Junior Associate Professor Yuki Ohara

(1) Research

1) Education for dental hygienist students
2) Oral health promotion program
3) Development of dental hygiene process

(2) Education

Oral health care education is special field of study which deals with establishment of theoretid and skill for health promotion to contribute to the development of the health. Educational objects of Oral health care education in the graduate course is to foster human resources who will be able to implement health promotion program in collaboration with other career or residents in many fields.

(3) Clinical Services & Other Works

In oral health care clinic, dental hygienists support patients' oral health care, and prevent dental caries and periodontal diseases for the patients to maintain the their oral and general health in the entire lifetime.

Basic Sciences of Oral Health Care

Professor Akira Yamaguchi
Junior Associate Professor Yujiro Sakamoto

(1) Outline

Graduate School of Medical and Dental Sciences has been reorganized in April 2012, and the section of Basic Sciences of Oral Health Care was established in Medical and Dental Science and Technology master' s program course.

(2) Research

1) Basic medical and dental studies for oral health care
2) Basic study on clinical application of oral health care
3) Gross anatomical study of head and neck region

(3) Education

Purpose of Education
Basic sciences of oral health care is a branch of morphological sciences, developmental biology, pathology and the neurosciences to understand the structure and function of human body and its pathological conditions. Students are taught in more detail about the normal tooth anatomy and occlusal function as well as the anatomy of the head and neck with specific attention to the skull, muscles, nerves, and arteries associated with the mouth and teeth. In addition, students are also taught the oral pathology and dental pharmacology and pharmaceutics.

Subjects and contents.
• Structure and function of human body I and II: anatomy, histology, physiology, embryology, oral anatomy, oral histology, oral physiology.
• Mechanism of disease and promotion of recovery process: pathology, oral pathology, microbiology, immunology, pharmacology.
• Dental Pharmacology and Pharmaceutics.
• Graduation thesis:

(4) Publications

[Original Articles]

1. Sakamoto Y. Gross anatomical observations of attachments of the middle pharyngeal constrictor. Clinical Anatomy. 2014; 47(4); 603-609

2. Shibata S, Sakamoto Y, Yokohama-Tamaki T, Murakami G, Cho BH. Distribution of matrix proteins in perichondrium and periosteum during the incorporation of Meckel' s cartilage into ossifying mandible in midterm human fetuses - An immunohistochemical study -. Anatomical Record. 2014; 297(7); 1208-1217

3. Masamitsu Oshima, Kaoru Inoue, Kei Nakajima, Tetsuhiko Tachikawa, Hiromichi Yamazaki, Tomohide Isobe, Ayaka Sugawara, Miho Ogawa, Chie Tanaka, Masahiro Saito, Shohei Kasugai, Teruko Takano-Yamamoto, Takashi Inoue, Katsunari Tezuka, Takuo Kuboki, Akira Yamaguchi, Takashi Tsuji. Functional tooth restoration by next-generation bio-hybrid implant as a bio-hybrid artificial organ replacement therapy. Sci Rep. 2014; 4; 6044

4. Ji-Won Lee, Akira Yamaguchi, Tadahiro Iimura. Functional heterogeneity of osteocytes in FGF23 production: the possible involvement of DMP1 as a direct negative regulator. Bonekey Rep. 2014; 3; 543

5. Zhao Xin, Akira Yamaguchi, Kei Sakamoto. Aberrant expression and altered cellular localization of desmosomal and hemidesmosomal proteins are associated with aggressive clinicopathological features of oral squamous cell carcinoma. Virchows Arch.. 2014.07; 465(1); 35-47

6. Sakamoto Kei, Morita Kei-Ichi, Shimada Yasuyuki, Omura Ken, Izumo Toshiyuki, Yamaguchi Akira. Peripheral odontogenic keratocyst associated with nevoid basal cell carcinoma syndrome: a case report. Oral Surg Oral Med Oral Pathol Oral Radiol. 2014.07; 118(1); e19-e23

7. Ji-Won Lee, Midori Asai, Sang-Kyung Jeon, Tadahiro Iimura, Takayuki Yonezawa, Byung-Yoon Cha, Je-Tae Woo, Akira Yamaguchi. Rosmarinic acid exerts an anti-osteoporotic effect in the RANKL-induced mouse model of bone loss by promotion of osteoblastic differentiation and inhibition of osteoclastic differentiation. Mol Nutr Food Res. 2014.11;

8. Ryo Aizawa, Atsushi Yamada, Dai Suzuki, Tadahiro Iimura, Hidetoshi Kassai, Takeshi Harada, Masayuki Tsukasaki, Gou Yamamoto, Tetsuhiko Tachikawa, Kazuki Nakao, Matsuo Yamamoto, Akira Yamaguchi, Atsu Aiba, Ryutaro Kamijo. Cdc42 is required for chondrogenesis and interdigital programmed cell death during limb development. Mech. Dev.. 129(1-4); 38-50

9. Yuki Tokugawa, Tatsuo Shirota, Kohsuke Ohno, Akira Yamaguchi. Effects of bisphosphonate on bone reaction after placement of titanium implants in tibiae of ovariectomized rats. Int J Oral Maxillofac Implants. 18(1); 66-74

10. S Nishida, A Yamaguchi, T Tanizawa, N Endo, T Mashiba, Y Uchiyama, T Suda, S Yoshiki, H E Takahashi. Increased bone formation by intermittent parathyroid hormone administration is due to the stimulation of proliferation and differentiation of osteoprogenitor cells in bone marrow. Bone. 15(6); 717-723

[Conference Activities & Talks]

1. Yamaguchi A. Bone destruction by oral cancer. Molecular mechanism in bone and tooth, its clinical implication.. Tokyo Medical and Dental University Grants for Excellent Graduate Schools Symposium 2014.02.17 Tokyo

2. Yamaguchi A. Bisphosphonate-related osteonecrosis, update. . Workshop “Update on Jaw Diseases” at Annual Dental Technology and Research Conference in Vietnam 2014.03.29 Ho Chin Min City

3. Yamaguchi A. Bone destruction by oral cancer. Annual Dental Technology and Research Conference in Vietnam. Annual Dental Technology and Research Conference in Vietnam 2014.03.31 Ho Chin Min City

4. Sakamoto Y. Gross anatomical study on the morphological feature of the scalenus medius. The 31st annual meeting American Association of Clinical Anatomists. 2014.07 Orlando, USA.

Department of Pharmacovigilance

Professor
Masayoshi Harigai

Associate Professor
Ryuji Koike
Kenji Nagasaka

Junior Associate Professor
Michi Tanaka

Assistant Professor
Ryoko Sakai

Graduate Student
Waka Yokoyama
Fumio Hirano
Mari Kihara
Shoko Kasai
Masako Utsunomiya
Sayoko Harada

Research Pharmacist
Marie Yajima

Secretary
Tomoko Takahashi

(1) Research

1. Registry of Japanese rheumatoid arthritis patients on biologics for long-term safety (REAL study)
2. Clinical outcomes of Japanese rheumatoid arthritis patients in real world commencing targeted therapy (CORRECT)
3. Safety of biologics in clinical use in Japanese patients with rheumatoid arthritis in long-term (SECURE study)
4. Effectiveness and safety in clinical practice of abatacept in Japanese patients with rheumatoid arthritis
5. A prospective cohort study of early arthritis in clinical practice evaluating development of rheumatoid arthritis (PRECEDE)
6. Population-based study of comorbidities and safety in patients with rheumatoid arthritis using Japanese health insurance database
7. Clinical epidemiological study of treat-to-target strategy in rheumatoid arthritis patients with moderate to high disease activity
8. Efficacy and safety of programmed intensive treatment with methotrexate in patients with active rheumatoid arthritis
9. A randomized clinical trial on the efficacy and tolerability of dose reduction and escalation regimen of

Trimethoprim/Sulfamethoxazole (TMP/SMX) in patients with rheumatic diseases (A study on dose reduction and escalation regimen of TMP/SMX).
10. Rheumascan Pilot Study
11. Efficacy and safety of treatment with moderate doses of corticosteroid and immunosuppressants in rheumatoid arthritis patients with interstitial lung diseases
12. Study to revise practice guidelines of anti-neutrophil cytoplasm antibody-associated vasculitis
13. Identification of susceptibility genes associated with anti-neutrophil cytoplasm antibody-associated vasculitis in Japanese

(2) Education

Department of Pharmacovigilance has established since 2005 and dedicated to pharmacovigilance activity in the field of rheumatology. Main objective of Department of Pharmacovigilance in the graduate course is to provide students opportunity to study basics of pharmacoepidemiology including clinical statistics and to implement epidemiological studies in pharmacovigilance using some databases which have been maintained by this department.

(3) Clinical Services & Other Works

Most of the members of Department of Pharmacovigilance are rheumatologists and engaged in clinical services in the field of rheumatology as specialists.

(4) Publications

[Original Articles]

1. Waka Yokoyama, Hitoshi Kohsaka, Kayoko Kaneko, Matthew Walters, Aiko Takayasu, Shin Fukuda, Chie Miyabe, Yoshishige Miyabe, Paul E Love, Nobuhiro Nakamoto, Takanori Kanai, Kaori Watanabe-Imai, Trevor T Charvat, Mark Et Penfold, Juan Jaen, Thomas J Schall, Masayoshi Harigai, Nobuyuki Miyasaka, Toshihiro Nanki. Abrogation of CC chemokine receptor 9 ameliorates collagen-induced arthritis of mice. Arthritis Res. Ther.. 2014; 16(5); 445

2. Sada Ken-ei, Yamamura Masahiro, Harigai Masayoshi, Fujii Takao, Dobashi Hiroaki, Takasaki Yoshinari, Ito Satoshi, Yamada Hidehiro, Wada Takashi, Hirahashi Junichi, Arimura Yoshihiro, Makino Hirofumi, Research Committee on Intractable Vasculitides the Ministry of Health Labour and Welfare of Japan. Classification and characteristics of Japanese patients with antineutrophil cytoplasmic antibody-associated vasculitis in a nationwide, prospective, inception cohort study. Arthritis Res Ther. 2014; 16(2); R101

3. Dougados Maxime, Soubrier Martin, Antunez Anna, Balint Peter, Balsa Alejandro, Buch Maya H, Casado Gustavo, Detert Jacqueline, El-Zorkany Bassel, Emery Paul, Hajjaj-Hassouni Najia, Harigai Masayoshi, Luo Shue-Fen, Kurucz Reka, Maciel Gabriel, Mola Emilio Martin, Montecucco Carlo Maurizio, McInnes Iain, Radner Helga, Smolen Josef S, Song Yeong-Wook, Vonkeman Harald Erwin, Winthrop Kevin, Kay Jonathan. Prevalence of comorbidities in rheumatoid arthritis and evaluation of their monitoring: results of an international, cross-sectional study (COMORA). Ann Rheum Dis. 2014.01; 73(1); 62-68

4. Koike Takao, Harigai Masayoshi, Inokuma Shigeko, Ishiguro Naoki, Ryu Junnosuke, Takeuchi Tsutomu, Takei Syuji, Tanaka Yoshiya, Sano Yoko, Yaguramaki Hitomi, Yamanaka Hisashi. Effectiveness and safety of tocilizumab: postmarketing surveillance of 7901 patients with rheumatoid arthritis in Japan. J Rheumatol. 2014.01; 41(1); 15-23

5. Harigai Masayoshi, Mochida Satoshi, Mimura Toshihide, Koike Takao, Miyasaka Nobuyuki. A proposal for management of rheumatic disease patients with hepatitis B virus infection receiving immunosuppressive therapy. Mod Rheumatol. 2014.01; 24(1); 1-7

6. Takeuchi Tsutomu, Kawai Shinichi, Yamamoto Kazuhiko, Harigai Masayoshi, Ishida Kota, Miyasaka Nobuyuki. Post-marketing surveillance of the safety and effectiveness of tacrolimus in 3,267 Japanese patients with rheumatoid arthritis. Mod Rheumatol. 2014.01; 24(1); 8-16

7. Kenchi Takenaka, Takehiko Ohba, Kozo Suhara, Yurie Sato, Kenji Nagasaka. Successful treatment of refractory aortitis in antineutrophil cytoplasmic antibody-associated vasculitis using tocilizumab. Clin. Rheumatol.. 2014.02; 33(2); 287-289

8. Saito R, Takahashi R, Sawabe E, Koyano S, Takahashi Y, Shima M, Ushizawa H, Fujie T, Tosaka N, Kato Y, Moriya K, Tohda S, Tojo N, Koike R, Kubota T. First Report of KPC-2 Carbapenemase-Producing Klebsiella pneumoniae in Japan. Antimicrob Agents Chemother. 2014.05; 58(5); 2961-2963

9. Ryoko Sakai, Soo-Kyung Cho, Toshihiro Nanki, Ryuji Koike, Kaori Watanabe, Hayato Yamazaki, Hayato Nagasawa, Koichi Amano, Yoshiya Tanaka, Takayuki Sumida, Atsushi Ihata, Shinsuke Yasuda, Atsuo Nakajima, Takahiko Sugihara, Naoto Tamura, Takao Fujii, Hiroaki Dobashi, Yasushi Miura, Nobuyuki Miyasaka, Masayoshi Harigai, . The risk of serious infection in patients with rheumatoid arthritis treated with tumor necrosis factor inhibitors decreased over time: a report from the registry of Japanese rheumatoid arthritis patients on biologics for long-term safety (REAL) database. Rheumatol. Int.. 2014.05;

10. Shin Fukuda, Toshihiro Nanki, Tomohiro Morio, Hisanori Hasegawa, Ryuji Koike, Nobuyuki Miyasaka. Recurrent mitral valve regurgitation with neutrophil infiltration in a patient with multiple aseptic abscesses. Mod Rheumatol. 2014.05; 24(3); 537-539

11. Shimogaki Satoka, Ito Sayaka, Komatsu Sachiyo, Koike Ryuji, Miyasaka Nobuyuki, Umezawa Kazuo, Kubota Tetsuo. Inhibition of the NF-kappaB pathway as a candidate therapeutic strategy for cryopyrin-associated periodic syndrome. Mod Rheumatol. 2014.05; 24(3); 517-524

12. Koike Takao, Harigai Masayoshi, Ishiguro Naoki, Inokuma Shigeko, Takei Syuji, Takeuchi Tsutomu, Yamanaka Hisashi, Haruna Shigenori, Ushida Naoko, Kawana Katsuyoshi, Tanaka Yoshiya. Safety and effectiveness of adalimumab in Japanese rheumatoid arthritis patients: postmarketing surveillance report of 7740 patients. Mod Rheumatol. 2014.05; 24(3); 390-398

13. Soo-Kyung Cho, Ryoko Sakai, Toshihiro Nanki, Ryuji Koike, Kaori Watanabe, Hayato Yamazaki, Hayato Nagasawa, Yoshiya Tanaka, Atsuo Nakajima, Shinsuke Yasuda, Atsushi Ihata, Kazuhiko Ezawa, Soyoung Won, Chan-Bum Choi, Yoon-Kyoung Sung, Tae-Hwan Kim, Jae-Bum Jun, Dae-Hyun Yoo, Nobuyuki Miyasaka, Sang-Cheol Bae, Masayoshi Harigai, , . A comparison of incidence and risk factors for serious adverse events in rheumatoid arthritis patients with etanercept or adalimumab in Korea and Japan. Mod Rheumatol. 2014.07; 24(4); 572-579

14. Takahiko Sugihara, Tatsuro Ishizaki, Tadashi Hosoya, Shoko Iga, Waka Yokoyama, Fumio Hirano, Nobuyuki Miyasaka, Masayoshi Harigai. Structural and functional outcomes of a therapeutic strategy targeting low disease activity in patients with elderly-onset rheumatoid arthritis: a prospective cohort study (CRANE). Rheumatology (Oxford). 2014.10;

15. Nishimura Katsuji, Omori Masako, Sato Eri, Katsumata Yasuhiro, Gono Takahisa, Kawaguchi Yasushi, Harigai Masayoshi, Yamanaka Hisashi, Ishigooka Jun. New-onset psychiatric disorders after corticosteroid therapy in systemic lupus erythematosus: an observational case-series study. J Neurol. 2014.11; 261(11); 2150-2158

16. Sada Ken-Ei, Yamamura Masahiro, Harigai Masayoshi, Fujii Takao, Arimura Yoshihiro, Makino Hirofumi, for the Research Committee on Intractable Vasculitides the Ministry of Health Labour and Welfare of Japan. Issues associated with the Ministry of Health, Labour and Welfare diagnostic criteria for antineutrophil cytoplasmic antibody-associated vasculitides: Reclassification of patients in the prospective cohort study of Remission Induction Therapy in Japanese patients with ANCA-associated vasculitides according to the MHLW criteria. Mod Rheumatol. 2014.12; 1-3

17. Tanaka Michi, Koike Ryuji, Sakai Ryoko, Saito Kazuyoshi, Hirata Shintaro, Nagasawa Hayato, Kameda Hideto, Hara Masako, Kawaguchi Yasushi, Tohma Shigeto, Takasaki Yoshinari, Dohi Makoto, Nishioka Yasuhiko, Yasuda Shinsuke, Miyazaki Yasunari, Kaneko Yuko, Nanki Toshihiro, Watanabe Kaori, Yamazaki Hayato, Miyasaka Nobuyuki, Harigai Masayoshi. Pulmonary infections following immunosuppressive treatments during hospitalization worsen the short-term vital prognosis for patients with connective tissue disease-associated interstitial pneumonia. Mod Rheumatol. 2014.12; 1-6

[Conference Activities & Talks]

1. Masayoshi Harigai. Clinical implications and management of comorbidity/multimorbidity in patients with rheumatoid arthritis. Expert meeting-Biologic in Rheumatoid Arthritis management 2014.05 Nha Trang

2. Masayoshi Harigai. Treatment of RA with tocilizumab in the real world setting: experience from Japan. Expert meeting-Biologic in Rheumatoid Arthritis management 2014.05.17 Nha Trang

3. Ryoko Sakai, Fumio Hirano, Mari Kihara, Waka Yokoyama, Hayato Yamazaki, Ryuji Koike, Nobuyuki Miyasaka, Masayoshi Harigai. Prevalence of comorbidities in patients with rheumatoid arthritis using Japanese health insurance database . Annual European Congress of Rheumatology 2014.06.13

4. Masayoshi Harigai. Data and Experience of Orencia with Japanese RA patients. Orencia Speaker Forum, PacRim 2014.09 Seoul

5. Fumio Hirano, Masayoshi Harigai. Predicting factors of good clinical outcomes in a treat-to-target implementing cohort. 6th CRCRA International Symposium 2014.10.17 Seoul, Republic of Korea

Department of Nanomedicine

Associate Professor Motohiro Komaki
Lecturer Kengo Iwasaki
Project researchers Naoki Yokoyama

(1) Outline

Department of Nanomedicine has been established as endow courses in 2005 by a suggestion of Ikuo Morita (Excutive director and Excutive vice president of Research and International Cooperation) and financing of Dai Nippon Printing Co., Ltd (DNP). We work on a team from Medical, Dental and Science to conduct basic researches of "off-the-shelf" regenerative therapies using stem cells or their derivatives.

