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<th>No</th>
<th>Code</th>
<th>Department</th>
<th>Supervisor</th>
<th>Research Subject</th>
<th>Classification</th>
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</table>
| 1  | 3010   | Oral Pathology                           | IDEDA Tohru           | 1. Mechanisms of bone destruction by oral cancer  
2. Mechanisms of invasion and microenvironment of oral cancer  
3. Development of digital histopathological diagnosis system  
4. Novel diagnostic markers for salivary gland tumors | D             |
| 2  | 3020   | Bacterial Pathogenesis, Infection and Host Response | SUZUKI Toshihiko     | 1. Molecular mechanisms of infection by pathogenic bacteria  
2. Mechanisms of activation and regulation of inflammation  
3. Study of virulent genes based on comparative genomics  
4. Relationship between persistent bacterial infection and chronic inflammatory diseases | D             |
| 3  | 3030   | Molecular Immunology                      | AZUMA Miyuki          | 1. Cellular and molecular levels of functional analyses of immune diseases such as infection, allergy, autoimmunity and disease  
2. Analyses of lymphocyte function molecules and development of immunotherapy by molecular targeting  
3. Understanding of unique features of oral immune responses  
4. Therapeutic approach for control of oral diseases by immune intervention | D             |
| 4  | 3040   | Advanced Biomaterials                    | O Motohiro            | 1. Development of glass/ceramic for dentistry  
2. Distribution and chemical state analysis of trace elements in the biological tissues  
3. Development of dental composite resins  
4. Non-destructive analysis methods for dental materials and tissues  
5. Evaluations for various properties of dental materials and tooth | D             |
| 5  | 3050   | Diagnostic Oral Pathology                 | Under Selection       | 1. Development of glass/ceramic for dentistry  
2. Distribution and chemical state analysis of trace elements in the biological tissues  
3. Development of dental composite resins  
4. Non-destructive analysis methods for dental materials and tissues  
5. Evaluations for various properties of dental materials and tooth | D (DH)        |
| 6  | 3060   | Oral Radiation Oncology                   | MIURA Kazahiko        | 1. Visualization of tumor radioresponse by molecular imaging  
2. Mechanisms of DNA damage response  
3. Radiosensitive signal transduction pathways  
4. Clinical study on radiotherapy for oral cancer | D             |
| 7  | 3090   | Oral and maxillofacial surgery            | HARAEDA Hiroyuki      | 1. Improvement of maxillofacial imaging efficacy  
2. Novel MRI techniques for maxillofacial diagnosis  
3. Differential diagnosis of maxillofacial lesions using sectional imaging  
4. Molecular mechanisms of cellular radiosensitivity | D             |
| 8  | 3100   | Oral and Maxillofacial Radiology          | KURABAYASHI Tohru     | 1. Non invasive drug delivery system  
2. Autonomic nervous responses of non-invasive and invasive stimulation  
3. Anxiety mechanism in central nervous system  
4. Elucidation of the cause of chronic pain and the background factors related to chronic pain  
5. Study on temporomandibular disorders and bruxism (sleep and awake) | D             |
| 9  | 3110   | Dental Anesthesiology and Orofacial Pain Management | YODA Tetsuva (concurrently assigned) | 1. Basic research on tooth and bone development and emotional changes in children  
2. Development of dental pulp examination and diagnostics in children  
3. Study on abnormal oral morphology and function in children and its treatment  
4. Study on oral biofilm formation and its inhibition  
5. Oral management and oral health status of the persons with special needs  
6. Development of self-help tools that combine with the retention device in the mouth for people with physical disabilities | D             |
| 10 | 3130   | Pediatric Dentistry/Dentistry for Persons with Special Needs | WAKAMOTO Tatsunori   | 1. Comprehensive research related to respiratory function and cranio-maxillofacial morphology and function and central nervous system  
2. Neurophysiological research related to stomatologic function and neuronal plasticity in the central and peripheral nervous systems  
3. Morphological and molecular cytobiological research related to maxillofacial cranium and temporomandibular joint  
4. Molecular cytobiological research related to biological reaction and tissue regeneration in response to functional changes or mechanical stresses  
