

NATIONAL UNIVERSITY CORPORATION

# TMDU

# ANNUAL NEWS



TOKYO MEDICAL AND DENTAL UNIVERSITY

Vol.7 March 2015

CULTIVATING  
PROFESSIONALS WITH  
KNOWLEDGE AND  
HUMANITY



## MESSAGE FROM THE PRESIDENT

# Thoughts One Year after Taking

On April 1, 2014 I took office as president. I believe it is essential to the management of the university that we provide an environment in which our faculty and staff, students, and alumni can strive towards and participate in a shared vision of TMDU's future.

Immediately after taking office, I reorganized the university leadership structure by establishing the new positions of Executive Director and Deputy Director, with a clear allocation of duties and hierarchy of command, in order to achieve consistent operational outcomes. At the same time, I established the Strategic Planning Council to promote the direct participation of Executive Directors in university management and to encourage the vital exchange of information among them. I also established the Policy Planning Office to enable my own leadership activities, and to ensure that my initiatives as President are carried out promptly. Furthermore, I streamlined university operations by consolidating and realigning administrative organizations in an effort to eliminate overlapping responsibilities and to improve efficiency. I have also sought to evaluate and reward the efforts and achievements of faculty and staff, and to improve the workplace environment.

Recently I completed and released the university's vision statement laying out the future vision for the university as a basis for individual policies. The preamble to the university's Vision states: Tokyo Medical and Dental University (TMDU) is located in the Yushima/Shoheizaka area, which is considered the sacred birthplace of scholarship and learning in Japan. As a comprehensive medical university, TMDU cultivates "professionals with knowledge and humanity" who em-

bark on a lifetime of service, advancing the health and social welfare of people in the local community and spreading their wings to do the same in other communities across the globe.

In short, we at TMDU seek to contribute to the well-being of people by cultivating professionals with knowledge and humanity. The Vision addresses education, research and medical care in particular, and the importance of each member of the university being aware of their responsibilities and fulfilling their respective roles. With respect to education, we are in the process of establishing an Integrated Education Organization within the university, charged with unifying education on a university-wide basis, beginning with reform of the liberal arts, and carrying out institutional research (IR).

This fiscal year, we were chosen as a MEXT Super Global University with the aim of promoting global health education around the world. Prior to this, we were in the process of reorganizing our international affairs office into a new unit called the Integrated International Organization; remaking TMDU into a globalized university is one of my highest priorities. In terms of research, we have pursued ventures by merging URA, which was founded during President Ohyama's tenure, with the Research Center for Industry Alliances, leading to the creation of the Center for Medical Service Innovation. With respect to medical care, we have established the Longevity and Healthy Life Promotion Center, which promotes individualized preemptive medicine using genetic information. We also welcomed Olympic gold medalist and Doctor of Sport Science Koji Murofushi, who has been appointed professor in TMDU's newly established Sports Science Organization.

NATIONAL UNIVERSITY CORPORATION

**TMDU** | **ANNUAL NEWS** 

Tokyo Medical and Dental University

Vol. 7, March 2015

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# Office

This is a representative a sampling of the activities and initiatives I have worked on over the last year to define the strategy of the university.

Among the New Year cards we received this year were many encouraging messages. Both younger and older colleagues at TDMU noted that the university has increased its social visibility, while faculty members from other universities remarked that TMDU is now one of Japan's top universities and alumni living overseas expressed their deep affection for their alma mater.

I am delighted to note that recently, when I walk around the campus, I get nods of greeting not just from faculty, students and patients, but also from international students and university staff members. I will leave it up to the faculty and staff, students, graduates and society to judge the results of my first year.

Working in the spirit of my two mottos—"Do your best to be a positive thinker", and "If you know yourself, you cannot be wicked"—I will seek to earn the affection of the faculty and staff, students, alumni and patients for our university, and aim to make TMDU a world-leading comprehensive medical university.



Yasuyuki Yoshizawa, President



## The Project for Promotion of Global Human Resource Development

# Establishing TMDU-Style Global Health through Support for the Creation of Top Global Universities



**TMDU has been selected for the Support for the Creation of Top Global Universities in 2014 by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). The thirteen Type A universities, which must aim to be ranked among the top 100 in the world, are required to pursue rigorous university reform and oversea collaboration. TMDU already has a track record of substantial activities in overseas office and those under international engagements, but the important point from now on is how can we enhance our international competitiveness through this program? Executives of TMDU held a round table to discuss the action plan and targets.**

**President Yoshizawa** Of the thirteen universities selected recently as Type A Top Global Universities, only TMDU and Tokyo Institute of Technology specialize in particular fields. Viewed in terms of the number of students enrolled, TMDU is one-tenth size of University of Tokyo, one-fifth of University of Tsukuba, and one-third of Tokyo Institute of Technology. With these establishments for company, I'm very proud that TMDU was selected as Type A. Since we've been selected, everyone from the President down, the faculty and staff, and the students will strive to rank in the world's top 100.