(2) Research

Mesenchymal stem cells residing within tissues are a promising source of cells for regenerative therapy due to their multi-differentiation and high proliferative potency. We study to develop safer and more effective therapeutic application of stem cells. We study novel periodontal regenerative therapy by using cell-transfer and -patterning technique. Also we study cell-free system (stem cell-conditioned medium and extracellular vesicles)for various disease.

(3) Lectures & Courses

In the lecture for periodontolgy (D4, D5) , we learn biological principle necessary for periodontal regeneration and the basics of periodontal surgical procedure. In graduate school lecture, we understand a mechanism of wound healing and a principle of therapeutic potential of stem cells through the latest findings such as wound healing-stimulating activity by the humoral factor secreted by stem cells. Also, we introduce cell transfer and patterning technique and give an outline about application of stem cells to tissue engineering.

(4) Clinical Services & Other Works

In dental hospital(Periodontics), Drs. Komaki and Iwasaki as periodontal specialists and preceptors offer dental treatments of the highest standard in accord with the needs of patients and clinical training of students.

(5) Publications

[Original Articles]

1. Yasuyuki Kimura, Motohiro Komaki, Kengo Iwasaki, Masataka Sata, Yuichi Izumi, Ikuo Morita. Recruitment of bone marrow-derived cells to periodontal tissue defects. Front Cell Dev Biol. 2014; 2; 19

2. Kengo Iwasaki, Motohiro Komaki, Naoki Yokoyama, Yuichi Tanaka, Atsuko Taki, Izumi Honda, Yasuyuki Kimura, Masaki Takeda, Keiko Akazawa, Shigeru Oda, Yuichi Izumi, Ikuo Morita. Periodontal regeneration using periodontal ligament stem cell-transferred amnion. Tissue Eng Part A. 2014.02; 20(3-4); 693-704

3. Seigo Morita, Kengo Iwasaki, Yasubumi Maruoka, Yoshikazu Okada, Tomohiro Ando. Identification of periodontal bacteria from carotid artery plaque in chronic periodontitis patients Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology . 2014.10; 26(4); 450-455

4. Nastaran Abbarin, Symone San Miguel, James Holcroft, Kengo Iwasaki, Bernhard Ganss. The Enamel Protein Amelotin is a Promoter of Hydroxyapatite Mineralization. J. Bone Miner. Res.. 2014.11;

[Books etc]

1. Motohiro Komaki, Kengo Iwasaki, Ikuo Morita. Bone and Stem cells. 2014.04

[Conference Activities & Talks]

1. Akira Aoki, Koji Mizutani, Yoichi Taniguchi, Motohiro Komaki, Shigeru Oda, Hisashi Watanabe, Yuichi Izumi. A novel non-surgical periodontal therapy using an Er:YAG laser.. 2014.10.19 Kobe, Japan

Department of Liver Disease Control

Professor Yasuhiro ASAHINA
Senior Associate Professor Sei KAKINUMA

Graduate Student
(collaboration with Department of Gastroenterology and Hepatology in TMDU)
Miyako MURAKAWA, Satoshi OHTANI, Fukiko KITAHATA, Miki TANIGUCHI, Fumio GOTOH, Shun KANEKO, Hiroko NAGATA,Yuu ASANO,Emi INOUE

(1) Outline

Patients died from chronic liver diseases, including liver cancer, are about 40,000 persons per a year in Japan. Liver transplantation remains the only effective treatment available to patients with liver failure. Because of a serious shortage of donors, an alternative therapy is needed. Prevention of hepatocarcinogenesis and hepatic fibrosis is also necessary for patients with chronic hepatitis, and the development of effective treatment for chronic liver diseases has been quite essential. We believe that the central role of clinical departments in the graduate school of TMDU is to establish basis for the innovative medical treatment in the next generation. To achieve our mission, both basic research lead by clinical concepts and development of novel therapeutics established upon basic research are required. Our primary goal is to train highly educated and experienced clinician-researchers in the field of hepatology.
Our section is a donation-funded department collaborating with the Department of Gastroenterology and Hepatology in TMDU. Most of basic research projects, education for students, and clinical contributions including multicenter study are collaboration with the Department of Gastroenterology and Hepatology in TMDU.
The final goal of our education is to promote students to become a well-developed hepatologist, and also a leading expert in the field of hepatology.

(2) Research

Our principle is to achieve a research evoked from various clinical problems, and also directed to launch innovative therapeutic procedures to the daily clinical practice.
We focused the basic studies using viral and immunological strategy, the research for molecular mechanisms of liver tissue regeneration and fibrogenesis in liver, and the study for molecular mechanisms regulating differentiation of hepatic stem/progenitor cells.
Research projects
· Analysis of molecular mechanisms underlying resistance to anti-viral therapy for eradication of hepatitis viruses.
· Analysis of molecular mechanisms underlying proliferation and differentiation of hepatic stem/progenitor cells.
· Exploration of liver cancer-related genes essential for disease progression.
· Regenerative medical science of liver.

(3) Education

Primary goal for education in our section is to train highly educated and experienced clinician-researchers in the field of hepatology. Our goal for education of graduate students is to produce clinical researchers thinking from a wide perspective and to bring up leaders of the next generation in hepatology. For the education of undergraduate and graduate students in TMDU and clinical residents in TMDU Medical Hospital, we collaborate with the Department of Gastroenterology and Hepatology in TMDU.

(4) Lectures & Courses

Our Lectures and Courses are collaboration with the Department of Gastroenterology and Hepatology in TMDU. We also educate graduate students of the Department of Gastroenterology and Hepatology in TMDU in collaboration with such department.

(5) Clinical Services & Other Works

In the clinical section, we pursue development and application of highly advanced technologies, including novel procedures, for sophisticated diagnosis and treatment of liver diseases. For the treatment of patients with liver diseases in TMDU Medical Hospital, we collaborate with the Department of Gastroenterology and Hepatology in TMDU. We also operate a lot of multicenter study collaborating with the Department of Gastroenterology and Hepatology in TMDU. We participate in five research committees for treatment and eradiation of hepatitis virus funded by the Ministry of Health, Labor and Welfare of Japan in this year. We published a lot of studies in peer-reviewed international journals and presented the recent works in a lot of international and domestic conferences as described below.

(6) Clinical Performances

Clinical projects
· Prevention of progression to hepatocellular carcinoma and liver failure in patients with chronic hepatitis based on virological treatment strategy.
· Clinical trial of innovative treatment for hepatocellular carcinoma.
· Development of novel diagnostic and therapeutic strategy valuable for validation of the individual risk for liver cancer and diagnosis of early liver cancer.

(7) Publications

[Original Articles]

1. Yasui Y, Kudo A, Kurosaki M, Matsuda S, Muraoka M, Tamaki N, Suzuki S, Hosokawa T, Ueda K, Matsunaga K, Nakanishi H, Tsuchiya K, Itakura J, Takahashi Y, Tanaka S, Asahina Y, Enomoto N, Arii S, Izumi N.. Reduced organic anion transporter expression is a risk factor for hepatocellular carcinoma in chronic hepatitis C patients: a propensity score matching study. Oncology. 2014.01; 86(1); 53-62

2. Kaoru Tsuchiya, Yasuhiro Asahina, Shuya Matsuda, Masaru Muraoka, Toru Nakata, Yuichiro Suzuki, Nobuharu Tamaki, Yutaka Yasui, Shoko Suzuki, Takanori Hosokawa, Takashi Nishimura, Ken Ueda, Teiji Kuzuya, Hiroyuki Nakanishi, Jun Itakura, Yuka Takahashi, Masayuki Kurosaki, Nobuyuki Enomoto, Namiki Izumi. Changes in plasma vascular endothelial growth factor at 8 weeks after sorafenib administration as predictors of survival for advanced hepatocellular carcinoma. Cancer. 2014.01; 120(2); 229-237

3. Asahina Y, HayashinN, Hiramatsu N, Izumi N, Koike K, Kumada H, Kurosaki M,Oketani M, Suzuki F, Takikawa H, Tanaka A, Tanaka E, Tanaka Y, Tsubouchi H,Yotsuyanagi H. JSH Guidelines for the Management of Hepatitis B Virus Infection. Hepatol Res. 2014.01; 44 Suppl S1; 1-58

4. Nao Nishida, Hiromi Sawai, Koichi Kashiwase, Mutsuhiko Minami, Masaya Sugiyama, Wai-Kay Seto, Man-Fung Yuen, Nawarat Posuwan, Yong Poovorawan, Sang Hoon Ahn, Kwang-Hyub Han, Kentaro Matsuura, Yasuhito Tanaka, Masayuki Kurosaki, Yasuhiro Asahina, Namiki Izumi, Jong-Hon Kang, Shuhei Hige, Tatsuya Ide, Kazuhide Yamamoto, Isao Sakaida, Yoshikazu Murawaki, Yoshito Itoh, Akihiro Tamori,

Etsuro Orito, Yoichi Hiasa, Masao Honda, Shuichi Kaneko, Eiji Mita, Kazuyuki Suzuki, Keisuke Hino, Eiji Tanaka, Satoshi Mochida, Masaaki Watanabe, Yuichiro Eguchi, Naohiko Masaki, Kazumoto Murata, Masaaki Korenaga, Yoriko Mawatari, Jun Ohashi, Minae Kawashima, Katsushi Tokunaga, Masashi Mizokami. New susceptibility and resistance HLA-DP alleles to HBV-related diseases identified by a trans-ethnic association study in Asia. PLoS ONE. 2014.02; 9(2); e86449

5. Kaoru Tsuchiya, Yasuhiro Asahina, Nobuharu Tamaki, Yutaka Yasui, Takanori Hosokawa, Ken Ueda, Hiroyuki Nakanishi, Jun Itakura, Masayuki Kurosaki, Nobuyuki Enomoto, Namiki Izumi. Risk factors for exceeding the Milan criteria after successful radiofrequency ablation in patients with early-stage hepatocellular carcinoma. Liver Transpl. 2014.03; 20(3); 291-297

6. Hiroyuki Nakanishi, Masayuki Kurosaki, Kaoru Nakanishi, Kaoru Tsuchiya, Takamasa Noda, Nobuharu Tamaki, Yutaka Yasui, Takanori Hosokawa, Ken Ueda, Jun Itakura, Kimitaka Anami, Yasuhiro Asahina, Nobuyuki Enomoto, Teruhiko Higuchi, Namiki Izumi. Impaired brain activity in cirrhotic patients with minimal hepatic encephalopathy: Evaluation by near-infrared spectroscopy. Hepatol Res. 2014.03; 44(3); 319-326

7. Nobuharu Tamaki, Masayuki Kurosaki, Shuya Matsuda, Toru Nakata, Masaru Muraoka, Yuichiro Suzuki, Yutaka Yasui, Shoko Suzuki, Takanori Hosokawa, Takashi Nishimura, Ken Ueda, Kaoru Tsuchiya, Hiroyuki Nakanishi, Jun Itakura, Yuka Takahashi, Kotaro Matsunaga, Kazuhiro Taki, Yasuhiro Asahina, Namiki Izumi. Prospective comparison of real-time tissue elastography and serum fibrosis markers for the estimation of liver fibrosis in chronic hepatitis C patients. Hepatol Res. 2014.07; 44(7); 720-727

8. Yasuhiro Asahina, Kaoru Tsuchiya, Takashi Nishimura, Masaru Muraoka, Yuichiro Suzuki, Nobuharu Tamaki, Yutaka Yasui, Takanori Hosokawa, Ken Ueda, Hiroyuki Nakanishi, Jun Itakura, Yuka Takahashi, Masayuki Kurosaki, Nobuyuki Enomoto, Mina Nakagawa, Sei Kakinuma, Mamoru Watanabe, Namiki Izumi. Genetic variation near interleukin 28B and the risk of hepatocellular carcinoma in patients with chronic hepatitis C. J. Gastroenterol. 2014.07; 49(7); 1152-1162

9. Yasuhiro Iizuka, Hideki Sakai, Konomi Kobayashi, Kazue Iizuka, Eri Ito, Nahoko Mochizuki, Yasuhiro Asahina, Mamoru Watanabe. A case of chronic hepatitis B managed with continued adefovir despite treatment-related Fanconi syndrome and osteomalacia. Nihon Shokakibyo Gakkai Zasshi. 2014.08; 111(8); 1618-1623

10. Yasuhiro Asahina, Kaoru Tsuchiya, Namiki Izumi. Reply: To PMID 23564522. Hepatology. 2014.08; 60(2); 764

11. Goki Suda, Yoshiya Yamamoto, Astushi Nagasaka, Ken Furuya, Mineo Kudo, Yoshimichi Chuganji, Yoko Tsukuda, Seiji Tsunematsu, Fumiyuki Sato, Katsumi Terasita, Masato Nakai, Hiromasa Horimoto, Takuya Sho, Mitsuteru Natsuizaka, Kouji Ogawa, Shunsuke Ohnishi, Makoto Chuma, Yasuyuki Fujita, Riichiro Abe, Miki Taniguchi, Mina Nakagawa, Yasuhiro Asahina, Naoya Sakamoto. Serum granulysin levels as a predictor of serious telaprevir-induced dermatological reactions. Hepatol Res. 2014.09;

12. Kaoru Tsuchiya, Yasuhiro Asahina, Masayuki Kurosaki, Nobuyuki Enomoto, Namiki Izumi. Reply: To PMID 24734314. Liver Transpl. 2014.09; 20(9); 1152

13. Yoshihito Kano, Sei Kakinuma, Fumio Goto, Seishin Azuma, Yuki Nishimura-Sakurai, Yasuhiro Itsui, Mina Nakagawa, Atsushi Kudo, Minoru Tanabe, Susumu Kirimura, Tomonori Amano, Takashi Ito, Takumi Akashi, Yasuhiro Asahina, Mamoru Watanabe. Primary Hepatic Neuroendocrine Carcinoma with a Cholangiocellular Carcinoma Component in One Nodule. Clinical Journal of Gastroenterology. 2014.10; 7; 449-454

14. Nobuharu Tamaki, Masayuki Kurosaki, Shuya Matsuda, Masaru Muraoka, Yutaka Yasui, Shoko Suzuki, Takanori Hosokawa, Ken Ueda, Kaoru Tsuchiya, Hiroyuki Nakanishi, Jun Itakura, Yuka Takahashi, Yasuhiro Asahina, Namiki Izumi. Non-invasive prediction of hepatocellular carcinoma development using serum fibrosis marker in chronic hepatitis C patients. J. Gastroenterol. 2014.11; 49(11); 1495-1503

15. Nobutoshi Komatsu, Utaroh Motosugi, Shinya Maekawa, Kuniaki Shindo, Minoru Sakamoto, Mitsuaki Sato, Akihisa Tatsumi, Mika Miura, Fumitake Amemiya, Yasuhiro Nakayama, Taisuke Inoue, Mitsuharu Fukasawa, Tomoyoshi Uetake, Masahiko Ohtaka, Tadashi Sato, Yasuhiro Asahina, Masayuki Kurosaki, Namiki Izumi, Tomoaki Ichikawa, Tsutomu Araki, Nobuyuki Enomoto. Hepatocellular carcinoma risk assessment using gadoxetic acid-enhanced hepatocyte phase magnetic resonance imaging. Hepatol Res. 2014.12; 44(13); 1339-1346

[Conference Activities & Talks]

1. Otani S, Kakinuma S, Kamiya A, Goto F, Kaneko S, Azuma S, Asahina Y, Watanabe M. Matrix Metalloproteinase-14 controls differentiation of fetal hepatic stem/progenitor cells. Japan Digesive Disease Weeks 2014 2014.10.23 Kobe

2. Nakagawa M, Asahina Y, Taniguchi M, Watanabe T, Nishimura-Sakurai Y, Itsui Y, Azuma S, Kakinuma S, Tanaka Y, Watanabe M. Impact of host and therapeutic factors and resistant associated variants on response to interferon based-direct acting antiviral treatment in difficult-to-treat chronic hepatitis C patients. The 65th. Annual Meeting of American Association for the Study of Liver Diseases（AASLD The Liver Meeting 2014) 2014.11.09 Boston