5. Biomedical biomechanical research related to morphological and functional changes of oral structures and development of new materials (CAD/CAM, Zirconia, optical impression etc.)  
6. Development of self-help tools that combine with the retention device in the mouth for people with physical disabilities | D             |
| 11 | 3140   | Orthodontic Science                      | MIYAZAKI Takashi      | 1. Comprehensive research related to respiratory function and cranio-maxillofacial morphology and function and central nervous system  
2. Neurophysiological research related to stomatologic function and neuronal plasticity in the central and peripheral nervous systems  
3. Morphological and molecular cytobiological research related to maxillofacial cranium and temporomandibular joint  
4. Molecular cytobiological research related to biological reaction and tissue regeneration in response to functional changes or mechanical stresses  
5. Biomedical biomechanical research related to morphological and functional changes of oral structures and development of new materials (CAD/CAM, Zirconia, optical impression etc.)  
6. Development of self-help tools that combine with the retention device in the mouth for people with physical disabilities | D             |
| 12 | 3150   | Gerontology and Operative Dentistry       | TAGANIRI Junji (Scheduled to retire in March 2023) | 1. Development of new caries prevention  
2. Development of new caries diagnosis  
3. Improvement of composite resin restoration  
4. Establishment of esthetic tooth restoration with minimal intervention  
5. Development of new tooth bleaching material and method | D             |
| 13 | 3160   | Fixed Prosthodontics                      | MIURA Hiroyuki (Scheduled to retire in March 2023) | 1. Occlusion and Mastication (mandibular position, mandibular movement, articulator, masticatory efficiency)  
2. Influence of the mechanical stress caused by the occlusal contact on the stomatognathic system (tooth displacement, distortion of alveolar bone, occlusal contact, proximal contact etc.)  
3. Clinical application of the latest technology and development of the new materials (CAD/CAM, Zirconia, optical impression etc.)  
4. Mechanisms of periodontal tissue remodeling under masticatory functions and parafunctions  
5. Influence of the dental materials to the human body (metal allergy etc) | D             |
| 14 | 3170   | Pulp Biology and Endodontics             | ONO Takashi           | 1. Dental pulp tissue regeneration  
2. Immunohistochemical and molecular biological analysis of pulpal and apical periodontal diseases  
3. Evaluation and improvement of nickel-titanium endodontic rotary instruments  
4. Application of lasers, cone-beam CT and optical coherence tomography to endodontics | D             |
| 15 | 3180   | Removable Partial Prosthodontics          | MAKABAYASHI Noriyuki  | 1. Function and Sensation in Partial Denture Restorations  
2. Optimization of Partial Denture Design based on Stress Analysis  
3. Clinical Applications of New Prosthetic Biomaterials  
4. Assessment of Oral Tissues in Denture Wearsers  
5. Epidemiology and Education of Removable Partial Prosthodontics | D             |
| 16 | 3190   | Oral Implantology and Regenerative Dental Medicine | MIURA Hiroyuki (concurrently assigned) | 1. Development of next-generation dental implant  
2. Time-dependent change of the tissues supporting dental implants  
3. Optimization of the implant superstructure  
4. Regeneration of bone and soft tissue | D             |
| 17 | 3200   | Plastic and Reconstructive Surgery        | MORI Hiroki           | 1. Pre and post operative breast or facial contour evaluation using 3D camera  
2. Sensory recovery in the nipple-sparing or skin-sparing mastectomy  
3. Development of classification and algorithm in biophotonsis and biophotonsis surgery  
4. Elucidation of the role of TRP channel and the interaction between keratinocyte and peripheral nervous system  
5. Blood circulation study of the surgical flap using indocyanine green angiography and multi slice CT | M             |
1. Development of functional and aesthetic reconstruction following cancer ablation in head and neck.
2. Does the improvement of capillary patency rate contribute to the preservation of transferred fatty tissue volume?
3. Evaluation of blood supply to various flaps using ICG fluorescence angiography.
4. Development of ambulatory functional reconstruction for refractory ulcer especially in CLI patients.
5. Development of functional and aesthetic reconstruction for facial paralysis.