3. Kawai-Kitahata F, Asahina Y, Kaneko S, Nagata H, Goto F, Otani S, Taniguchi M , Murakawa M , Nitta S, Watanabe T, Itsui Y, Nakagawa M, Kakinuma S, Enomoto N, Watanabe M. Gene alterations in β-catenin and p53/cell cycle control pathway are closely associated with development and prognosis of hepatocellular carcinoma: Comprehensive analyses by next generation sequencing technology. The 65th. Annual Meeting of American Association for the Study of Liver Diseases（AASLD The Liver Meeting 2014) 2014.11.10 Boston

4. Murakawa M, Asahina Y, Nakagawa M, Kawai-Kitahata F, Taniguchi M, Nitta S, Watanabe T, Itsui Y, Kakinuma S, Sakamoto N, Watanabe M. Expression of IFN λ 4 in liver and PBMC is closely associated with higher basal expression of ISGs and impaired induction of IL28B by interferon treatment in chronic hepatitis C non-responder patients. The 65th. Annual Meeting of American Association for the Study of Liver Diseases（AASLD The Liver Meeting 2014) 2014.11.11 Boston

5. Otani S, Kakinuma S, Watanabe M. Matrix Metalloproteinase-14 regulates the maturation of fetal hepatic stem/progenitor cells in mice. The 65th. Annual Meeting of American Association for the Study of Liver Diseases（AASLD The Liver Meeting 2014) 2014.11.11 Boston

6. Watanabe T, Asahina Y, Nakagawa M, Kakinuma S, Itsui Y, Taniguchi M, Murakawa M, Nagata H, Miura M, Maekawa S, Enomoto N, Watanabe M. Emergence or selection of resistant associated variant immediately after initiation of the therapy is predictive for failure of direct acting antiviral therapy:ultra-deep sequencing analyses for serial time points. The 65th. Annual Meeting of American Association for the Study of Liver Diseases（AASLD The Liver Meeting 2014) 2014.11.11 Boston

Department of Advanced Therapeutics for GI Diseases

Professor	Tetsuya NAKAMURA
Associate Professor	Kiichiro TSUCHIYA
Junior Associate Professor	Katsuyoshi MATSUOKA
Project Assistant Professor	Tomohiro MIZUTANI
Medical Fellow	Go ITO

Graduate Student
Masayoshi FUKUDA, Kengo NOZAKI, Taichi MATSUMOTO,
Yuka MATSUMOTO, Nobukatsu HORITA, Shuji HIBIYA, Keita FUKUSHIMA,
Hiromichi SHIMIZU,Satoru FUJII, Toru NAKATA

(1) Outline

The goal of our department is to develop novel therapeutic strategies for inflammatory bowel diseases (IBD) in humans. With the multiple layers of support of corporations who wish to contribute to our mission, we have been focusing on IBD research from the clinical and basic science perspectives, providing an exceptional education program for graduate students at TMDU.

(2) Research

Our research activities focus on the key areas listed below. We have a particular emphasis on translational (bench to clinic) research on IBD.
· Research on the intestinal epithelium to develop regenerative medicine approaches for IBD
· The study of mucosal immunology to develop novel approaches for the diagnosis and treatment of IBD

(3) Education

We share our expertise and teaching program in graduate course education with the Department of Gastroenterology and Hepatology at TMDU. We are also involved in many programs designed for undergraduates.

(4) Lectures & Courses

Our goal is to create future leaders who are able to reach the highest level of quality in IBD research through the training of fellows and graduate/undergraduate students.

(5) Clinical Services & Other Works

We focus on developing highly advanced technologies, including novel procedures, for diagnosis and treatment of IBD in collaboration with the Department of Gastroenterology and Hepatology at TMDU. In addition, we have been playing a major role in nation-wide survey and multi-center studies on IBD, which is funded by the Japanese Ministry of Health, Labor and Welfare.

(6) Clinical Performances

· Development of new treatment protocol for IBD patients with stem cell therapy or immunomodulators.
· Development of minimally-invasive diagnostic modalities for inflammatory bowel diseases (i.e. MRE).
· Diagnosis and treatment of small intestinal lesions of inflammatory bowel diseases by double-balloon enteroscopy.

(7) Publications

[Original Articles]

1. Yohei Mikami, Shinta Mizuno, Nobuhiro Nakamoto, Atsushi Hayashi, Tomohisa Sujino, Toshiro Sato, Nobuhiko Kamada, Katsuyoshi Matsuoka, Tadakazu Hisamatsu, Hirotoshi Ebinuma, Toshifumi Hibi, Akihiko Yoshimura, Takanori Kanai. Macrophages and dendritic cells emerge in the liver during intestinal inflammation and predispose the liver to inflammation. PLoS ONE. 2014.01; 9(1); e84619

2. Atsushi Sakuraba, Yasushi Iwao, Katsuyoshi Matsuoka, Makoto Naganuma, Haruhiko Ogata, Takanori Kanai, Toshifumi Hibi. Endoscopic and pathologic changes of the upper gastrointestinal tract in Crohn's disease. Biomed Res Int. 2014.02; 2014; 610767

3. Masahiro Suzuki, Takashi Nagaishi, Motomi Yamazaki, Michio Onizawa, Taro Watabe, Yuriko Sakamaki, Shizuko Ichinose, Mamoru Totsuka, Shigeru Oshima, Ryuichi Okamoto, Motoyuki Shimonaka, Hideo Yagita, Tetsuya Nakamura, Mamoru Watanabe. Myosin light chain kinase expression induced via tumor necrosis factor receptor 2 signaling in the epithelial cells regulates the development of colitis-associated carcinogenesis. PLoS ONE. 2014.02; 9(2); e88369

4. Taku Kobayashi, Erin C Steinbach, Steven M Russo, Katsuyoshi Matsuoka, Tomonori Nochi, Nitsan Maharshak, Luke B Borst, Bruce Hostager, J Victor Garcia-Martinez, Paul B Rothman, Masaki Kashiwada, Shehzad Z Sheikh, Peter J Murray, Scott E Plevy. NFIL3-deficient mice develop microbiota-dependent, IL-12/23-driven spontaneous colitis. J. Immunol. 2014.02; 192(4); 1918-1927

5. Tadakazu Hisamatsu, Makoto Naganuma, Katsuyoshi Matsuoka, Takanori Kanai. Diagnosis and management of intestinal Behçet's disease. Clin J Gastroenterol. 2014.04; 7; 205-212

6. Hiromichi Shimizu, Ryuichi Okamoto, Go Ito, Satoru Fujii, Toru Nakata, Kohei Suzuki, Tatsuro Murano, Tomohiro Mizutani, Kiichiro Tsuchiya, Tetsuya Nakamura, Katsuto Hozumi, Mamoru Watanabe. Distinct expression patterns of Notch ligands, Dll1 and Dll4, in normal and inflamed mice intestine. PeerJ. 2014.05; 2(1); e370

7. Kazuaki Yoneno, Tadakazu Hisamatsu, Katsuyoshi Matsuoka, Susumu Okamoto, Tetsuro Takayama, Riko Ichikawa, Tomohisa Sujino, Jun Miyoshi, Kaoru Takabayashi, Yohei Mikami, Shinta Mizuno, Yasuyo Wada, Tomoharu Yajima, Makoto Naganuma, Nagamu Inoue, Yasushi Iwao, Haruhiko Ogata, Hirotoshi Hasegawa, Yuko Kitagawa, Toshifumi Hibi, Takanori Kanai. Risk and management of intra-abdominal abscess in Crohn's disease treated with infliximab. Digestion. 2014.06; 89(3); 201-208

8. Takanori Kanai, Katsuyoshi Matsuoka, Makoto Naganuma, Atsushi Hayashi, Tadakazu Hisamatsu. Diet, microbiota, and inflammatory bowel disease: lessons from Japanese foods. Korean J. Intern. Med. 2014.07; 29(4); 409-415

9. Shinta Mizuno, Yohei Mikami, Nobuhiko Kamada, Tango Handa, Atsushi Hayashi, Toshiro Sato, Katsuyoshi Matsuoka, Mami Matano, Yuki Ohta, Akira Sugita, Kazutaka Koganei, Rikisaburo Sahara, Masakazu Takazoe, Tadakazu Hisamatsu, Takanori Kanai. Cross-talk between ROR γ t+ innate lymphoid cells and intestinal macrophages induces mucosal IL-22 production in Crohn's disease. Inflamm. Bowel Dis. 2014.08; 20(8); 1426-1434

10. Masayoshi Fukuda, Tomohiro Mizutani, Wakana Mochizuki, Taichi Matsumoto, Kengo Nozaki, Yuriko Sakamaki, Shizuko Ichinose, Yukinori Okada, Toshihiro Tanaka, Mamoru Watanabe, Tetsuya Nakamura. Small intestinal stem cell identity is maintained with functional Paneth cells in heterotopically grafted epithelium onto the colon. Genes Dev. 2014.08; 28(16); 1752-1757

11. Yoko Yokoyama, Katsuyoshi Matsuoka, Taku Kobayashi, Koji Sawada, Tateshi Fujiyoshi, Takafumi Ando, Yoshifumi Ohnishi, Tetsuya Ishida, Masashi Oka, Masahiro Yamada, Takashi Nakamura, Tomoko Ino, Toyoko Numata, Hirofumi Aoki, Jun-Ichi Sakou, Masahiro Kusada, Tomoki Maekawa, Toshifumi Hibi. A large-scale, prospective, observational study of leukocytapheresis for ulcerative colitis: treatment outcomes of 847 patients in clinical practice. J Crohns Colitis. 2014.09; 8(9); 981-991

12. Shingo Usui, Naoki Hosoe, Katsuyoshi Matsuoka, Taku Kobayashi, Masaru Nakano, Makoto Naganuma, Yuka Ishibashi, Kayoko Kimura, Kazuaki Yoneno, Kazuhiro Kashiwagi, Tadakazu Hisamatsu, Nagamu Inoue, Hiroshi Serizawa, Toshifumi Hibi, Haruhiko Ogata, Takanori Kanai. Modified bowel preparation regimen for use in second-generation colon capsule endoscopy in patients with ulcerative colitis. Dig Endosc. 2014.09; 26(5); 665-672

13. Daisuke Oryoji, Tadakazu Hisamatsu, Kiichirou Tsuchiya, Jyunji Ueno, Syou Ueda, Ken Yamamoto, Takayuki Matsumoto, Mamoru Watanabe, Toshifumi Hibi, Takehiko Sasazuki. Associations of HLA class I alleles in Japanese patients with Crohn's disease. Genes Immun. 2014.09; 16; 54-56

14. Keiichiro Saigusa, Tadakazu Hisamatsu, Tango Handa, Tomohisa Sujino, Yohei Mikami, Atsushi Hayashi, Shinta Mizuno, Kozue Takeshita, Toshiro Sato, Katsuyoshi Matsuoka, Takanori Kanai. Classical Th1 cells obtain colitogenicity by co-existence of ROR γ t-expressing T cells in experimental colitis. Inflamm. Bowel Dis. 2014.10; 20(10); 1820-1827

15. Nobukatsu Horita, Kiichiro Tsuchiya, Ryohei Hayashi, Keita Fukushima, Shuji Hibiya, Masayoshi Fukuda, Yoshihito Kano, Tomohiro Mizutani, Yasuhiro Nemoto, Shiro Yui, Ryuichi Okamoto, Tetsuya Nakamura, Mamoru Watanabe. Fluorescent labelling of intestinal epithelial cells reveals independent long-lived intestinal stem cells in a crypt. Biochem Biophys Res Commun. 2014.10; 454(4); 493-499

16. Jun Miyoshi, Tadakazu Hisamatsu, Katsuyoshi Matsuoka, Makoto Naganuma, Yuriko Maruyama, Kazuaki Yoneno, Kiyoto Mori, Hiroki Kiyohara, Kosaku Nanki, Susumu Okamoto, Tomoharu Yajima, Yasushi Iwao, Haruhiko Ogata, Toshifumi Hibi, Takanori Kanai. Early intervention with adalimumab may contribute to favorable clinical efficacy in patients with Crohn's disease. Digestion. 2014.10; 90(2); 130-136

17. Kiyonori Kobayashi, Fumihito Hirai, Makoto Naganuma, Kenji Watanabe, Takafumi Ando, Hiroshi Nakase, Katsuyoshi Matsuoka, Mamoru Watanabe. A randomized clinical trial of mesalazine suppository: The usefulness and problems of central review of evaluations of colonic mucosal findings. J Crohns Colitis. 2014.11; 8(11); 1444-1453

18. Katsuyoshi Matsuoka, Shinta Mizuno, Atsushi Hayashi, Tadakazu Hisamatsu, Makoto Naganuma, Takanori Kanai. Fecal microbiota transplantation for gastrointestinal diseases. Keio J Med. 2014.12; 63(4); 69-74

[Conference Activities & Talks]

1. Hibiya S, Tsuchiya K, Fukushima K, Hayashi R, Horita N, Kano Y , Okamoto R, Nakamura T,Watanabe M. Long-term stimulation with cytokines acquires irreversible accumulation of NF-κ B signaling in primary colonic epithelial cells. 4th International Symposium on Carcinogenic Spiral 2014.02.11 Sapporo

2. Mizutani T, Fukuda M, Mochizuki W, Matsumoto T, Nozaki K, Ichinose S, Watanabe M, Nakamura T. Successful Engraftment of Cultured Small Intestinal Epithelial Stem Cells onto Damaged Colonic Mucosa by Heterotopic Transplantation. Digestive Disease Week 2014 2014.05.03 Chicago

3. Fukuda M, Mizutani T, Mochiduki W, Taichi M, Nozaki K, Ichinose S, Watanabe M, Nakamura T. Successful Engraftment of Cultured Small Intestinal Epithelial Stem Cells onto Damaged Colonic Mucosa by Heterotopic Transplantation. I2th Interational society for stem cell research 2014.06.19 Vancouver

4. Matsuoka k. Management of intra-abdominal abscess and stricture. The 2nd Annual Meeting of AOCC 2014.06.21 Seoul

5. Go Ito, Ryuichi Okamoto, Hiromichi Shimizu, Satoru Fujii, Toru Nakata, Kohei Suzuki, Kiichiro Tsuchiya, Tetsuya Nakamura, Mamoru Watanabe. Notch signaling and TNF-α synergistically promotes intracellular protein expression of OLFM4 in human intestinal epithelial cells. The 2nd Annual Meeting of Asian Organization for Crohn's and Colitis 2014.06.21 Seoul

6. Hiromichi Shimizu, Ryuichi Okamoto, Go Ito, Satoru Fujii, Toru Nakata, Kohei Suzuki, Tatsuro Murano, Tomohiro Mizutani, Kiichiro Tsuchiya, Tetsuya Nakamura, Katsuto Hozumi, Mamoru Watanabe. Distinct Expression Patterns of Notch Ligands, DLL1 and DLL4, in Normal and Inflamed Mice Intestine. The 2nd Annual Meeting of Asian Organization for Crohn's and Colitis 2014.06.21 Seoul

7. Tsuchiya K, Hibiya S, Watanabe M. Innate immune spiral of intestinal epithelial cells by the longterm inflammation. The 73rd Annual Meeting of the Japanese Cancer Association 2014.09.25 Yokohama

8. Ito G, Okamoto R, Shimizu H, Fujii S, Nakata T, Suzuki K, Tsuchiya K, Nakamura T, Watanabe M. Notch Signaling and TNF-α synergistically promotes intracellular protein accumulation of olfm4 in the inflamed mucosa of ulcerative colitis. UEGW2014 2014.10.21 Vienna

9. Hayashi R, Tsuchiya K, Hibiya S, Fukushima K, Horita N, Okada E, Araki A, Ohtsuka K, Watanabe M. Human alpha-defensin 6 regulated by both atoh1 and beta-catenin might be the pathogeneses of crohn's disease. UEGW2014 2014.10.22 Vienna

10. Okamoto R, Ito G, Shimizu H, Fujii S, Nakata T, Suzuki K, Watanabe M. Notch signaling regulates expression of gelsolin superfamily genes, gelsolim and scinderin and promotes re-assembly of action cytoskeleton in human intestinal epithelial cells. UEGW2014 2014.10.22 Vienna

11. Matsuoka K, Naganuma M, Kanai T. The Ulserative Colitis Endoscopic Index of Severity (UCEIS) is useful to evaluate endoscopic improvement and to predict medium-term prognosis in ulcerative colitis patients treated with tacrolimus. Japan Digesive Disease Weeks 2014 2014.10.26 Kobe

Department of Sleep Modulatory Medicine

Professor Naohiko Inase
Associate Professor Meiyo Tamaoka
Assistant Professor Mizue Hobo
Technician Yumi Matsubara
Technician Megumi Sato

(1) Research

Effects of NMDA-type glutamate receptor co-agonist on gamma oscillations and sleep in schizophrenia.
Open-label trial of ramelteon for diabetes mellitus with sleep disorder.
The effect of chronotherapy with the angiotensin-antagonist in hypertension with sleep apnea syndrome.
The efficacy of home-oxygen therapy in patients with sleep apnea and pulmonary fibrosis.
Development of the evaluation system for the efficacy of oral appliances on obstructive sleep apnea syndrome.
Open-label trial of hyperbaric oxygen therapy on sleep quality

(2) Clinical Services & Other Works

Clinical Center for Pleasant Sleep provides a variety of medical service for sleep disorder especially for sleep apnea syndrome.