2. Relationship between HPV and head and neck cancer.
3. Standardization of neck dissection.
5. Endoscopic diagnosis and transoral surgery for superficial pharyngeal carcinoma.

1. Development of brachytherapy for oral cancer, prostate cancer, and uterine cancer.
2. Clinical research and development of IMRT and SRT.

1. Development of tooth germ and roots using organ culture system.
2. Structure and function of dental stem cell niche.
3. Analysis of extracellular matrix in orofacial region.
4. Structural analysis of jaw bone and mandibular condylar cartilage.
5. Morphology and development of teeth and periodontal tissues.

1. Elucidation of mechanisms of developmental synapse elimination.
2. Elucidation of rules of Glia in development, function, disease of brain.
4. Elucidation of tumor-microenvironment interaction in the progression and invasion of brain tumor.
5. Development of innovative imaging probe for elucidation of cell-cell interaction.

1. Clinical study of cleft lip and palate, and orthognathic surgery.
2. Cell biology and bone regeneration for reconstruction of facial bone and alveolar bone.
3. Basic and clinical research of temporomandibular joint and masticatory muscle disorders.
4. Basic and clinical research of diseases in oral and maxillofacial region.

1. Research on photobiomodulation (PBM) effects of lasers/LEDs on cells/tissues.
2. Research on photobiomodulation (PBM) effects of lasers/LEDs on cells/tissues.
3. Research on the association between periodontitis and systemic diseases.
5. Research on the application of antimicrobial photodynamic therapy (a-PDT) in periodontal and peri-implantitis therapy.

1. Research on periodontal regeneration and stem cell therapy.
2. Research on the mechanisms of periodontal pathogenicity.
3. Research on the association between periodontitis and systemic diseases.

1. Formation of cancer associate fibroblasts (CAFs) through endothelial-to-mesenchymal transition (EndMT).
2. Understanding the multiple aspects of cancer microenvironment.
3. Application of optogenetics to regenerative medicine.
4. Research for development of new materials for facial prostheses.
5. Research for prosthetic diagnosis in patients with a maxillofacial defect.

1. Study on transcription factors necessary for the maintenance of chondrogenic phenotype.
2. Study of the origin and evolution of tooth using fish scales and tooth.
3. Study of organogenesis and cell differentiation in tooth using rodents.
4. Study of cell-cell communication via gap junction.
5. Study on the tumor suppressor Hippo pathway.

1. Study on organogenesis and cell differentiation in tooth using rodents.
2. Study of the development of oral tissues and periodontal tissues using rodents.
3. Study of the origin and evolution of tooth using fish scales and tooth.
4. Study on the molecular link between chronic inflammation and oncogenesis.
5. Study on the molecular link between chronic inflammation and oncogenesis.

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2. Study on the origin and evolution of tooth using fish scales and tooth.
4. Study on the molecular link between chronic inflammation and oncogenesis.
5. Study on the molecular link between chronic inflammation and oncogenesis.

1. Study on transcription factors necessary for the maintenance of chondrogenic phenotype.
2. Study of the molecular dynamics of extracellular matrix in connective tissues.
4. Study on novel genes actively expressed in periodontal tissues.
5. Study on novel genes actively expressed in periodontal tissues.

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4. Study on novel genes actively expressed in periodontal tissues.
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5. Development of functional and aesthetic reconstruction for facial paralysis.

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| 39   | Global Health Promotion                        | FUJWARA Takeo                | 1. Social epidemiology (impact of social inequality, social capital, social network, and social support on health)  
2. Life-course epidemiology (impact of child poverty and adverse childhood experiences on health) and international comparison study  
3. Prevention on child abuse and neglect  
4. Disaster and child and their family’s mental health  
5. Climate change and health |
| 40   | Environmental Parasitology                     | IWANAGA Shiroh               | 1. Research on drug resistance mechanism in malaria parasites  
2. Research on development stages control by transcriptional factors in malaria parasites  
3. Research on a communication system by small RNAs in blood fluke, Schistosoma japonicum  
4. Research on mechanisms of action of novel anti-schistosomal drugs  
5. Research on development systems of parasitic helminth |
| 41   | Forensic Medicine                              | UEMURA Koichi                | 1. Studies on the mechanisms of cell death induced by drugs  
2. Forensic toxicology / Alcohol medicine  
3. Forensic pathology  
4. Drug analysis |
| 42   | Health Care Management and Planning            | KANWARA Kazuo                | 1. The significance of public healthcare planning, its challenges, and influences on the healthcare system  
2. Structural analyses and policy choices concerning national blood services  
3. The government role in preventing medical errors  
4. Structural analyses of healthcare system in the community  
5. Systemizing and evaluating public health policies |
| 43   | Molecular Epidemiology                          | MURAMATSU Masaaki            | 1. Study on gene-environment interaction in the development of common chronic diseases.  
2. Study on Developmental Origins of Health and Diseases (DOHaD)  
3. Bioinformatics on disease mechanism.  
4. Environment and epigenetic changes  
5. Application of personal genome information to human helth care. |
| 44   | Research Development                           | TAKASE Kozo (Scheduled to retire in March 2021) | 1. Management technology for comprehensive clinical administration  
2. Development and procurement of hospital information system  
3. Electronic medical record and clinical pathway  
4. Medical malpractice and medical law suit  
5. Science and ethics in medicine and practice |
| 45   | Health Policy and Informatics                  | FUSHII Kyohide               | 1. Health information management for the development of DPC case mix system and PDPs payment system  
2. Quantitative analysis method for planning and assessment of health care providing system  
3. Methodology for hospital profiling and assessment of hospital functions  
4. Utilization of electric health data of health system  
5. Health cost analysis and hospital management |
| 46   | Life Sciences and Bioethics                    | YOSHIDA Masaaki              | 1. Biotechnological issues surrounding medical research  
2. Development of efficient IRR management  
3. Clinical and basic research in Medical Genetics  
4. Genetic Counselor course (Master course only)  
6. Clinical and basic research in vascular biology and atherosclerosis |
| 47   | Forensic Dentistry                              | SAKURADA Kouichi             | 1. Personal identification based on dental findings  
2. Personal identification using hard tissues such as teeth and bones, soft tissues, and body fluids  
3. Personal identification based on facial reconstruction and image analysis  
4. Development of new identification methods with biochemical or molecular biological techniques |
| 48   | Health Care Economics                          | KANABIKU Koichi              | 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 |
| 49   | Dental Education Development                   | MORIO Ikuo                   | 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 |
| 50   | Oral Health Promotion                          | OKUJI Takashi                | 1. Research on epidemiology and prevention of oral diseases  
2. Research on oral health promotion  
3. Research on community dentistry and international oral health  
4. Research on oral health care system  
5. Research on teledental care |
| 51   | Sports medicine and dentistry                   | UENO Toshiaki                | 1. Change of oral environment with exercise and sporting activity  
2. Relationship between sports performance and osseous function and cerebral function  
3. Application of hyperbaric oxygen treatment to traumatic dental injuries  
4. Optimal design and modern fabricating technique of sports mouthguard and faceguard  
5. Materials development and quality improvement for sports mouthguard and faceguard |
| 52   | Educational system in Dentistry                 | ARAKI Kouji (Scheduled to retire in March 2021) | 1. Development, practice and analysis of the evaluation method for the dental education curriculum  
2. Development of the inspection method of universality, validity, and the reliability in the evaluation for the dental educational system  
3. Development of the evaluation system of international educational standards for undergraduate and postgraduate dental students  
4. Development of the program to improve clinical skills for dentistry with the virtual reality education simulation system |
| 53   | Educational Media Development                   | KOSHITA Atsuhiro             | 1. Development of computer-assisted clinical simulation system for medical and dental practice training  
2. Development of new education system using information and communication technologies for medical and dental students  
5. Development of composing and screening system for original 3D movies from operator’s viewpoint |
| 54   | Insured Medical Care Management                 | AI Masumi                    | 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 |
| 55   | Global Health Entrepreneurship                 | MAKAMURA Keiko              | 1. International development of trade and workforce for health services  
2. Development of social business models for equitable delivery of healthcare  
3. Lessons for healthcare entrepreneurs from the Healthy Cities Program  
4. Evaluation of health impact of climate change  
5. Community health Integrated Care (ComIC) to manage hypertension/diabetes in diverse economy settings |
| 56   | Rehabilitation Medicine                        | OKAAB Atsushi (concurrently assigned) | 1. Rehabilitation for total joint arthroplasty  
2. Three dimensional motion analysis of upper/lower extremities and gait analysis  
3. Risk management in rehabilitation medicine  
4. Nutritional management in rehabilitation  
5. Biomechanical research for prevention of sports injury |
08 3820 Neurosurgery
MAEHARA Taketoshi
1. Development of novel treatment for brain tumor with use of biomarker assay and molecular imaging
2. Establishment of appropriate surgical intervention for cerebrovascular diseases based on clinical pathophysiological analysis
3. Analysis on pathophysiological mechanism of intractable epilepsy and on the effectiveness of its surgical treatment
4. Investigation on the mechanism of secondary neuronal damage and higher brain dysfunction by neurotrauma and on the method for its prevention
5. Analysis on the correlation between genetic background and clinical characteristics of patients with encephaly disease