· Out-patient Clinic
Monday: AM Dr. Tsutsui (Pulmonary Medicine)
PM Dr. Fujie (Pulmonary Medicine)
Tuesday: AM Dr. Uezato (Psychiatry)
Wednesday: AM Dr. Miyazaki (Health Service Center)
Thursday: AM Dr. Tamaoka (Sleep Modulatory Medicine)
PM Dr. Tamaoka (Sleep Modulatory Medicine)
Friday: AM Dr. Uezato (Psychiatry)
AM Dr. Tateishi (Pulmonary Medicine)
PM Dr. Tateishi(Pulmonary Medicine)

(3) Publications

[Original Articles]

1. Yuki Iijima, Haruhiko Furusawa, Tomoya Tateishi, Kimitake Tsuchiya, Toshihide Fujie, Meiyo Tamaoka, Hiroyuki Sakashita, Yasunari Miyazaki, Yuki Sumi, Yuji Hosono, Ran Nakashima, Tsuneyo Mimori and Naohiko Inase. Amyopathic dermatomyositis complicated with eosinophilic pneumonia Internal Medicine. 2014.07; 53(14); 1539-1544

Department of Women's Health

Associate Professor Masakazu Terauchi MD PhD; Assistant Professor Kimio Wakana MD PhD (concurrent)

(1) Outline

Japanese women boast world's #1 longevity, although the final stage of their lives is not necessarily of good health-related quality. To stay physically and psychologically sound in later life, women need to optimize their health starting from their midlife, especially through good diet and exercise. Tokyo Medical and Dental University (TMDU) Department of Obstetrics and Gynecology have promoted midlife women's health with our renowned Systemic Health and Nutrition Education Program (SHNEP) since 1995, which inspired Kikkoman Corporation to generously support to establish a new department in TMDU focusing on "Health Maintenance of Women through Food and Nutrition" in 2012. Dr. Masakazu Terauchi, Associate Professor and Chair of TMDU Department of Women's Health, is intensively studying with his colleagues about the changes in women's bodies and minds induced by aging, and the effects of bioactive food ingredients on them.

(2) Research

Department of Women's Health has dealt with a variety of topics listed below since its inception in 2012, mainly focusing our research on the effects of bioactive food ingredients on women's physical and psychological health.
- Effects of grape seed extract on middle-aged women's health-related quality of life
- Effects of hormone therapy and keishibukuryogan on blood pressure in perimenopausal and postmenopausal women
- Effects of nonbenzodiazepine, melatonin receptor agonist, and Kampo medication on sleep disturbances in perimenopausal and postmenopausal women
- Effects of selective sertonin reuptake inhibitors on subjective and objective sleep parameters in middle-aged women with depression
- Effects of oral contraceptive pills on sleep disturbances in young women with primary dysmenorrhea
- Effects of tomato juice on cardiovascular risk markers in middle-aged women
- Effects of soy isoflavone aglicone on middle-aged women's health-related quality of life
- Menopausal hormone therapy: route of administration and platelet-derived microparticles
- Effects of soy lecithin on middle-aged women's tiredness

(3) Education

Cooperating with the Department of Obstetrics and Gynecology, we have shared responsibility in the education of Obstetrics and Gynecology, Maternal Nursing, and Human Genetics, as well as in the training of medical students on clinical clerkship.

(4) Clinical Services & Other Works

Cooperating with the Department of Obstetrics and Gynecology, we have provided a comprehensive diagnosis, treatment, and disease management solution for women suffering from:
- menopausal symptoms

- premature ovarian insufficiency
- postmenopausal osteoporosis
- dyslipidemia
- hypertension
- pelvic organ prolapse
- lower urinary tract syndrome
- depression
- anxiety disorder
- insomnia
- dysmenorrhea
- premenstrual syndrome etc.

(5) Publications

[Original Articles]

1. Masakazu Terauchi, Shiro Hiramitsu, Mihoko Akiyoshi, Yoko Owa, Kiyoko Kato, Satoshi Obayashi, Eisuke Matsushima, Toshiro Kubota. Effects of the kampo formula tokishakuyakusan on headaches and concomitant depression in middle-aged women. Evid Based Complement Alternat Med. 2014; 2014; 593560

2. Masakazu Terauchi, Noe Horiguchi, Asuka Kajiyama, Mihoko Akiyoshi, Yoko Owa, Kiyoko Kato, Toshiro Kubota. Effects of grape seed proanthocyanidin extract on menopausal symptoms, body composition, and cardiovascular parameters in middle-aged women: a randomized, double-blind, placebo-controlled pilot study. Menopause. 2014.09; 21(9); 990-996

3. Masakazu Terauchi, Asuka Hirose, Mihoko Akiyoshi, Yoko Owa, Kiyoko Kato, Toshiro Kubota. Subgrouping of Japanese middle-aged women attending a menopause clinic using physical and psychological symptom profiles: a cross-sectional study BMC Women's Health. 2014.11; 14(1); 148

[Conference Activities & Talks]

1. Masakazu Terauchi, Asuka Hirose, Mihoko Akiyoshi, Yoko Owa, Kiyoko Kato, Toshiro Kubota. Prevalence and Determinants of Lower Urinary Tract Symptoms in Peri- and Postmenopausal Women. North American Menopause Society 25th Annual Meeting 2014.10.16 Washington DC

2. Asuka Hirose, Masakazu Terauchi, Mihoko Akiyoshi, Yoko Owa, Kiyoko Kato, Toshiro Kubota. Low-dose isoflavone aglycone supplement alleviates menopausal symptoms :a randomized, double-blind, placebo-controlled study. North American Menopause Society 25th Annual Meeting 2014.10.16 Washington DC

3. Asuka Hirose, Masakazu Terauchi, Moe Tamura, Mihoko Akiyoshi, Yoko Owa, Kiyoko Kato, Toshiro Kubota. Tomato juice intake lowers serum triglycerides and blood pressure in midlife women. North American Menopause Society 25th Annual Meeting 2014.10.16 Washington DC

4. Asuka Hirose, Masakazu Terauchi, Moe Tamura, Mihoko Akiyoshi, Yoko Owa, Kiyoko Kato, Toshiro Kubota. Oxidative stress is associated with depression in midlife women. North American Menopause Society 25th Annual Meeting 2014.10.16 Washington DC

Department of Advanced Surgical Technology Research and Development

Associate Professor Katsuhiro OHUCHI, Ph.D
Associate Professor Tomohiro MIZUNO, MD, Ph.D
Part-time Lecturer Naoyuki YOKOYAMA, Ph.D
Part-time Lecturer Tarou KIMURA, Ph.D
Part-time Lecturer Daisuke SAKOTA, Ph.D
Part-time Lecturer Nobuo WATANABE, Ph.D

(1) Outline

Surgical technology has been improving follows to the development of advanced instruments and therapeutic strategies. On the one hand, innovation in surgery inevitably requires individual operator's skill and tailoring of the intervention to the patient. The aim of our laboratory is research and development of developmental pathway for modern surgical technology through the large animal experiment. Following to the framework for the stages in surgical innovation, such as ideas, development, exploration, assessment and pre-clinical study, we will serve as a mediator between basic science and clinical practice. And more, implementation of human resources development in the field of advanced surgery is also another intention of our laboratory.

(2) Publications

[Conference Activities & Talks]

1. Katsuhisa Imoto, Katsuhiro Ohuchi. Averaging in Transmitted Light Plethysmography Signals on Dental Pulp Vitality Testing. The 53rd Annual Conference of Japanese Society for Medical and Biological Engineering 2014.06.22 Sendai, Miyagi

Department of Arteriosclerosis and Vascular Biology

Associate Professor Shohei Shinozaki
Assistant Professor Yasuko Abe

(1) Outline

The overall focus of our laboratory is to clarify the mechanism of the arteriosclerosis clear as well as aiming at development of the novel remedy of the arteriosclerosis. We also try to understand the role of nitrogen oxide in the molecular pathogenesis in human diseases. Inflammation is implicated in a variety of human diseases, whereas it is a necessary and adaptive response to environmental or intrinsic stress. We found that S-nitrosylation (the covalent attachment of nitric oxide to thiols) plays the important role in insulin resistance and aging related diseases. We're analyzing these mechanisms using the technique of the biochemistry, the molecular biology, proteomic approach and genetic alteration mouse, such as S-nitrosoglutathione reductase (GSNOR) deficiency or transgene.

(2) Research

· Basic research on arteriosclerosis
· Search and identification for novel S-nitrosylated protein
· Molecular mechanism of metabolic syndromes through S-nitrosylation

(3) Education

In accordance with aging and westernization of diet,atherosclerotic disease has been increasing in Japan. Recently, the chronic inflammation has been focused as the mechanism of arteriosclerosis. It has been demonstrated that inflammation is deeply involved in the initial stage of atherosclerosis. However, treatments with anti- inflammatory drugs, such as NSAIDs, for atherosclerosis generally have not been successes. Thus we consider that there are some unknown mechanisms between development of arteriosclerosis and inflammation.

(4) Lectures & Courses

Our course's education policy is to obtain basic research skills for elucidating pathogenesis of atherosclerosis.

(5) Publications

[Original Articles]

1. Shinozaki Shohei, Chang Kyungho, Sakai Michihiro, Shimizu Nobuyuki, Yamada Marina, Tanaka Tomokazu, Nakazawa Harumasa, Ichinose Fumito, Yamada Yoshitsugu, Ishigami Akihito, Ito Hideki, Ouchi Yasuyoshi, Starr Marlene E, Saito Hiroshi, Shimokado Kentaro, Stamler Jonathan S, Kaneki Masao. Inflammatory stimuli induce inhibitory S-nitrosylation of the deacetylase SIRT1 to increase acetylation and activation of p53 and p65. Sci Signal. 2014; 7(351); ra106

[Others]

1. Grant-in-Aid for Young Scientists (B), MEXT KAKENHI Grant Number 25860231
   The role of S-nitrosylation in pathogenesis of metabolic syndrome. 2013-2014

2. Takeda Science Foundation for Medical Research
   Identification of the missing link between chronic inflammation and pathogenesis of metabolic syndrome. 2013-2014

3. Kato Memorial Bioscience Foundation, The 25^{th} Kato Memorial Grant
   Identification of the mechanisms of metabolic syndrome. 2014-2015

4. The Towa Foundation for Food Science and Research
   Verification of preventative effects of functional food against metabolic syndrome. 2014

Clinical Laboratory

General Manager (Junior Associate Professor): Naoko Tojo
Associate Manager (Associate Professor): Shuji Tohda
Assistant Professor: Naomi Murakami
Assistant Professor: Tadashi Kanouchi
Assistant Professor: Ryoko Azuma
Medical Staff: Yuki Sakurai

(1) Research

Our research subjects are
1) Evidence-based laboratory medicine,
2) Standardization of respiratory function tests,
3) Development of molecular diagnostic tests for hematological diseases,
4) Development of electrophysiological diagnostic tests for peripheral neuropathies,
5) Clinical and electrophysiological study for amyotrophic lateral sclerosis.

(2) Education

The staffs lecture on clinical laboratory medicine and give technical training on clinical laboratory tests to not only the medical students and medical technologist students in the faculty of medicine of the university but also those in the another vocational schools for medical technologists. Besides the students, five residents of the medical hospital of our university had a general training for clinical laboratory medicine, including ultrasonography. Hands-on seminars of Gram staining, abdominal ultrasonography and so on have been repeatedly held for young doctors in the hospital. One clinical laboratory technicians in the other hospital was also given a short term of practical training in our clinical laboratory.

(3) Clinical Services & Other Works

High quality and advanced laboratory tests are being done speedily in the clinical laboratory all day all the time. Blood-taking is started at 8:05, 30 minutes earlier than before. It results in shortening the waiting time of patients and in more speedy reporting the test results. Items of emergency laboratory tests have been in increase, including smear test for tubercle bacillus and cell counting of the cerebrospinal fluid. The results of physiological examinations are online reported quickly and accurately. The updated information on antibiotic sensitivity of the pathogens in each ward is also provided online regularly. In the night time, the laboratory also provides appropriate blood products for transfusion, in cooperation with blood transfusion service of the hospital. In June 2014, our clinical laboratory and blood transfusion service have received accreditation of ISO15189(Medical laboratories - Particular requirements for quality and competence).

(4) Publications

[Original Articles]

1. Nagao T, Kurosu T, Umezawa Y, Nogami A, Oshikawa G, Tohda S, Yamamoto M, Miura O. Proliferation and survival signaling from both Jak2-V617F and Lyn involving GSK3 and mTOR/p70S6K/4EBP1 in PVTL-1 cell line newly established from acute myeloid leukemia transformed from polycythemia vera. PLoS ONE. 2014; 9(1); e84746

2. Takahashi Y, Itoh M, Nara N, Tohda S. Effect of EPH-ephrin signaling on the growth of human leukemia cells. Anticancer Research. 2014; 34; 2913-2918

3. Teruhiko Sekiguchi, Tadashi Kanouchi, Kazumoto Shibuya, Yu-ichi Noto, Yohsuke Yagi, Akira Inaba, Keisuke Abe, Sonoko Misawa, Satoshi Orimo, Takayoshi Kobayashi, Tomoyuki Kamata, Masanori Nakagawa, Satoshi Kuwabara, Hidehiro Mizusawa, Takanori Yokota. Spreading of amyotrophic lateral sclerosis lesions–multifocal hits and local propagation? J. Neurol. Neurosurg. Psychiatr.. 2014.01; 85(1); 85-91

4. Mizuno N, Kanamori E, Saito H, Murakami N, Tojo N, Tohda S. A Case of Gray Platelet Syndrome Masked by Immune Thrombocytopenia at Presentation. Acta Haematol. 2014.02; 132(2); 163-165

5. Takebe I, Sawabe E, Ohkusu K, Tojo N, Tohda S. Catheter-related Bloodstream Infection by Tsukamurella inchonensis in an Immunocompromised Patient. J Clin Microbiol. 2014.03; 52(6); 2251-2253

6. Saito R, Takahashi R, Sawabe E, Koyano S, Takahashi Y, Shima M, Ushizawa H, Fujie T, Tosaka N, Kato Y, Moriya K, Tohda S, Tojo N, Koike R, Kubota T. First Report of KPC-2 Carbapenemase-Producing Klebsiella pneumoniae in Japan. Antimicrob Agents Chemother. 2014.05; 58(5); 2961-2963

7. Yoshihito Kano, Sei Kakinuma, Fumio Goto, Seishin Azuma, Yuki Nishimura-Sakurai, Yasuhiro Itsui, Mina Nakagawa, Atsushi Kudo, Minoru Tanabe, Susumu Kirimura, Tomonori Amano, Takashi Ito, Takumi Akashi, Yasuhiro Asahina, Mamoru Watanabe. Primary Hepatic Neuroendocrine Carcinoma with a Cholangiocellular Carcinoma Component in One Nodule. Clinical Journal of Gastroenterology. 2014.10; 7; 449-454

8. Yoshihito Kano, Sei Kakinuma, Fumio Goto, Seishin Azuma, Yuki Nishimura-Sakurai, Yasuhiro Itsui, Mina Nakagawa, Atsushi Kudo, Minoru Tanabe, Susumu Kirimura, Tomonori Amano, Takashi Ito, Takumi Akashi, Yasuhiro Asahina, Mamoru Watanabe. Primary hepatic neuroendocrine carcinoma with a cholangiocellular carcinoma component in one nodule. Clin J Gastroenterol. 2014.10; 7(5); 449-454

[Books etc]

1. Sekiguchi T, Abe K, Ohkubo T, Kanouchi T, Yokota T. Annual Review Neurology 2014. Chugai-igaku-sha Co.,Ltd, 2014.01 (ISBN : 978-4-498-22814-6)

2. Kanouchi Tadashi. Neurologic syndrome (V) 2nd ed. Nippon Rinsho Co.,Ltd, 2014.11

[Misc]

1. Tohda S. NOTCH signaling roles in acute myeloid leukemia cell growth and interaction with other stemness-related signals. Anticancer Research. 2014; 34(11); 6259-6264

2. Kanouchi Tadashi. Repetitive nerve stimulation test 2014.01; 166; 25-32

3. Kanouchi Tadashi. Myasthenia Gravis -New clinical standards. Diagnosis and Differential diagnosis. Tensilon test 2014.09; 32(9); 1011-1012

4. Sekiguchi T, Kanouchi T, Yokota T. ALS as the TDP-43 proteinopathy: does the lesion spread noncontiguously ? Neurological Medicine. 2014.12; 81(6); 644-649

[Conference Activities & Talks]

1. Sekiguchi T, Kanouchi T, Shibuya K, Noto YI, Yagi Y, Inaba A, Abe K, Misawa S, Orimo S, Kobayashi T, Kamata T, Nakagawa M, Kuwabara S, Mizusawa H, Yokota T. Spreading of amyotrophic lateral sclerosis lesions -multifocal hits & local propagation?. 30th international congress of clinical neurophysiology of the IFCN 2014.03.21 Berlin

2. Fumiko Beppu, Ryoko Azuma, Miyuki Wakui, Jun Narumi, Ai Sati, Megumi Ono, Michio Hagihara, Shuji Tohda, Mitsuaki Isobe, Naoko Tojo. A case of IgG4-related periarteritis in the coronary artery. The 87th annual scientific meeting of the Japan society of ultrasonics in medicine 2014.05.10 Yokohama

3. Ai Sato, Ryoko Azuma, Miyuki Wakui, Jun Narumi, Megumi Ono, Fumiko Beppu, Tadashi Kanouchi, Mitsuaki Isobe, Naoko Tojo. A case of cardiac leiomyoma with right ventricular outflow tract obstruction detected by systolic murmur.. The 87th annual scientific meeting of the Japan society of ultrasonics in medicine 2014.05.11 Yokohama

4. Kanouchi T, Sekiguchi T, Mizusawa H, Yokota T. Correlation between local progression speed in the onset site and regional spread speed in amyotrophic lateral sclerosis. 55th Annual Meeting of the Japanese Society of Neurology 2014.05.21 Fukuoka