08 3830 Endovascular Surgery
ARAI Hirokuni (concurrently assigned)
1. Investigation of microvascular anatomy and vasculogenesis in central nervous system and head and neck region
2. Integration of the fluid engineering technology into the endovascular field in an effort to explore new surgical treatment
3. Analysis of platelet aggregation function during perioperative period in endovascular surgery
4. Invention and assessment of endovascular devices applied bioactive material technology
5. Research for less invasive surgical approach for vascular disease

08 4430 NMR Brain Physiology and Pathology
HOSHINO Mikio
ISHIHONE Noritaka
HANAWA Takashi
GOTO Yuichiro
YAMASHITA Yuichi
1. Clarification of molecular machinery underlying brain development (HOSHINO Mikio)
2. Social brain and its disorder (ISHIHONE Noritaka)
3. Correlative and manipulative approach for the understanding of brain functions using neuroimaging and neuroengineering techniques (HANAWA Takashi)
4. Molecular mechanism of intellectual disability (GOTO Yuichiro)
5. Molecular pathology and therapeutics for neurodegenerative diseases (AKI Yoshitsugu)
6. Computational approach for psychiatric disorders (YAMASHITA Yuichi)

08 3840 Immune Regulation
SATOH Takashi
1. Basic and applied research for innate immunity
2. Study on diversity of various immune cells such as macrophages
3. Screening for drugable targets that repress development of disorder
4. Elucidation of crosstalk between immune cells and non-immune cells

08 3850 Molecular Virology
YAMAKA Shoji
1. Molecular studies on the replication and pathogenicity of human immunodeficiency virus (HIV)
2. Viral protein and signal transduction
3. Development of methods for efficient lentiviral production

08 3860 Immunotherapeutics
KETAGA Masanobu (concurrently assigned)
1. Development of anti-tumor vaccines for adult T-cell leukemia
2. Analysis of immunological risks for HTLV-I-related diseases in virus carriers
3. Innate immune-mediated pathology in chronic virus infection
4. Molecular mechanism to regulate HIV-1 gene expression
5. The department is not recruiting applicants

08 3870 Cellular and Environmental Biology
HARA Masayuki
1. Chromatin higher-order structure and machinery
2. Proteomics-based analysis of nuclei
3. Cellular defense against oxidative stress
4. Cellular responses against its external environment, such as drug, substance, and radiation

08 3880 Biodefense Research
OHTA Kenichiro
1. Roles of monocyte/macrophage in health and disease
2. Development of novel therapies by targeting monocyte/macrophage lineage
3. Maintenance and failure of brain function by transcriptional regulation in microglia
4. Aging mechanisms of immune cells and tissue stem cells (blood, intestine and skin)
5. Understanding of tissue regeneration and repair on the basis of tissue stem cell-immune cell interplay

08 3890 Pathological Cell Biology
SHIMIZU Shigemori
1. Analysis of Molecular Mechanisms of Cell Death and its Clinical Application
2. Physiological and Pathological Roles of Autophagy in Mammals
3. Analysis of Molecular Mechanisms of Mitochondria-related Diseases
4. Development of Novel Therapies to Treat Ischemic Diseases
5. Establishment of refractory virus disease model mouse and application to anti-viral drug development

08 3900 Lipid Biology
SASAKI Takehiko
1. Exploring bioactive lipids that cause disease conditions
2. Exploring bioactive lipids that reflect disease state
3. Elucidation of the true nature of cancer, inflammatory diseases, and neurodegenerative diseases by lipid
4. Development of lipid analysis technology based on mass spectrometry
5. Pathological analysis of mice lacking lipid metabolizing enzymes (PISK, PTEN, etc.)