5. Sekiguchi T, Kanouchi T, Shibuya K, Noto Y, Yagi Y, Inaba A, Abe K, Misawa S, Orimo T, Kobayashi T, Kamata T, Nakagawa M, Kuwabara S, Mizusawa H, Yokota T . Correlation between nEMG findings in the muscles innervated by the lumbosacral segments and pyramidal tract signs in amyotrophic lateral sclerosis. 55th Annual Meeting of the Japanese Society of Neurology 2014.05.21 Fukuoka

6. Nakagawa M, Asahina Y, Taniguchi M, Watanabe T, Nishimura-Sakurai Y, Itsui Y, Azuma S, Kakinuma S, Tanaka Y, Watanabe M. Impact of host and therapeutic factors and resistant associated variants on response to interferon based-direct acting antiviral treatment in difficult-to-treat chronic hepatitis C patients. The 65th. Annual Meeting of American Association for the Study of Liver Diseases (AASLD The Liver Meeting 2014) 2014.11.09 Boston

7. Kanouchi T, Sekiguchi T, Yokota T. Correlation between local progression speed in the onset site and regional spread speed in amyotrophic lateral sclerosis. 44th Annual Meeting of the Japanese Society of Clinical Neurophysiology 2014.11.20 Fukuoka

8. Yuki Okuhashi, Yusuke Takahashi, Mika Ohtaka, Erika Shiratori, Shijun O, Mai Itoh, Shuji Tohda. Effects of GLI1 and CTNNB1 knockdown on NOTCH signaling of leukemia cells. The 56th American Society of Hematology 2014.12.06 San Francisco, USA

[Social Contribution]

1. 9th technical training courses of clinical neurophysiological tests, Tokyo, Technical training courses of clinical neurophysiolical tests, Tokyo, 2014.01 - 2014.08

Transfusion Medicine

Director(Lecturer) Michiko KAJIWARA
Assistant Director(Medical Technologist) Naoki OHTOMO
Section Chief Medical Technologist Keiko BABA
Assisitant Section Chief Medical Technologist Yukiko OHISHI
Clinical Fellow Shihoko SUWA
Medical Technologist Yukari USUI
Medical Technologist Kaoru OKUYAMA
Medical Technologist Shiho KOBAYASHI
Medical Technologist Chihiro TOYAMA
Medical Technologist Eriko FURUYA

(1) Research

1) Practice of safe and appropriate transfusion therapy (including prevention of medical accident related transfusion)
2) Basic and clinical research of hematopoietic stem cell transplantation

(2) Lectures & Courses

Transfusion therapy is a supplementation of the blood component, but it also has aspects of cell therapy and transplantation. So, it is important to practice safe and appropriate transfusion therapy. Clinical tests of transfusion, such as blood type test, are most basic immunological test technique. The accurate understanding and practice of these tests is also necessary for the safety of medical treatment. From this point of view, we educate the students of school of medicine, school of allied health sciences, graduate school of medical and dental sciences, medical doctors, and co-medicals.

(3) Clinical Services & Other Works

Clinical Services (The result of 2014)
1) The amount of blood products used
Red cell component products 12,118 Units (6,146 bags)
Platelet concentration 28,435 Units (2,383 bags)
Fresh frozen plasma 8,728 Units (3,996bags)
2) Autologous blood collection and transfusion
Autologous blood collection 392 cases (525times, 1,023Units)
Autologous blood transfusion 355 cases (909 Units)
3) The number of clinical tests of transfusion
Blood typing 9,723
Anti red blood cell antibody test 4,565
Cross match 9,737
4) Hematopoetic stem cell harvest
Autologous peripheral blood stem cell harvest 10 cases 15 times

Allogenic peripheral blood stem cell harvest 8 cases 11 times
Autologous peripheral mononuclear cell harvest 1 case 1 time
Allogenic bone marrow harvest 14 cases 14 times
(Including Japan Marrow Donor Program donors)
5) Hematopoetic stem cell transplantation
(The evaluation and preservation of the stem cells were done in our department)
Autologous peripheral blood stem cell transplantation 14 cases 14 times
Allogenic peripheral blood stem cell transplantation 9 cases 9 times
Autologous peripheral mononuclear cell transplantation 1 case 1 time
Allogenic bone marrow transplantation 13 cases 13 times
Allogenic umbilical cord blood transplantation 8 cases 8 times

(4) Publications

[Original Articles]

1. Nobutaka Kiyokawa, Kazutoshi Iijima, Osamu Tomita, Masashi Miharu, Daisuke Hasegawa, Kenichiro Kobayashi, Hajime Okita, Michiko Kajiwara, Hiroyuki Shimada, Takeshi Inukai, Atsushi Makimoto, Takashi Fukushima, Toru Nanmoku, Katsuyoshi Koh, Atsushi Manabe, Akira Kikuchi, Kanji Sugita, Junichiro Fujimoto, Yasuhide Hayashi, Akira Ohara. Significance of CD66c expression in childhood acute lymphoblastic leukemia. Leuk. Res.. 2014.01; 38(1); 42-48

2. Motohiro Kato, Katsuyoshi Koh, Atsushi Manabe, Tomohiro Saito, Daisuke Hasegawa, Keiichi Isoyama, Akitoshi Kinoshita, Miho Maeda, Yuri Okimoto, Michiko Kajiwara, Takashi Kaneko, Kanji Sugita, Akira Kikuchi, Masahiro Tsuchida, Akira Ohara. No impact of high-dose cytarabine and asparaginase as early intensification with intermediate-risk paediatric acute lymphoblastic leukaemia: results of randomized trial TCCSG study L99-15. Br. J. Haematol.. 2014.02; 164(3); 376-383

3. K Nakatani, K Imai, M Shigeno, H Sato, M Tezuka, T Okawa, N Mitsuiki, T Isoda, D Tomizawa, M Takagi, M Nagasawa, M Kajiwara, M Yamamoto, A Arai, O Miura, C Kamae, N Nakagawa, K Honma, S Nonoyama, S Mizutani, T Morio. Cord blood transplantation is associated with rapid B-cell neogenesis compared with BM transplantation. Bone Marrow Transplant.. 2014.09; 49(9); 1155-1161

[Conference Activities & Talks]

1. Shihoko Suwa, Hiroki Hatsusawa, Megumi Iida, Tetsuya Fukuda. Identification of HLA restricted peptides derived from tumor-associated of hematological malignancy. The 6th Annual Meeting of the Society of Immunotherapy for Hematological Disorders 2014.09.06 Kyoto University Shiran-kaikan Yamauchi Hall

2. Shihoko Suwa, Ayaka Usui, Megumi Iida, Ken Watanabe, Osamu Miura, Tetsuya Fukuda. Identification of HLA restricted peptides derived from tumor-associated of hematological malignancy. The 76th Annual Meeting of the Japanese Society of Hematology 2014.10.31 Osaka International Convention Center

Hyperbaric Medical Center

Center Chief and Associate Professor; Kazuyoshi YAGISHITA
Lecturer; Mitsuhiro ENOMOTO
Clinical fellow; Takuya OYAIZU
Part-time Lecturer; Seiichiro TOGAWA, Yasushi KOJIMA
Researcher; Masaharu SHIBAYAMA, Masaki HORIE, Manabu SHIMODA
Secretary; Kiyomi ITOH

(1) Outline

Hyperbaric oxygen therapy (HBO), which can dissolve oxygen in serum in population to atomic pressure and transport oxygen to ischemic tissue, is an established therapy for treatment of several conditions, including decompression illness, carbon monoxide poisoning, acute arterior disturbance, and peripheral ischemic disease. The mechanism of HBO can be described as hyperoxygenation in ischemic soft tissues, reduction of edema, stimulation of fibroblast proliferation and differentiation, increased collagen formation and cross-linking, angiogenesis, and improved preservation of energy metabolism.
This curious treatment has clinically many kinds of efficacy, however, the mechanism of the effect has not been fully understood, and many researchers in the world still attempt to reveal the mechanism of the effect of HBO. This HBO can stimulate the interest of medical students, basic researchers, and clinical doctors, and this hyperbaric medical center can provide opportunities to study hyperbaric oxygen therapy field.

(2) Research

Research Subjects
1) Soft tissue injuries related with sports activities
2) HBO for conditioning in sports activities
3) Diving medicine
4) Hyperbaric oxygen therapy

(3) Education

HBO can stimulate the interest of medical students, basic researchers, and clinical doctors, and this hyperbaric medical center can provide opportunities to study hyperbaric oxygen therapy field.

(4) Clinical Services & Other Works

In 2014, 6,210 times hyperbaric oxygen therapy (HBO) in 674 patients were performed in the university hospital.

(5) Clinical Performances

HBO is applied for several conditions, including decompression illness, carbon monoxide poisoning, infection, wound healing, delayed radiation injury, acute arterial disturbance, and peripheral ischemic disease. Recently, for the purpose of rapid recovery from injury, we perform HBO aggressively for soft tissue injury related with sports activities including compartment syndrome, ankle sprain, knee ligament injury, and muscle contusion.

(6) Publications

[Original Articles]

1. Horie Masaki, Enomoto Mitsuhiro, Shimoda Manabu, Okawa Atsushi, Miyakawa Shumpei, Yagishita Kazuyoshi. Enhancement of satellite cell differentiation and functional recovery in injured skeletal muscle by hyperbaric oxygen treatment. J Appl Physiol (1985). 2014.01; 116(2); 149-155

2. Yoshii Toshitaka, Yamada Tsuyoshi, Hirai Takashi, Taniyama Takashi, Kato Tsuyoshi, Enomoto Mitsuhiro, Inose Hiroyuki, Sumiya Satoshi, Kawabata Shigenori, Shinomiya Kenichi, Okawa Atsushi. Dynamic changes in spinal cord compression by cervical ossification of the posterior longitudinal ligament evaluated by kinematic computed tomography myelography. Spine (Phila Pa 1976). 2014.01; 39(2); 113-119

3. Hirai Takashi, Enomoto Mitsuhiro, Kaburagi Hidetoshi, Sotome Shinichi, Yoshida-Tanaka Kie, Ukegawa Madoka, Kuwahara Hiroya, Yamamoto Mariko, Tajiri Mio, Miyata Haruka, Hirai Yukihiko, Tominaga Makoto, Shinomiya Kenichi, Mizusawa Hidehiro, Okawa Atsushi, Yokota Takanori. Intrathecal AAV serotype 9-mediated delivery of shRNA against TRPV1 attenuates thermal hyperalgesia in a mouse model of peripheral nerve injury. Mol Ther. 2014.02; 22(2); 409-419

4. Arai Yoshiyasu, Hirai Takashi, Yoshii Toshitaka, Sakai Kenichiro, Kato Tsuyoshi, Enomoto Mitsuhiro, Matsumoto Renpei, Yamada Tsuyoshi, Kawabata Shigenori, Shinomiya Kenichi, Okawa Atsushi. A prospective comparative study of 2 minimally invasive decompression procedures for lumbar spinal canal stenosis: unilateral laminotomy for bilateral decompression (ULBD) versus muscle-preserving interlaminar decompression (MILD). Spine (Phila Pa 1976). 2014.02; 39(4); 332-340

5. Ukegawa Dai, Kawabata Shigenori, Sakaki Kyohei, Ishii Senichi, Tomizawa Shoji, Inose Hiroyuki, Yoshii Toshitaka, Kato Tsuyoshi, Enomoto Mitsuhiro, Okawa Atsushi. Efficacy of biphasic transcranial electric stimulation in intraoperative motor evoked potential monitoring for cervical compression myelopathy. Spine (Phila Pa 1976). 2014.02; 39(3); E159-E165

6. Madoka Ukegawa, Kush Bhatt, Takashi Hirai, Hidetoshi Kaburagi, Shinichi Sotome, Yoshiaki Wakabayashi, Shizuko Ichinose, Kenichi Shinomiya, Atsushi Okawa, Mitsuhiro Enomoto. Bone marrow stromal cells combined with a honeycomb collagen sponge facilitate neurite elongation in vitro and neural restoration in the hemisected rat spinal cord. Cell Transplant. 2014.06;

7. Koga H, Muneta T, Yagishita K, Watanabe T, Mochizuki T, Horie M, Nakamura T, Sekiya I.. Effect of Notchplasty in Anatomic Double-Bundle Anterior Cruciate Ligament Reconstruction. Am J Sports Med. 2014.06; 42(8); 1813-1821

8. Muneta T, Koga H, Nakamura T, Horie M, Watanabe T, Yagishita K, Sekiya I.. A new behind-remnant approach for remnant-preserving double-bundle anterior cruciate ligament reconstruction compared with a standard approach. Knee Surg Sports Traumatol Arthrosc. 2014.09; 11;

9. Hideyuki Koga, Takeshi Muneta, Kazuyoshi Yagishita, Toshifumi Watanabe, Tomoyuki Mochizuki, Masafumi Horie, Tomomasa Nakamura, Ichiro Sekiya. Effect of femoral tunnel position on graft tension curves and knee stability in anatomic double-bundle anterior cruciate ligament reconstruction. Knee Surg Sports Traumatol Arthrosc. 2014.11; 22(11); 2811-2820

10. Suzuki N, Yagishita K, Togawa S, Okazaki F, Shibayama M, Yamamoto K, Mano Y.. A case-control study evaluating relative risk factors for decompression sickness: a research report Undersea Hyperb Med. 2014.11; 41(6); 521-530

[Conference Activities & Talks]

1. Oyaizu T, Enomoto M, Kojima Y, Yagishita K.. A case of intrahepatic portal venous gas with systematic gas findings by CT in decompression illness.. 47th Undersea & Hyperbaric Medical Society (UHMS) Annual Scientific Meeting 2014.06 St. Louis, USA

2. Yagishita K, Enomoto M, Kato T, Horie M, Oyaizu T, Kojima Y, Koga H, Mano Y. . Quantitative Evaluation for Effects of Hyperbaric Oxygen Treatment on Patients with Ankle Sprain at an Acute Phase. . Undersea and Hyperbaric Medical Society Annual Scientific Meeting 2014 2014.06.23 St. Louis, USA

3. M. Enomoto, M. Ukegawa, H. Kaburagi, T. Hirai, K. Yagishita, A. Okawa, Y. Wakabayashi. An EGFR inhibitor induces Schwann cell proliferation and promotes functional recovery with remyelination in injured proneal nerve after end-to-side neurorrhaphy.. The 44th annual meeting of the Society for Neuroscience 2014.10

4. Oyaizu T, Enomoto M, Kojima Y, Yagishita K.. Hyperbaric oxygen therapy reduce calf volume at the injury site in the rat muscle contusion model.. 18th International Congress on Hyperbaric Medicine 2014.12 Buenos Ares, Argentina

Center for Cell Therapy

Director: Tomohiro Morio (Department of Pediatrics)
Vise Director: Ichiro Sekiya (Center for Stem Cell and Regenerative Medicine)
Quality control manager: Michiko Kajiwara (Chief Administrator,
Department of Blood Transfusion Medicine)
Product manager: Norio Shimizu (Division of Virology, Medical Research Institute)
Technicians: Yuri Kohno, Naomi Terada, (to March 2014) ,Minhua Sun(from April 2014), Ayako Tsuji(from May 2014)
Technicians (From Collaborative Research): Nakaba Ochiai (to March 2014) ,Takafumi Kato(from October 2014)
Clerical Assistant: Akiko Hoshikawa, Jun Kusano

(1) Research

1.Development of innovative techniques for quality assurance of cell products
2.Development of a novel measure for rapid and sensitive detection of multiple pathogens
3.Clinical study on ex-vivo expanded donor T-cell infusion for patients who underwent hematopoietic stem cell transplantation (HSCT)
4.Development of multi-virus specific T lymphocytes for adoptive immunotherapy
5.Research on a regeneration system of the cartilage bone from the synovial membrane (Department of Orthopedic Surgery)
6.Development of novel peptide-pulsed dendritic therapy for adult T-cell leukemia (Department of Immunotherapeutics)

(2) Education

Our center is the first ISO9001:2000(2008)-certified cell processing center in Japan. We provide assistance to prepare standard operation procedure (SOP) and also offer on-the-job training for cell processing/manipulating procedures and that for quality assurance at the center.

(3) Clinical Services & Other Works

The cell products prepared in our centers include
#1 Synovium-derived mesenchymal stem cells
#2 Bone marrow-derived mesenchymal stem cells
#3 Processed peripheral blood stem cells

The center offers our novel detection system for 12 different viruses in rapid and sensitive manner for the doctors in our medical hospital. We also measure virus loads of the detected virus using a real time PCR system. We measured 1,863 samples in year 2014 in total.

(4) Clinical Performances

Our center has four independent cell processing rooms (class 10,000 clean rooms) and has received ISO9001:2000(2008) certificate. All the rooms are equipped with a bio-safety cabinet. The hardware as well as software used in our center fulfills all the guidelines that are required for the preparation of cell products of clinical grade. Our center is under extensive renovation as of November, 2014 and is scheduled to start operation in March, 2015.