08 3920 Pediatrics and Developmental Biology
MORIO Tomohiro
1. Research on molecular background of primary immunodeficiency and development of novel gene/ cell therapy for the disorder
2. Analysis of genetic background and development of novel therapeutic approach for pediatric malignancy
3. Analysis of pathogenesis in pulmonary hypertension and hereditary amyloidosis
4. Research on molecular mechanisms of disorder of sex development and congenital adrenal hyperplasia
5. Molecular and biochemical analysis of intractable pediatric disorders in neurology, nephrology, neonatology, and other genetic disease fields

08 3930 Rheumatology
YASUDA Shinuke
1. Clinical Immunological research on rheumatoid arthritis
2. Clinical Immunological research on polyarthritis and dermatomyositis
3. Clinical Immunological research on systemic sclerosis
4. Clinical research on the collagen and rheumatic diseases in childhood and transitional period

08 3940 Dermatology
YOKOZUKA Hisatsugu
(Scheduled to retire in March 2023)
1. Analysis of the roles epidermal cells by IPS cells
2. Analysis of the mechanism and treatment for atopic dermatitis and contact hypersensitivity
3. Analysis of the mechanism of seat dysfunction
4. Analysis of the role of eosinophils and basophils in allergic skin diseases
5. Gene analysis and development of gene therapy for skin malignant diseases

08 4450 NORD Child Health and Development
MITSUI Hidenori
OKUDE Masafumi
INAGI Maki
HATA Kenichiro
MATSUMOTO Kenji
TANAKA Yuji
1. Exploring molecular mechanism for acquisition of zygote totipotency, epigenetic reprogramming and pluripotency in stem cells
2. Application studies for regenerative medicine and regenerative medicine
3. Identification of target molecules in severe diseases and establishment of disease model mice by studying molecular mechanisms of generic imprinting, gene regulation and sexual differentiation
4. Elucidation of genetic abnormality in congenital severe metabolic diseases using advanced genetic analysis
5. Exploring for bioactive lipids that cause disease conditions
6. Exploring bioactive lipids that reflect disease state
7. Elucidation of the true nature of cancer, inflammatory diseases, and neurodegenerative diseases by lipid
8. Development of lipid analysis technology based on mass spectrometry
9. Pathological analysis of mice lacking lipid metabolizing enzymes (PISK, PTEN, etc.)

08 3950 Human Pathology
DIASHI Kenichi
1. Histogenesis and progression mechanism of early gastrointestinal cancers
2. Histogenesis of H.pylori-related gastric cancer
3. Pathogenesis of sarcoidosis
4. Prognostic prediction of renal diseases based on renal biopsy diagnosis
5. Pathogenesis of amyloidosis and evaluation of therapeutic effects

08 3960 Physiology and Cell Biology
ISOMURA Yoshio
1. Functional spike signaling in neumural circuits of rodent cerebral cortex
2. Functional spike signaling in neumural circuits of rodent basal ganglia
3. Behavioral evaluation of brain functions in rodents (for master’s course)
4. A novel physiological technique to explore intracellular spike communication

08 3970 Molecular and Cellular Cardiology
TURUKAMA Tetsushi
1. Personalized medicine of cardiac arrhythmias, sudden death
2. Basic research for nucleic acid medicine of cardiovascular diseases
3. Cardiovascular research using regenerative cardiomyocytes (mainly IPS cells)
4. Cardiovascular research using disease model mouse
5. Basic research of gender-specific medicine in cardiovascular system

08 3980 Molecular Medicine and Metabolism
Under Selection
(M(R))
Specialized Surgeries

- TAGA Tetsuya

Molecular Reproductive Medicine

- MIYASAKA Naoyuki

Cardiovascular Surgery

- ARAI Hirokuni

Cardiovascular Surgery

- SASAKI Tsutoshi

Anesthesiology

- KOCHIKA Tokujiro

Neurology

- KOCHIKA Shinichiro

Comprehensive Reproductive Medicine

- MIYASAKA Naoyuki

Urology

- AKASHI Takumi

Gastrointestinal Surgery

- KINGASHA Yusuke

Thoracic Surgery

- INUI Kenichi

Isakiken Disease-oriented Molecular Biology

- HARA Takahiko

Comprehensive Pathology

- KITAGAMA Masanobu

Molecular Oncology

- TANAKA Shinni

Surgical Pathology

- AKASHI Takumi

Experimental Animal Model for Human Disease

- KANAI Masami
119 4220 Signal Gene Regulation

NAITA Yutaka (concurrently assigned)

1. Fundamental and application research for "Sensing Biology"
2. Biosensors and wearable sensors based on Soft-MEMS technology for ubiquitous biomedical measurements
3. Highly sensitive & selective biosensor and bio-imaging system for assessments of human odor chemicals and respiratory allergens & virus.
4. Fiber-optic fluorescein immunoassay system and micro total analysis system (μ-TAS)
5. Novel actuators, organic robotics and artificial organs by cheo-mechanical energy converting device "organic engine"

M (R.O.)

120 4250 Biomedical Devices and Instrumentation

ARAKAM Takahiro

1. Development of biomaterials for DBS and cell therapy
2. Development of new systems for gene therapy
3. Development of functional dental implants
4. Application for treating intractable diseases and regenerative medicine

M (B.M)

121 4290 Biofunction Research

ITA KA Keiji

1. Analysis of the molecular mechanism of human oncogenesis
2. Development of the new strategies for diagnosis and treatments of breast cancer by integrative cancer biology and genomics
3. Analysis of carcinogenesis and the DNA damage and repair
4. New molecular genetics of hereditary breast and ovarian cancer
5. Cancer genome informatics

M (M.R.)

122 4300 Genetic Regulation

Under Selection

1. Exploration of tumorigenesis and treatment-resistance of hematopoietic malignancies to overcome the resistance
2. Development of novel cell-therapies for hematopoietic malignancies including CAR-T therapy

M

123 4320 Applied Gene Medicine

NITI Yoshio

1. Identification of genes responsible for intractable diseases including cancer and genetic disorders through integrative genomics and epigenomics.
2. Discovery of the molecular mechanisms behind cancer-related genes, including microRNAs (miRNAs), involved in the multistep processes of carcinogenesis and cancer progression, such as cancer stem cells, epithelial-mesenchymal transition (EMT), invasion and metastasis using systems biology.
3. Development of miRNA-based therapies by replacing tumor-suppressor miRNAs (TS-miRs) using synthetic double strand miRNA mimics. TS-miR-based cancer therapy can bring an exciting new facet to personalized medicine in the treatment of intractable cancers.
4. Establishment of an autophagy-based diagnosis and therapy in human cancers by understanding the cellular context-dependent roles of autophagy.
5. Multiple genomic analyses of undiagnosed genetic disorders, e.g. multiple congenital anomalies and/or intellectual disabilities (MCA/ID), and epilepsy, to identify causative genes and underlying mechanism. Furthermore, a microarray-based technology for the diagnostics of congenital disorders. ‘Genome Disorder Array’, was developed and implemented in the clinical setting in 2009 under a Government-Industry-Academia collaboration.

M (M.R.)

124 4330 Molecular Cytogenetics

INAZAWA Johji

1. Molecular mechanisms of diabetes mellitus and metabolic syndrome and their Therapeutic Strategies
2. Mechanisms of chemoresistance in systemic cancer metastasis
3. Molecular mechanisms of thermonuclear fat induction
4. Epigenetic regulation of metabolic syndrome and its clinical implications
5. Molecular mechanisms of hormone-producing tumors and their pathophysiology and immunotherapy

M (R.O.)

125 4360 Hematology

TODA Shuji (concurrently assigned)

1. Exploration of tumorigenesis and treatment-resistance of hematopoietic malignancies to overcome the resistance
2. Development of novel cell-therapies for hematopoietic malignancies including CAR-T therapy

M

126 4361 Immunotherapy for Hematopoietic Disorders

KAWAKITA Norihiko

1. Genetic analysis of Hematopoietic Disorders
2. Development of Animal Models for Hematopoietic Disorders
3. Development of Immunotherapy for Hematopoietic Disorders

M

127 4370 Molecular Endocrinology and Metabolism

YAMA DA Tetsuya

1. Molecular mechanisms of diabetes mellitus and metabolic syndrome and their Therapeutic Strategies
2. Mechanisms of chemoresistance in systemic cancer metastasis
3. Molecular mechanisms of thermonuclear fat induction
4. Epigenetic regulation of metabolic syndrome and its clinical implications
5. Molecular mechanisms of hormone-producing tumors and their pathophysiology and immunotherapy