(5) Publications

[Original Articles]

1. U Koura, H Sakaki-Nakatsubo, K Otsubo, K Nomura, K Oshima, O Ohara, T Wada, A Yachie, K Imai, T Morio, T Miyawaki, H Kanegane. Successful treatment of systemic cytomegalovirus infection in severe combined immunodeficiency using allogeneic bone marrow transplantation followed by adoptive immunotherapy. J Investig Allergol Clin Immunol. 2014; 24(3); 200-202

2. Yohei Matsubara, Tomoki Chiba, Kenichi Kashimada, Tomohiro Morio, Shuji Takada, Shuki Mizutani, Hiroshi Asahara. Transcription activator-like effector nuclease-mediated transduction of exogenous gene into IL2RG locus. Sci Rep. 2014; 4; 5043

3. Yoshimori M, Imadome K, Komatsu H, Wang L, Saitoh Y, Yamaoka S, Fukuda T, Kurata M, Koyama T, Shimizu N, Fujiwara S, Miura O, Arai A.. CD137 Expression Is Induced by Epstein-Barr Virus Infection through LMP1 in T or NK Cells and Mediates Survival Promoting Signals. PLoS One. 2014; 9(11); e112564

4. Tachikawa R, Tomii K, Seo R, Nagata K, Otsuka K, Nakagawa A, Otsuka K, Hashimoto H, Watanabe K, Shimizu N.. Detection of herpes viruses by multiplex and real-time polymerase chain reaction in bronchoalveolar lavage fluid of patients with acute lung injury or acute respiratory destress syndrome. Respiration. 2014; 87(4); 279-986

5. Yamada Jun, Tsuji Kunikazu, Miyatake Kazumasa, Matsukura Yu, Abula Kahaer, Inoue Makiko, Sekiya Ichiro, Muneta Takeshi. Follistatin alleviates synovitis and articular cartilage degeneration induced by carrageenan. Int J Inflam. 2014; 2014; 959271

6. Nobutaka Kiyokawa, Kazutoshi Iijima, Osamu Tomita, Masashi Miharu, Daisuke Hasegawa, Kenichiro Kobayashi, Hajime Okita, Michiko Kajiwara, Hiroyuki Shimada, Takeshi Inukai, Atsushi Makimoto, Takashi Fukushima, Toru Nanmoku, Katsuyoshi Koh, Atsushi Manabe, Akira Kikuchi, Kanji Sugita, Junichiro Fujimoto, Yasuhide Hayashi, Akira Ohara. Significance of CD66c expression in childhood acute lymphoblastic leukemia. Leuk. Res.. 2014.01; 38(1); 42-48

7. Motohiro Kato, Katsuyoshi Koh, Atsushi Manabe, Tomohiro Saito, Daisuke Hasegawa, Keiichi Isoyama, Akitoshi Kinoshita, Miho Maeda, Yuri Okimoto, Michiko Kajiwara, Takashi Kaneko, Kanji Sugita, Akira Kikuchi, Masahiro Tsuchida, Akira Ohara. No impact of high-dose cytarabine and asparaginase as early intensification with intermediate-risk paediatric acute lymphoblastic leukaemia: results of randomized trial TCCSG study L99-15. Br. J. Haematol.. 2014.02; 164(3); 376-383

8. Beatriz E Marciano, Chiung-Yu Huang, Gyan Joshi, Nima Rezaei, Beatriz Costa Carvalho, Zoe Allwood, Aydan Ikinciogullari, Shereen M Reda, Andrew Gennery, Vojtech Thon, Francisco Espinosa-Rosales, Waleed Al-Herz, Oscar Porras, Anna Shcherbina, Anna Szaflarska, Şebnem Kiliç, Jose L Franco, Andrea C Gómez Raccio, Persio Roxo, Isabel Esteves, Nermeen Galal, Anete Sevciovic Grumach, Salem Al-Tamemi, Alisan Yildiran, Julio C Orellana, Masafumi Yamada, Tomohiro Morio, Diana Liberatore, Yoshitoshi Ohtsuka, Yu-Lung Lau, Ryuta Nishikomori, Carlos Torres-Lozano, Juliana T L Mazzucchelli, Maria M S Vilela, Fabiola S Tavares, Luciana Cunha, Jorge A Pinto, Sara E Espinosa-Padilla, Leticia Hernandez-Nieto, Reem A Elfeky, Tadashi Ariga, Heike Toshio, Figen Dogu, Funda Cipe, Renata Formankova, M Enriqueta Nuñez-Nuñez, Liliana Bezrodnik, Jose Gonçalo Marques, María I Pereira, Viviana Listello, Mary A Slatter, Zohreh Nademi, Danuta Kowalczyk, Thomas A Fleisher, Graham Davies, Bénédicte Neven, Sergio D Rosenzweig. BCG vaccination in patients with severe combined immunodeficiency: complications, risks, and vaccination policies. J. Allergy Clin. Immunol.. 2014.04; 133(4); 1134-1141

9. Yoko Mizoguchi, Miyuki Tsumura, Satoshi Okada, Osamu Hirata, Shizuko Minegishi, Kohsuke Imai, Nobuyuki Hyakuna, Hideki Muramatsu, Seiji Kojima, Yusuke Ozaki, Takehide Imai, Sachiyo Takeda,

Tetsuya Okazaki, Tsuyoshi Ito, Shin'ichiro Yasunaga, Yoshihiro Takihara, Vanessa L Bryant, Xiao-Fei Kong, Sophie Cypowyj, Stéphanie Boisson-Dupuis, Anne Puel, Jean-Laurent Casanova, Tomohiro Morio, Masao Kobayashi. Simple diagnosis of STAT1 gain-of-function alleles in patients with chronic mucocutaneous candidiasis. J. Leukoc. Biol.. 2014.04; 95(4); 667-676

10. Setsuko Hasegawa, Kohsuke Imai, Kenichi Yoshida, Yusuke Okuno, Hideki Muramatsu, Yuichi Shiraishi, Kenichi Chiba, Hiroko Tanaka, Satoru Miyano, Seiji Kojima, Seishi Ogawa, Tomohiro Morio, Shuki Mizutani, Masatoshi Takagi. Whole-exome sequence analysis of ataxia telangiectasia-like phenotype. J. Neurol. Sci.. 2014.05; 340(1-2); 86-90

11. Kei Takasawa, Kenichi Kashimada, Emanuele Pelosi, Masatoshi Takagi, Tomohiro Morio, Hiroshi Asahara, David Schlessinger, Shuki Mizutani, Peter Koopman. FOXL2 transcriptionally represses Sf1 expression by antagonizing WT1 during ovarian development in mice. FASEB J.. 2014.05; 28(5); 2020-2028

12. Shin Fukuda, Toshihiro Nanki, Tomohiro Morio, Hisanori Hasegawa, Ryuji Koike, Nobuyuki Miyasaka. Recurrent mitral valve regurgitation with neutrophil infiltration in a patient with multiple aseptic abscesses. Mod Rheumatol. 2014.05; 24(3); 537-539

13. Matsukura Yu, Muneta Takeshi, Tsuji Kunikazu, Koga Hideyuki, Sekiya Ichiro. Mesenchymal stem cells in synovial fluid increase after meniscus injury. Clin Orthop Relat Res. 2014.05; 472(5); 1357-1364

14. Hideyuki Koga, Takeshi Muneta, Kazuyoshi Yagishita, Toshifumi Watanabe, Tomoyuki Mochizuki, Masafumi Horie, Tomomasa Nakamura, Ichiro Sekiya. Effect of Notchplasty in Anatomic Double-Bundle Anterior Cruciate Ligament Reconstruction. Am J Sports Med. 2014.06; 42(8); 1813-1821

15. Kei Takasawa, Makoto Ono, Atsushi Hijikata, Yohei Matsubara, Noriyuki Katsumata, Masatoshi Takagi, Tomohiro Morio, Osamu Ohara, Kenichi Kashimada, Shuki Mizutani. Two novel HSD3B2 missense mutations with diverse residual enzymatic activities for Δ 5-steroids. Clin. Endocrinol. (Oxf). 2014.06; 80(6); 782-789

16. D Hatsushika, T Muneta, T Nakamura, M Horie, H Koga, Y Nakagawa, K Tsuji, S Hishikawa, E Kobayashi, I Sekiya. Repetitive allogeneic intraarticular injections of synovial mesenchymal stem cells promote meniscus regeneration in a porcine massive meniscus defect model. Osteoarthr. Cartil.. 2014.07; 22(7); 941-950

17. Nobuharu Suzuki, Chihiro Mizuniwa, Kana Ishii, Yusuke Nakagawa, Kunikazu Tsuji, Takeshi Muneta, Ichiro Sekiya, Chihiro Akazawa. Teneurin-4, a transmembrane protein, is a novel regulator that suppresses chondrogenic differentiation. J. Orthop. Res.. 2014.07; 32(7); 915-922

18. Makiko Okuno, Takeshi Muneta, Hideyuki Koga, Nobutake Ozeki, Yusuke Nakagawa, Kunikazu Tsuji, Shinichi Yoshiya, Ichiro Sekiya. Meniscus regeneration by syngeneic, minor mismatched, and major mismatched transplantation of synovial mesenchymal stem cells in a rat model. J. Orthop. Res.. 2014.07; 32(7); 928-936

19. Masaaki Mori, Tomohiro Morio, Shuichi Ito, Akira Morimoto, Setsuo Ota, Koichi Mizuta, Tsutomu Iwata, Toshiro Hara, Tsutomu Saji. Risks and prevention of severe RS virus infection among children with immunodeficiency and Down's syndrome. J. Infect. Chemother.. 2014.08; 20(8); 455-459

20. Akifumi Endo, Ken Watanabe, Tamae Ohye, Kyoko Suzuki, Tomoyo Matsubara, Norio Shimizu, Hiroki Kurahashi, Tetsushi Yoshikawa, Harutaka Katano, Naoki Inoue, Kohsuke Imai, Masatoshi Takagi, Tomohiro Morio, Shuki Mizutani. Molecular and Virological Evidence of Viral Activation From Chromosomally Integrated Human Herpesvirus 6A in a Patient With X-Linked Severe Combined Immunodeficiency. Clin. Infect. Dis.. 2014.08; 59(4); 545-548

21. Akihiro Hoshino, Kohsuke Imai, Yusei Ohshima, Motoko Yasutomi, Masashi Kasai, Masaru Terai, Keiko Ishigaki, Tomohiro Morio, Toshio Miyawaki, Hirokazu Kanegane. Pneumothorax in patients with severe combined immunodeficiency. Pediatr Int. 2014.08; 56(4); 510-514

22. Takeshi Muneta, Hideyuki Koga, Tomomasa Nakamura, Masafumi Horie, Toshifumi Watanabe, Kazuyoshi Yagishita, Ichiro Sekiya. A new behind-remnant approach for remnant-preserving double-bundle anterior cruciate ligament reconstruction compared with a standard approach. Knee Surg Sports Traumatol Arthrosc. 2014.09;

23. Hideyuki Koga, Takeshi Muneta, Kazuyoshi Yagishita, Toshifumi Watanabe, Tomoyuki Mochizuki, Masafumi Horie, Tomomasa Nakamura, Koji Otabe, Ichiro Sekiya. Mid- to Long-term Results of Single-Bundle Versus Double-Bundle Anterior Cruciate Ligament Reconstruction: Randomized Controlled Trial. Arthroscopy. 2014.09;

24. K Nakatani, K Imai, M Shigeno, H Sato, M Tezuka, T Okawa, N Mitsuiki, T Isoda, D Tomizawa, M Takagi, M Nagasawa, M Kajiwara, M Yamamoto, A Arai, O Miura, C Kamae, N Nakagawa, K Honma, S Nonoyama, S Mizutani, T Morio. Cord blood transplantation is associated with rapid B-cell neogenesis compared with BM transplantation. Bone Marrow Transplant.. 2014.09; 49(9); 1155-1161

25. Hideyuki Koga, Takeshi Muneta, Kazuyoshi Yagishita, Toshifumi Watanabe, Tomoyuki Mochizuki, Masafumi Horie, Tomomasa Nakamura, Ichiro Sekiya. Effect of femoral tunnel position on graft tension curves and knee stability in anatomic double-bundle anterior cruciate ligament reconstruction. Knee Surg Sports Traumatol Arthrosc. 2014.11; 22(11); 2811-2820

26. Masaaki Mori, Masafumi Onodera, Akira Morimoto, Yoshiyuki Kosaka, Tomohiro Morio, Gerard F Notario, Shringi Sharma, Tsutomu Saji. Palivizumab use in Japanese infants and children with immunocompromised conditions. Pediatr. Infect. Dis. J.. 2014.11; 33(11); 1183-1185

27. Yasuhiro Yamazaki, Masafumi Yamada, Toshinao Kawai, Tomohiro Morio, Masafumi Onodera, Masahiro Ueki, Nobuyuki Watanabe, Hidetoshi Takada, Shunichiro Takezaki, Natsuko Chida, Ichiro Kobayashi, Tadashi Ariga. Two novel gain-of-function mutations of STAT1 responsible for chronic mucocutaneous candidiasis disease: impaired production of IL-17A and IL-22, and the presence of anti-IL-17F autoantibody. J. Immunol.. 2014.11; 193(10); 4880-4887

28. Tae-Yoon Park, Sung-Dong Park, Jen-Young Cho, Jae-Seung Moon, Na-Yeon Kim, Kyungsoo Park, Rho Hyun Seong, Sang-Won Lee, Tomohiro Morio, Alfred L M Bothwell, Sang-Kyou Lee. ROR γ t-specific transcriptional interactomic inhibition suppresses autoimmunity associated with TH17 cells. Proc. Natl. Acad. Sci. U.S.A.. 2014.12; 111(52); 18673-18678

[Misc]

1. Shigeyoshi Fujiwara, Hiroshi Kimura, Ken-ichi Imadome, Ayako Arai, Eiichi Kodama, Tomohiro Morio, Norio Shimizu, Hiroshi Wakiguchi. Current research on chronic active Epstein-Barr virus infection in Japan. Pediatr Int. 2014.04; 56(2); 159-166

2. Ichiro Sekiya, Seth S Leopold. Editor's spotlight/Take 5: Mesenchymal stem cells in synovial fluid increase after meniscus injury. Clin. Orthop. Relat. Res.. 2014.05; 472(5); 1353-1356

[Conference Activities & Talks]

1. Ichiro Sekiya. Cartilage and meniscus regeneration with synovial stem cells. GCOE Symposium 2014.02.18 Tokyo, Japan

2. Ichiro Sekiya. Introduction for the "Center for Stem Cell and Regenerative Medicine" at TMDU: "Cartilage and meniscus regeneration with synovial MSCs" as a representative case to establish a platform for the realization of regenerative medicine . GCOE Symposium 2014.02.18 Tokyo, Japan

3. Morio T.. Primary Immunodeficiency.. Brain Korea 21 Plus Project Seminar. 2014.05

4. Morio T, Fujita Y, Ono T, Ochiai N, Leen A.M, and Takahashi S.. Development of simplified method for generation of multivirus-specific T cells.. 2014 International Symposium and Annual Meeting of Korean Society of Microbiology and Biotechnology. 2014.06 Busan, Korea.

5. Generation of Multivirus-specific T cells by a single stimulation of PBMCs with a peptide mixture utilizing serum free medium. 2014.09.06

6. N. Mitsuiki, X. Yang, S. Bartol, Y.Kosaka, H.Takada, K. Imai, H. Kanegane, S. Mizutani, M. Van der Burg, M. Van Zelm, O. Ohara, T. Morio. Mutations in bruton's tyrosine kinase impair IgA responses. 16th Biennial Meeting of the European society for immunodeficiencies 2014.10.30 Prague, Czech Republic

7. K. Imai, Y. Tsujita, K. Mitsui-Sekinaka, N. Mitsuiki, T. Takashima, T. Okano, Y. Aoki, F. Kimoto, M. Inoue, F. Iwasaki, T. Kaneko, T. Waragai, H. Sano, A. Kikuta, T. Morio, S. Nonoyama. Hematopoietic stem cell transplantation for the patients with activated PI3K-delta syndrome. 16th Biennial Meeting of the European society for immunodeficiencies 2014.10.30 Prague, Czech Republic

8. L. Gamez-Diaz, D. August, N. Kanariou, S. Seneviratne, C. Speckmann, M. Seidel, M. Noriko, T. Morio, M. Jordan, P. Stepensky, B. Grimbacher. LRBA deficiency:clinical, immunologic and genetic characterization. 16th Biennial Meeting of the European society for immunodeficiencies 2014.10.30 Prague, Czech Republic

9. T.Takashima, Y. Tsujita, T.W.Yeh, N. Mitsuiki, H. Kanegane, S Kracker, A.Durandy, S. Nonoyama, T. Morio, K. Imai. Clinical and immunological features of patients with gain-of-function PIK3CD mutations in japan. 16th Biennial Meeting of the European society for immunodeficiencies 2014.10.30 Prague, Czech Republic

10. H. Takada, T. Takimoto, M. Ishimura, M. Urata, T. Morio, T. Hara. Wiskott-aldrich syndrome in a girl caused by heterozygous wasp mutation and extremely skewed x-chromosome inactivation:an association of non-randome x-chromosome inactivation and uniparental isodisomy 6. 16th Biennial Meeting of the European society for immunodeficiencies 2014.10.31 Prague, Czech Republic

11. T. Wada, T. Toma, M. Yasui, M. Inoue, K. Kawa, K. Imai, T. Morio, A. Yachie. Different leaky phenotype in two siblings with x-linked severe combined immunodeficiency. 16th Biennial Meeting of the European society for immunodeficiencies 2014.10.31 Prague, Czech Republic

12. Ichiro Sekiya. Synovial stem cells promote healing after surgical meniscal repair. International Early Knee OA Symposium 2014.11.05 Tokyo, Japan

Cleanroom

Associate Professor SUNAKAWA Mitsuhiro
Assistant Professor MATSUMOTO Hiroyuki

(1) Research

1) The development of disposalble hygienic materials for dental use.
2) The survey for the oral diseases in patients with HIV.
3) The survey for the relationship between the consousness of the staff and students and the needle stick accident in the hospital.

(2) Education

The improvement of the nosocominal infection control system in the University Hospital, Faculty of Dentistry, Tokyo Medical and Dental University and the education of the actual infection control method to all staff and clinical course students.

(3) Publications

[Conference Activities & Talks]

1. Kawamura J, Kaneko T, Yamanaka Y, Ito T, Sunakawa M, Okiji T, Suda H. Local anesthetic pretreatment suppresses activation of astrocytes as antigen presenting cells in the rat thalamus following dental pulp inflammation.. 13th International Symposium on Dentritic Cells 2014.09.14 Vinvi Congress Center, Tours (Loire Valley), France

Center for Sports Medicine and Sports Dentistry

○ Clinical Center of Sports Medicine
Center Chief and Junior Associate Professor Kazuyoshi YAGISHITA
Junior Associate Professor Mitsuhiro ENOMOTO
Tokunin Assistant Tomomasa NAKAMURA
Chief of Athletic Rehabilitation Junya AIZAWA
Physiotherapist Kenji HIROHATA, Takehiro OHMI, Shunsuke OHJI

○ Sports Medicine/Dentistry
Associate Professor Toshiaki UENO
Assistant Professor Toshiyuki TAKAHASHI, Hiroshi CHUREI
Hospital Staff Katsuhide KUROKAWA
Graduate Student Ruman Uddin CHOWDHURY, Takayuki ISHIGAMI, Kairi HAYASHI, Mai TANABE, Akihiro MITSUYAMA, Sintaro FUKASAWA, Abhishekhi SHRESTHA, Takahiro SHIRAKO, Yuriko YOSHIDA

(1) Outline

Center of Sports Medicine and Sports Dentistry was established as a bridgehead for sports medical science and sports dental science which deals the clinical management of trauma and disorder for athletes and sports-active people, and the safety measures and prevention of sports-related traumatic injuries and disorders. Center of Sports Medicine and Sports Dentistry is consisted of Clinical Center of Sports Medicine in University Hospital of Medicine and Sports Medicine/Dentistry and Sports dentistry clinic in University Hospital of Dentistry.

(2) Research

○ Clinical Center of Sports Medicine
1) Athletic rehabilitation for rapid recovery from injury and high performance in athletes.
1)-a Intervention of core strength in patients with anterior cruciate ligament reconstruction.
1)-b Treatment from the aspect of core function in patients with overuse and fatigue fracture.
2) Evaluation methods for core function.
3) Development of dynamic stability.
4) Hyperbaric oxygen treatment
4)-a Soft tissue injuries related with sports activities.
4)-b Conditioning in sports activities
○ Sports Medicine/Dentistry
1) Oral health promotion of athletes and sports-active people
1)-a Field survey of oral health conditions in athletes and sports-active people
1)-b Changes of oral environment associated with physical and sporting activities
1)-c Influences of sports drinks and supplements on oral health
2) Safety measures of sports-related dental and maxillofacial traumatic injuries
2)-a Diagnosis and treatment techniques for sports-related dental and maxillofacial injuries
2)-b Development and innovation of sports mouthguard
2)-c Development and innovation of sports faceguard
2)-d Development and innovation of scuba diving mouthpiece

3) Correlations between occlusion and general motor functions
3)-a Biomechanical assessment of motor performance associated with occlusion
3)-b Electrophysiological analysis of neuromuscular function associated with occlusion
4) Correlations between occlusion and body posture
5) Relations between mastication and occlusion and brain functions
6) Application of HBO therapy to sports-related dental diseases and traumatic injury

(3) Clinical Services & Other Works

Center of Sports Medicine and Sports Dentistry clinic offers comprehensive care and clinical management for athletes and sports-active people suffered traumatic injuries, overuse disorders, disorders related with internal medicine, and dental diseases.

○ Clinical Center of Sports Medicine
Number of patients (From April 2013 to March 2014)
Section of out-patient clinic: 3,063
Section of athletic rehabilitation: 3,051

○ Sports Medicine/Dentistry, Sports dentistry clinic
Sports dentistry clinic offers comprehensive care and clinical management for athletes and sports-active people suffered dental diseases and traumatic injuries. Custom-fitted protective gears such as mouthguard and face-guard against sports-related dental and maxillofacial trauma are also handled for participants in contact sports such as a boxing, American football, rugby football, hockey, lacrosse, and martial art.

(4) Publications

[Original Articles]

1. Horie Masaki, Enomoto Mitsuhiro, Shimoda Manabu, Okawa Atsushi, Miyakawa Shumpei, Yagishita Kazuyoshi. Enhancement of satellite cell differentiation and functional recovery in injured skeletal muscle by hyperbaric oxygen treatment. J Appl Physiol (1985). 2014.01; 116(2); 149-155

2. Yoshii Toshitaka, Yamada Tsuyoshi, Hirai Takashi, Taniyama Takashi, Kato Tsuyoshi, Enomoto Mitsuhiro, Inose Hiroyuki, Sumiya Satoshi, Kawabata Shigenori, Shinomiya Kenichi, Okawa Atsushi. Dynamic changes in spinal cord compression by cervical ossification of the posterior longitudinal ligament evaluated by kinematic computed tomography myelography. Spine (Phila Pa 1976). 2014.01; 39(2); 113-119

3. Hirai Takashi, Enomoto Mitsuhiro, Kaburagi Hidetoshi, Sotome Shinichi, Yoshida-Tanaka Kie, Ukegawa Madoka, Kuwahara Hiroya, Yamamoto Mariko, Tajiri Mio, Miyata Haruka, Hirai Yukihiko, Tominaga Makoto, Shinomiya Kenichi, Mizusawa Hidehiro, Okawa Atsushi, Yokota Takanori. Intrathecal AAV serotype 9-mediated delivery of shRNA against TRPV1 attenuates thermal hyperalgesia in a mouse model of peripheral nerve injury. Mol Ther. 2014.02; 22(2); 409-419

4. Arai Yoshiyasu, Hirai Takashi, Yoshii Toshitaka, Sakai Kenichiro, Kato Tsuyoshi, Enomoto Mitsuhiro, Matsumoto Renpei, Yamada Tsuyoshi, Kawabata Shigenori, Shinomiya Kenichi, Okawa Atsushi. A prospective comparative study of 2 minimally invasive decompression procedures for lumbar spinal canal stenosis: unilateral laminotomy for bilateral decompression (ULBD) versus muscle-preserving interlaminar decompression (MILD). Spine (Phila Pa 1976). 2014.02; 39(4); 332-340

5. Ukegawa Dai, Kawabata Shigenori, Sakaki Kyohei, Ishii Senichi, Tomizawa Shoji, Inose Hiroyuki, Yoshii Toshitaka, Kato Tsuyoshi, Enomoto Mitsuhiro, Okawa Atsushi. Efficacy of biphasic transcranial electric stimulation in intraoperative motor evoked potential monitoring for cervical compression myelopathy. Spine (Phila Pa 1976). 2014.02; 39(3); E159-E165

6. Madoka Ukegawa, Kush Bhatt, Takashi Hirai, Hidetoshi Kaburagi, Shinichi Sotome, Yoshiaki Wakabayashi, Shizuko Ichinose, Kenichi Shinomiya, Atsushi Okawa, Mitsuhiro Enomoto. Bone marrow stromal cells combined with a honeycomb collagen sponge facilitate neurite elongation in vitro and neural restoration in the hemisected rat spinal cord. Cell Transplant. 2014.06;

7. Koga H, Muneta T, Yagishita K, Watanabe T, Mochizuki T, Horie M, Nakamura T, Sekiya I.. Effect of Notchplasty in Anatomic Double-Bundle Anterior Cruciate Ligament Reconstruction. Am J Sports Med. 2014.06; 42(8); 1813-1821

8. D Hatsushika, T Muneta, T Nakamura, M Horie, H Koga, Y Nakagawa, K Tsuji, S Hishikawa, E Kobayashi, I Sekiya. Repetitive allogeneic intraarticular injections of synovial mesenchymal stem cells promote meniscus regeneration in a porcine massive meniscus defect model. Osteoarthr. Cartil.. 2014.07; 22(7); 941-950

9. Muneta T, Koga H, Nakamura T, Horie M, Watanabe T, Yagishita K, Sekiya I.. A new behind-remnant approach for remnant-preserving double-bundle anterior cruciate ligament reconstruction compared with a standard approach. Knee Surg Sports Traumatol Arthrosc. 2014.09; 11;

10. Hideyuki Koga, Takeshi Muneta, Kazuyoshi Yagishita, Toshifumi Watanabe, Tomoyuki Mochizuki, Masafumi Horie, Tomomasa Nakamura, Ichiro Sekiya. Effect of femoral tunnel position on graft tension curves and knee stability in anatomic double-bundle anterior cruciate ligament reconstruction. Knee Surg Sports Traumatol Arthrosc. 2014.11; 22(11); 2811-2820

11. Suzuki N, Yagishita K, Togawa S, Okazaki F, Shibayama M, Yamamoto K, Mano Y.. A case-control study evaluating relative risk factors for decompression sickness: a research report Undersea Hyperb Med. 2014.11; 41(6); 521-530

[Conference Activities & Talks]

1. Yagishita K, Enomoto M, Kato T, Horie M, Oyaizu T, Kojima Y, Koga H, Mano Y. . Quantitative Evaluation for Effects of Hyperbaric Oxygen Treatment on Patients with Ankle Sprain at an Acute Phase. . Undersea and Hyperbaric Medical Society Annual Scientific Meeting 2014 2014.06.23 St. Louis, USA

2. M. Enomoto, M. Ukegawa, H. Kaburagi, T. Hirai, K. Yagishita, A. Okawa, Y. Wakabayashi. An EGFR inhibitor induces Schwann cell proliferation and promotes functional recovery with remyelination in injured proneal nerve after end-to-side neurorrhaphy.. The 44th annual meeting of the Society for Neuroscience 2014.10

Basic Oral Health Science

Professor Kumiko Sugimoto

(1) Outline

Basic Oral Health Science is a section of oral health care sciences which deals with the basic oral health sciences to perform evidence-based oral health care and to support people to attain healthy and happy living. Main objective of basic oral health science in the undergraduate course is to provide students opportunity to study the structure and function of the human body as well as stomatognathic region, pharmacology, laboratory practice of physiology, and research process.

(2) Research

1) Changes in autonomic nerve and brain activities induce d by taste stimulation
2) The sensitivities to taste, olfactory and capsaicin stimulations in the patients of congenital insensitivity to pain with anhydrosis
3) Evaluation of oral care for the elderly by dental professionals
4) Oral health problems relevant to menopause
5) Objective assessment of internal stress during dental treatment by analyses of autonomic nervous activities and electroencephalogram

(3) Publications

[Original Articles]

1. Miura S, Endo K, Sugimoto K . Influences of chewing of mint-flavored gum on salivation, stress and work efficiency. The Japanese Journal of Taste and Smell Research. 2014.12; 21(3); 373-376

[Conference Activities & Talks]

1. Sugimoto K. Physiologic responses associated with taste stimulation: focusing on the responses of salivation, autonomic nervous system and brain.. 2014.01.28 Tokyo

2. Sugimoto K. What responses are induced by preferable tastes in the human body.. 2014.09.19 Tokyo

3. Takahashi M, Sugimoto K, Kamijo S, Suzuki T, Fukawa K, Yasue T, Sunaga M. An attefor oral health engineeringmpt to produce and evaluate computer simulation materials for oral health engineering education. . The 36th Annual Meeting of Nippon Academy of Dental Technology 2014.09.20 Sapporo

4. Kamijo S, Sugimoto K, Suzuki T, Oki M, Ikeda M, Sunaga M, Kinoshita A. Introduction of computer-assisted simulation materials to the dental technology education. . The 36th Annual Meeting of Nippon Academy of Dental Technology 2014.09.20 Sapporo

5. Takayanagi H, Yamaki T, Iwasaki N, Sugimoto K, Oki M, Takahashi H. Viscoplaastic properties of facial prosthesis material. The 36th Annual Meeting of Nippon Academy of Dental Technology 2014.09.20

6. Miura S, Endo K, Sugimoto K. Influence of chewing of mint-flavored gum on salivation, stress and work efficiency.. The 48th Annual Meeting of the Japanese Association for the Study of Taste and Smell 2014.10.02 Shizuoka

7. Tanaka S, Fujita H, Uehara N, Ono Y, Sugimoto K. Relationship between child's stress and mother's anxiety during dental treatment.. The 32nd Northern Japan Meeting of the Japanese Society of Pediatric Dentistry 2014.10.26 Niigata

8. Imura H, Sugimoto K, Yamazaki Y, Shimada M. Investigation of the components and properties of saliva in the patients with burning mouth syndrome.. The 19th Annual Meeting of the Japanese Society of Orofacial Pain 2014.11.05 Tokyo

9. Sugimoto K, Yoshida N, Yamazaki Y, Imura H, Kono Y, Yamanaka S, Sakamaki H, Kimura A, Nakai M . Oral conditions of women in and peri menopause - Comparison between female dental hygienists and general women-.. The 73rd Annual Meeting of Japanese Society of Public Health 2014.11.05 Utsunomiya

10. Yoshida N, Sugimoto K, Kimura A, Yamazaki Y, Nakai M, Imura H, Kono Y, Yamanaka S, Sakamaki H . Subjective evaluation of oral health in women in and peri menopause - Comparison between female dental hygienists and general women. The 73rd Annual Meeting of Japanese Society of Public Health 2014.11.05 Utsunomiya

11. Sugimoto K, Uehara N, Tsuchihashi N. Physiological responses of the children associated with the internal stress during dental treatment.. BIT' s 1st Annual World Congress if Oral & Dental Medicine 2014.11.13 Hainan, China

12. Matsushima M, Sugimoto K. The survey of intraoral situation in the users of the facility for the diabled. . The 31st Annual Meeting of the Japanese Society for Diability and Oral Health 2014.11.14 Sendai

13. Nakajima Y, Oki M, Sugimoto K, Suzuki T. Survey of dental treatments and needs for prostheses in veterinary practice. The 79th Annual Meeting of the Stomatological Society, Japan 2014.12.05 Tokyo

Comprehensive Oral Health Engineering

Associate Professor： Meiko Oki

(1) Outline

Department of Comprehensive Oral Health Engineering provides the knowledge and skills of the figurative arts, design, and the health welfare for oral health engineering students.

(2) Research

1) The fabrication of facial prostheses using three dimensional rapid manufacturing method
2) Clinical studies of treatments for patients with maxillofacial defects
3) Development of materials for facial prostheses

(3) Education

The first grade oral health engineering students participate in the tutorial lessons of general knowledge of oral health and specialists, and are introduced to clinical dentistry visiting the hospital clinics, dental technical laboratory, and dental material corporation. Scientific English was provided to learn basic dental terms. The second grade students attend lectures of health promotion, the tutorial lessons of general knowledge of oral and health promotion, Japanese and world dental technic situations, and statistic data analysis. Process device engineering was provided the outlines of 3D CAD/CAM/CAE, especially about 3D printer. The third grade students attend lectures and clinical laboratories to acquire a broad range of general knowledge and skills of a wide variety of maxillofacial defects, cleft lip and palate, oral appliances to support masticatory, swallowing and speech, and involvement of treatment procedures, by means of the high-advanced dental and medical cares. Scientific English II provides to read some English papers about prosthodontics.

(4) Lectures & Courses

The goal of the education program in Comprehensive Oral Health Engineering is to provide the knowledge and skills of the figurative arts, design, and the health welfare for oral health engineering students.

(5) Clinical Services & Other Works

In the Maxillofacial Prosthetic Clinic, I treat patients with cleft lip and/or palate, maxillary defect, mandibular defect, tongue defect, and facial defect, to improve their masticatory and swallowing functions, speech, and esthetic problems with the Maxillofacial Prosthetic staffs in the University Dental Hospital.

(6) Publications

[Original Articles]

1. Sasipin Lauvahutanon, Hidekazu Takahashi, Maho Shiozawa, Yuya Asakawa, Naohiko Iwasaki, Meiko Oki, Werner Finger, Mansuang Arksornnukit. Mechanical properties of composite resin blocks for CAD/CAM Dental Materials J. 2014; 33(5); 705-710

2. Meiko Oki, Hidekazu Takahashi, Yuka Sumita, Mariko Hattori, Naohiko Iwasaki, Hisashi Taniguchi. Viscoelastic properties of experimental facial prosthetic silicone materials Maxillofacial Prosthetics. 2014.06; 37(1); 9-14

3. Meiko Oki, Tetsuya Suzuki. Desirable strategies for dental technician's education in future Annals of Japan Prosthodontic Society. 2014.10; 6(4); 393-398

[Conference Activities & Talks]

1. Viscoelastic properties of experimental facial prosthetic silicone materials 2nd report. 2014.06.21 Sendai

2. An application of a maxillary obturator prosthesis to extensive hard and soft palate defects with insufficient velopharyngeal closure: A case report. 2014.06.22 Sendai

3. Color measurement of Vita classical shade tabs using an experimental spectrophotometer. 2014.09.20 Sapporo

4. Marginal edge reproducibility of restorations using CAD/CAM blanks. 2014.09.20 Sapporo

5. Time dependent changes of viscoelastic properties of soft denture reliners. 2014.09.20 Sapporo

6. Viscoelastic properties of facial prosthesis material. 2014.09.20 Sapporo

7. Introduction of computer-assisted simulatiion materials to the dental technology education -Evaluation by students-. 2014.09.20 Sapporo

Oral Clinical Science

Junior Associate Professor Masaomi Ikeda

(1) Outline

This course provides education for students to become professional dental technologists with the ability to apply newly developed materials and technologies to clinical dentistry and contribute not only to community dental medicine but also to dental research or educational institution internationally. At present, the latest technologies such as dental implant, dental CAD/DAM, etc are becoming more popular because of the progress of dental materials and technologies. Therefore, it is important to learn about new materials and technologies, and acquire skills in order to perform laboratory works properly. Communication skills are important because giving the information about materials and technologies to dentists and dental hygienists is necessary for the best outcome of dental treatment. Goal of this course is to produce dental technicians with extensive knowledge, high skill, and communication ability.