M

128 4380 Hepatobiliary and Pancreatic Surgery

TANABE Minoru

1. Establishment of multidisciplinary treatment for HPB malignancies based on surgery
2. Identification of new strategies for the minimum invasive surgery in HPB diseases
3. Development of therapeutic agents and markers related to drug-susceptibility for HPB malignancies
4. Clinical and basic research for liver transplantation
5. Pathophysiological research for liver microcirculation

M

129 4390 Orthopaedic and Spinal Surgery

INAKA Atsushi

1. Bone and cartilage metabolism
2. Development and evaluation of biomaterials for clinical application
3. Mechanisms of spinal ligament ossification
4. Development of measuring device for spinal cord magnetic signals
5. Research of bone and spinal metastatic tumors

M

130 4400 Diagnostic Radiology and Nuclear Medicine

TATESHI Kukihi

1. Development of new imaging devices
2. Development of imaging application using AI
3. Development of methodology for clinical trials using radioisotope
4. Development of new imaging drugs

M (M.H.)

131 4410 Genomic Function and Diversity

KOCHI Yuta

1. Functional analysis of risk loci for complex diseases
2. Expression and splicing qualitative trait loci (QTLs) and QTL analysis
3. Transomics analysis of complex diseases
4. Prediction of disease states based on genomic data

M (M.R.)

132 4420 Human Genetics and Disease Diversity

TANAKA Toshihiro

1. Exploration of disease etiologies driven by integrative analysis of clinical and omic data
2. Molecular classification and systems approach to understanding disease based on omic profiling
3. Prediction for personalized/prevention medicine
4. Development of methodologies for the above.

M (R.O.)

133 4470 Applied Regenerative Medicine

SEKIZA Ichiro

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

M (S.B)

134 4460 Infectious Disease Biology

NASAKA Takuro

1. Molecular mechanisms of carcinogenesis and identification of cell-of-origin of cancer
2. Understanding mitotic chromosome dynamics in cancer, to exploit mitotic control to cancer intervention
3. Application of nanobiotechnology in cancer diagnostics
4. Pathological and genetic analysis of human cancer as malignant lymphomas and lung cancer
5. Strategy for innovative drug therapy based on cancer biology
6. Regulation of gene expression in the nucleus and higher-order chromatin structure in cancer

M (R.O.)

135 4520 Medical Science Mathematics

TSUNODA Tatsuhiko

1. Exploration of disease etiologies driven by integrative analysis of clinical and omic data
2. Molecular classification and systems approach to understanding disease based on omic profiling
3. Prediction for personalized/prevention medicine
4. Development of methodologies for the above.

M (R.O.)

136 3070 Frontier Biomaterials

KOBAYASHI Tsuyoshi

1. Research on the materials and the engineering for tissue engineering and regenerative medicine
2. Research on the processing and high functionality of biological materials
4. Research on the cell capture system for immunomodulation

M (B.M)

137 4530 Personalized Medicine for Health

ISHIKAWA Kinya

1. Developing a new personalized genomic medicine for preventing common health problems, such as cancer, cardiovascular disease, and aging.
2. Studying monogenic disease toward gene identification, discovering pathogenesis and fundamental therapy.

M (P.H)

138 4540 Department of Organogenesis and Neogenesis

TAKABE Takanori

1. Developing self-organizing complex organisms by modeling organismics
2. Applying human organoid technology for drug development and regenerative medicine
3. Studying novel inter-cellular communications mediated by physical cell-to-cell contact
4. Devising "Organ-Machines" based on the integral-disciplinary approach

M (R.O.)

D: School of Dentistry
M: School of Medicine
MH: Medical Hospital
DH: Dental Hospital
BM: Institute of Biomaterials and Bioengineering
MR: Medical Research Institute
RC: Research Core
CE: Center for Education Research in Medicine and Dentistry
ME: Life Science and Bioethics Research Center
EA: Center for Experimental Animals
SR: Center for Stem Cell and Regenerative Medicine
PH: Center for Personalized Medicine for Healthy Aging

※1: National Center of Neurology and Psychiatry
※2: National Center for Child Health and Development
※3: Tokyo Metropolitan Institute of Medical Science
※4: Japanese Foundation for Cancer Research