(2) Research

There are working on research of clinical dental technology as to place dental material science of the based on oral health engineering at the canter in this section. Therefore, newly developed materials were evaluated from a technologist' s point of view and aimed to establish a study. It promotes research of technical information with approaches from both dental material sciences and dental lab works, and returns the profits to society.

(3) Education

The purpose of this section is to educate professional dental technologists who has ability to apply newly developed materials and technologies and who is able to contribute in not only clinical situation but also research institution or educational organization at international levels. Presently, the latest technologies such as dental implant and dental CAD/CAM etc became popular by the development of materials and the progress in technologies among dental treatment. Therefore, it is necessary to understand and lean knowledge about newly developed materials and technologies for properly control the dental laboratory works. Furthermore, It is necessary that the communication skill for report information about the materials and technologies to dentists and dental hygienists. Based on these evidences, it is an education in which specialists are raised to not be bound by classification as technologist and have ambition.

(4) Lectures & Courses

Our graduates will

1. understand the dignity of the life and scientific principles and concepts and acquire knowledge of biosciences
2. respect fundamental human rights and acquire ability to associate with the person with understanding the other persons feeling and behavior.
3. understand the role and importance of oral health care sciences and welfare in the society

4. acquire an inquiring mind and problem solution ability and have the will to lifetime learning.
5. acquire the ability to act with the specialists of health, medical treatment and welfare.
6. learn the ability for international contribution from the point of oral health care sciences.
7. cultivate willingness to render sophisticated knowledge and skill to the society as the specialist for manufacturing masterpiece to improve the quality of life

(5) Publications

[Original Articles]

1. Wada I, Shimada Y, Ikeda M, Sadr A, Nakashima S, Tagami J, Sumi Y.. Clinical assessment of non carious cervical lesion using swept-source optical coherence tomography. Journal of Biophotonics.

Oral Health Information Technology

Professor Tetsuya SUZUKI
Assistant Professor Shingo KAMIJO

(1) Outline

Oral Health Information Technology educates deepen understanding of the production of the dental prosthesis using the latest computer science and cultivate basics power to new technology development. This course cultivates the ability to offer high quality medical technology taking advantage of expertise or knowledge.

(2) Research

1) The advanced technology which utilized a CADCAM system.
2) The education of dental technician which utilized computer simulation training.
3) Relation of "medical care to support life" and the dental technician.

(3) Education

Introduction of Oral Health Engineering, Practice of Occlusion, Fixed Prosthodontics Practice, CAD/CAM System Technology, CAD/CAM System Technology Practice, Advanced Technology for Oral Health, Ceramic Processing Technology Practice, Digital Imate Processing Practice, Comprehensive Oral Rehabilitation Engineering Practice, Graduation Product

(4) Publications

[Original Articles]

1. YASUE Tohru, IKEDA Masaomi, KAMIJOH Shingo, FUKAWA Kouichi, SUZUKI Tetsuya. Gloss retention of resin based composites restoration materials Part 1. Effects of thermal cycle test on the gloss retention 2014.07; 35(1); 24-31

[Conference Activities & Talks]

1. Kamijo S, Sugimoto K, Suzuki T, Oki M, Ikeda M, Sunaga M, Kinoshita A. Introduction of computer-assisted simulation materials to the dental technology education -Evaluation by the student-. Nippon Academy of Dental Technology 2014.09.20 Hokkaido university

2. Takahashi M, Sugimoto K, Kamijo S,Suzuki T, Fukawa K, Yasue T, Sunaga M. An attempt to produce and evaluate computer-assisted simulation materials for the education of Oral Health Engineering. Nippon Academy of Dental Technology 2014.09.20 Hokkaido university

3. Ikeda M, Kamijo S, Fukawa K, Yasue T, Hosaka K, Suzuki T, Tagami J. Direct composite resin bridge restoration for single tooth loss. Nippon Academy of Dental Technology 2014.09.20 Hokkaido university

Oral Biomaterials Engineering

Professor TAKAHASHI Hidekazu
Assistant Professor
IWASAKI Naohiko

(1) Outline

Basic knowledge of dental materials and devices for oral health engineering are provided for student.
Development and evaluation of new dental materials are preformed.

(2) Research

1. Evaluation of various factors on mechanical properties of teeth substance.
2. Evaluation of fatigue properties of dentin and dental materials using miniature testing pieces
3. Measurement of characteristics of dental ceramic materials and establishment of new testing methods for dental ceramics
4. Measurement of precise deformation using non-contact methods
5. Development of new composite resin with similar machinability of dentin
6. Study on dental root fracture mechanism
7. Applicayion of various types of fiberglass for dentistry
8. Evaluation of composite resin mechanical properties and improvement their bonding efficiency to various materials.
9. Evaluation of impact force absorption of mouthguard and face protect materials

(3) Education

ental material science is not only one of basic medical and dental science but also one of clinical dental science. In our department, we will educate students to obtain practical knowledge of the dental materials and devices used in dentistry and to improve skill how to deal with these materials and devices. Our goals of education are to achieve high quality of dental practice with well-understanding dental material and devices.
The aim for education is to obtain the basic knowledge of dental material science and technology. The lecture is simultaneously provided with the laboratory instructions within the limit of the possible.

(4) Lectures & Courses

Dental material science is not only one of basic medical and dental science but also one of clinical dental science. In our department, we will educate students to obtain practical knowledge of the dental materials and devices used in dentistry and to improve skill how to deal with these materials and devices. Our goals of education are to achieve high quality of dental practice with well-understanding dental material and devices.
The aim for education is to obtain the basic knowledge of dental material science and technology. The lecture is simultaneously provided with the laboratory instructions within the limit of the possible. Presentation not only domestic but also international meeting is strongly encouraged.

(5) Clinical Services & Other Works

Participatation in various congresses are strongly recommended. Assistance for standard making is also cooporated. Especially, Prof. Takahashi, head of Oral Biomaterials Engineering acts as the chairperson of ISO TC106 Dentistry/SC9 Dental CAD/CAM systems.

(6) Publications

[Original Articles]

1. Yuya Asakawa, Hidekazu Takahashi, Naohiko Iwasaki, Masahiro Kobayashi. Effect of ultraviolet light irradiation period on bond strengths between fiber-reinforced composite post and core build-up composite resin. Dent Mater J. 2014.01; 33(1); 133-140

2. Mariko Hattori, Yuka I Sumita, Lovely Muthiah, Naohiko Iwasaki, Hidekazu Takahashi, Yiliyaer Aimaijiang, Shigen Yoshi, Hisashi Taniguchi. Effect of fabrication process on the bond strength between silicone elastomer and acrylic resin for maxillofacial prosthesis. Dent Mater J. 2014.01; 33(1); 16-20

3. Natthavoot Koottathape, Hidekazu Takahashi, Naohiko Iwasaki, Masafumi Kanehira, Werner J Finger. Quantitative wear and wear damage analysis of composite resins in vitro. J Mech Behav Biomed Mater. 2014.01; 29; 508-516

4. Iwasaki N, Takahashi H, Koottathape N, Kanehira M, Finger WJ, Sasaki K.. Texture of composite resins exposed to two- and three-body wear in vitro. J Contemp Dent Pract. 2014.03; 15(2); 232-241

5. Maho Shiozawa, Hidekazu Takahashi, Naohiko Iwasaki. Fluoride release and mechanical properties after 1-year water storage of recent restorative glass ionomer cements. Clin Oral Investig. 2014.05; 18(4); 1053-1060

6. Fazal Reza, Hiroshi Churei, Hidekazu Takahashi, Naohiko Iwasaki,Toshiaki Ueno. Flexural impact force absorption of mouthguard materials using film sensor system Dental Traumatology. 2014.06; 30(3); 193-197

7. Reza F, Churei H, Takahashi H, Iwasaki N, Ueno T. Flexural impact force absorption of mouthguard materials using film sensor system Dental Traumatology. 2014.06; 30(3); 193-197

8. Hiroshi Churei, Shintaro Fukasawa, Hidekazu Takahashi, Motohiro Uo, Toshiaki Ueno. Development of High-Efficiency Athletic Mouth Guard for Athletes -Invention of New Mouth Guard Materials Reinforced with Fiberglass Cloth and Application - DESCENTE SPORTS SCIENCE. 2014.06; 35; 44-52

9. Maho Shiozawa, Hidekazu Takahashi, Yuya Asakawa, Naohiko Iwasaki. Color stability of adhesive resin cements after immersion in coffee. Clin Oral Investig. 2014.06;

10. Chowdhury RU, Churei H, Takahashi H, Wada T, Uo M, Fukasawa S, Sahrin S, Abe K, Ueno T. Combined analysis of shock absorption capability and dispersion force of mouthguard material from different impact objects Dental Materials Journal. 2014.07; 33(4); 551-556

11. Yuya Asakawa, Hidekazu Takahashi, Naohiko Iwasaki, Masahiro Kobayashi. Effect of ultraviolet light irradiation and sandblasting treatment on bond strengths between polyamide and chemical-cured resin. Dent Mater J. 2014.07; 33(4); 557-564

12. Lauvahutanon S, Takahashi H, Shiozawa M, Iwasaki N, Asakawa Y, Oki M, Finger WJ, Arksornnukit M.. Mechanical properties of composite resin blocks for CAD/CAM. Dental Materials Journal. 2014.09; 33(5); 557-564

13. Krid Kamonkhantikul, Mansuang Arksornnukit, Hidekazu Takahashi, Masafumi Kanehira, Werner J Finger. Polishing and toothbrushing alters the surface roughness and gloss of composite resins. Dent Mater J. 2014.09; 33(5); 599-606

14. Junichiro Wada, Kenji Fueki, Masaru Yatabe, Hidekazu Takahashi, Noriyuki Wakabayashi. A comparison of the fitting accuracy of thermoplastic denture base resins used in non-metal clasp dentures to a conventional heat-cured acrylic resin. Acta Odontol. Scand.. 2014.10; 1-5

15. Chowdhury RU, Churei H, Takahashi H, Shahrin S, Fukasawa S, Shrestha A, Negoro T, Ueno T. Suitable design of mouthguard for sports active person with spaced dentition Dental Traumatology. 2014.10; Online published;

16. Marie Saito, Manabu Kanazawa, Hidekazu Takahashi, Motohiro Uo, Shunsuke Minakuchi. Trend of change in retentive force for bar attachments with different materials. J Prosthet Dent. 2014.12; 112(6); 1545-1552

17. Maho Shiozawa, Hidekazu Takahashi, Naohiko Iwasaki, Takahiro Wada, Motohiro Uo. Effect of immersion time of restorative glass ionomer cements and immersion duration in calcium chloride solution on surface hardness. Dent Mater. 2014.12; 30(12); e377-e383

[Conference Activities & Talks]

1. Fukasawa S,Churei H,Wada T,Uo M,Takahashi H,Ueno T. Gluing acrylic soft denture liner to mouth guard sheet. 2014.04.12 Tokyo, JAPAN

2. Ueno T, Churei H,Fukasawa S, Wada T,Uo M,Takahashi H. Usefulness of a mobile tooth fixation adhesive material at temporary fixation in dental trauma. 2014.04.12 Tokyo, JAPAN

3. Hiroshi CHUREI, Takahiro WADA, Motohiro UO, Shintaro FUKASAWA, Ruman Uddin CHOWDHURY, Keisuke ABE, Takatoshi FUKUDA, Hidekazu TAKAHASHI, Toshiaki UENO. Effectiveness of the exterior cushioning materials in face guard. 2014.06.29 Osaka, JAPAN

4. Fukasawa S, Churei H, Chowdhury RU, Yokota K, Wada T, Uo M, Takahashi H, Ueno T. Effect of ultraviolet surface treatment on bond strength between mouthguard sheet and dental silicone. 2014.06.29 Osaka, JAPAN

5. Ruman Uddin CHOWDHURY, Hiroshi CHUREI, Hidekazu TAKAHASHI, Takahiro WADA, Motohiro UO, Shintaro FUKASAWA, Keisuke ABE, Sharika SHAHRIN, Toshiaki UENO. Combined analysis of shock absorption capability and disperse force of mouthguard material. 2014.06.29 Osaka, JAPAN

6. Fukasawa S,Churei H,Wada T,Uo M,Takahashi H,Ueno T . Effect of ultraviolet surface treatment and application of primers on bond strength between mouthguard sheet and dental silicone. 2014.10.04 Hiroshima, JAPAN

7. Iwasaki N, Yamaki T, Takahashi H, Suzuki T. Effect of water storage on viscoelastic properties and bond strength of commercial soft denture lining materials. 2014.10.04 Hirosima

Fixed Prosthetic Engineering

Junior Associate Professor Tohru Yasue

(1) Research

From the dental technologists' viewpoint of fabricating dental crown restorations, our research and development will be ready in an approach toward a new technology of dental laboratory engineering and a new material science, especially in the study of advanced restorative engineering using digital equipments.

(2) Lectures & Courses

Our instruction will include provision of knowledge and technical training of dental laboratory techniques necessary for dental crown restorative procedures to solve morphological, functional and esthetics problems that have been accompanied with eventual loss of tooth substance and body in the oral tissues. Intensive learning of tooth morphology that should be fundamental to every phase of dental laboratory techniques will be scheduled by practical courses based on the science of shape recognition construction. And our teaching will refer to not only provision of forms and occlusal functions to be best suited for individual patients in crown restoration engineering and plate denture engineering, but also fabrication techniques of restorations with highly color matching together with prosthetic restoration methods using most advanced materials.

(3) Clinical Services & Other Works

As far as crown restorations are concerned in dental esthetics based on Zirconia materials with CAD/CAM machining, functional efficiency and durability will be identified in the oral cavity environment, and crown restorations with highly demanding esthetics will be fabricated.

(4) Publications

[Original Articles]

1. YASUE Tohru, IKEDA Masaomi, KAMIJOH Shingo, FUKAWA Kouichi, SUZUKI Tetsuya. Gloss retention of resin based composites restoration materials Part 1. Effects of thermal cycle test on the gloss retention 2014.07; 35(1); 24-31

Oral Prosthetic Engineering

Professor Tetsuya SUZUKI
Research Associate Kouichi FUKAWA
Contract Teacher Hiroki NIKAWA
Contract Teacher Junichi FURUYA
Contract Teacher Nobusuke ODA
Contract Teacher Hitoshi KATO
Contract Teacher Tatsutomi WATANABE
Contract Teacher Makoto OIZUMI
Contract Teacher Kayo TOKUMOTO

(1) Research

1. Standardization of education for dental technicians
2. Optimal occlusion for removable dentures.
3. Evaluation of various denture materials.
4. Evaluation of oral function in elderly.
5. Influence of masticatory function on brain activity.

(2) Education

Oral Prosthetic Engineering is one of the dental sciences which propose to restore and maintain oral function, form and health for partially and/or complete edentulous patients. Main object of Oral Prosthetic Engineering is to provide students to obtain the basic knowledge and technical skill of complete denture prosthodontics, removable partial denture prosthodontics and dental occlusion.

(3) Publications

[Original Articles]

1. YASUE Tohru, IKEDA Masaomi, KAMIJOH Shingo, FUKAWA Kouichi, SUZUKI Tetsuya. Gloss retention of resin based composites restoration materials Part 1. Effects of thermal cycle test on the gloss retention 2014.07; 35(1); 24-31

2. Meiko Oki, Tetsuya Suzuki. Desirable strategies for dental technician's education in future Annals of Japan Prosthodontic Society. 2014.10; 6(4); 393-398

[Misc]

1. Kenji Fueki, Chikahiro Ohkubo, Masaru Yatabe, Ichiro Arakawa, Masahiro Arita, Satoshi Ino, Toshikazu Kanamori, Yasuhiko Kawai, Misao Kawara, Osamu Komiyama, Tetsuya Suzuki, Kazuhiro Nagata, Maki Hosoki, Shin-Ichi Masumi, Mutsuo Yamauchi, Hideki Aita, Takahiro Ono, Hisatomo Kondo, Katsushi Tamaki, Yoshizo Matsuka, Hiroaki Tsukasaki, Masanori Fujisawa, Kazuyoshi Baba, Kiyoshi Koyano,

Hirofumi Yatani. Clinical application of removable partial dentures using thermoplastic resin-part I: definition and indication of non-metal clasp dentures. J Prosthodont Res. 2014.01; 58(1); 3-10

2. Kenji Fueki, Chikahiro Ohkubo, Masaru Yatabe, Ichiro Arakawa, Masahiro Arita, Satoshi Ino, Toshikazu Kanamori, Yasuhiko Kawai, Misao Kawara, Osamu Komiyama, Tetsuya Suzuki, Kazuhiro Nagata, Maki Hosoki, Shin-ichi Masumi, Mutsuo Yamauchi, Hideki Aita, Takahiro Ono, Hisatomo Kondo, Katsushi Tamaki, Yoshizo Matsuka, Hiroaki Tsukasaki, Masanori Fujisawa, Kazuyoshi Baba, Kiyoshi Koyano, Hirofumi Yatani. Clinical application of removable partial dentures using thermoplastic resin. Part II: Material properties and clinical features of non-metal clasp dentures. J Prosthodont Res. 2014.04; 58(2); 71-84

[Conference Activities & Talks]

1. Introduction of computer-assisted simulatiion materials to the dental technology education -Evaluation by students-. 2014.09.20 Sapporo