To strengthen governance in order to realize this concept, we plan to establish the International Integration Organization that will combine the internationally-oriented departments which previously existed separately. This institute will lead our globalization efficiently across the whole university. I'd like ask the Executive Directors about the

The three pillars of the concept for the development of TMDU-style global health professionals

**Strengthened Governance**  
for promoting university-wide global health activities

**Educational Reform**  
for the development of global health professionals

**Research, Education and International Contribution**  
to multidisciplinary global health through our overseas offices



**Yasuyuki Yoshizawa**  
President

specific educational reform and international cooperation initiatives they're handling. First let's hear from Executive Director Karasuyama who put everything together as the executive for the concept.

**Executive Director Karasuyama** When I was applying for the program, I thought about the strengths of TMDU. There are two in particular — specialization in the medical field, and our educational, research and international contributions centered on our overseas offices. As for what Japan can contribute globally, we have one of the highest levels of longevity in the world, and a comprehensive health service with universal health insurance coverage. So considering the characteristics of TMDU and Japan from this viewpoint, I set our targets for the development of personnel who will promote global health under the slogan "Aiming to improve health globally". However, issues remain such as improving our international recognition and increasing the number of academic staff from overseas, so I want to address these issues through this program.



**Hajime Karasuyama**  
Executive Director  
(University Innovation and Globalization)

**Executive Director Tagami** I'm responsible for educational reform related to the development of personnel who will promote global health. I'm pursuing strategic reform of education in order to achieve consistent personnel development, from the entrance exam, through the general education course and the bachelor's program, to graduate school. In the liberal arts, we're gradually moving towards providing courses in two languages, and I want to begin offering all of the humanities and social science subjects in English as soon as possible.



**Junji Tagami**  
Executive Director  
(Education and International Student Exchange)

We've already started the HSLP (Health Sciences Leadership Program) for selected students, which is conducted entirely in English with in small-group. As part of our postgraduate education, besides offering a graduate school version of HSLP, we've established a new "Master/Doctor of Science in Global Health" course which is also conducted entirely in English, and we plan to attract many students from abroad. Our aim is to develop personnel who will work in the health service departments of international organizations such as the WHO after graduation, and to enable graduates to build international human networks. Through these initiatives, we aim to double the number of Japanese students with experience of studying abroad and that of international students over the next ten years.

**Executive Director Morita** In our research initiatives, we're putting particular emphasis on our



**Ikuo Morita**  
Executive Director  
(Research and  
International Cooperation)

overseas offices. Until recently, we've focused on regionally-based research, but if we're going to have a more global perspective, we'll have to add "regional special characteristics" to our approach. What's important here is fieldwork. We can contribute to global health by visiting specific areas, and identifying the particular economic and environmental situation of the region. One specific approach of course is to work with leading universities that are already pursuing global health research. But we're also considering a new approach, working with institutions that are conducting research with a strong focus on regional characteristics. Our students conduct research in collaboration with these institutions, studying at their parent universities and conducting fieldwork. Fieldwork isn't one of the strengths of Japanese education and research institutions, but I want to publicize TMDU's research efforts in global health by providing this sort of framework for global fieldwork.

**Executive Director Tanaka** Support for the Creation of Top Global Universities has two catch phrases "Think globally, act globally", and "Think globally, act locally". With the small-group teaching in HSLP, we're aiming for the former. TMDU already has a track record of overseas contribution,



and the graduates who experienced our joint program with Harvard University are just starting to play their respective roles overseas. In Chile and Thailand too, we have students who have already made substantial achievements and young students who are starting their career. However, TMDU hasn't had an organization for systematically supporting the personnel who represent the assets of the university. One mechanism for supporting these people is the joint degree program. Now we're establishing the International Integration Organization, to support our personnel overseas. At the same time, I want it to build a global human network.



**Yujiro Tanaka**  
Executive Director  
(Hospital Administration  
and International Health  
Care Partnerships)

**Executive Director Karasuyama** Through these initiatives, we're aiming to rank among the world's top 100 universities, but TMDU has already achieved a lot, so I think we can expect great things.

**Executive Director Tanaka** Also, in five years' time in the year of the interim assessment, we have the Tokyo Olympics. The world will be focusing its attention on Tokyo then, and I expect that the landscape of Tokyo will change considerably. So the message that TMDU sends out to the world will also undergo a transformation.

**President Yoshizawa** It's been said that this program calls for strong presidential leadership, but I'm very encouraged that all of our Executive Directors are playing such active roles. I want to keep up the momentum and make TMDU a medical university without peer in the world. I look forward to the continued cooperation of everyone in the university and everybody else involved.

# University-Wide Educational Reform towards Developing Global Personnel

**Ranked number four in Japan in the medical field** (According to the 2014 World University Rankings)

Currently, the rankings of universities produced by the world's higher education research bodies, news organizations, education and research agencies and so on are made available publicly. The evaluations include the number of research papers issued, awards received, the ratio of academic staff to students and many other factors. This information about university rankings is frequently used by students planning their careers, research institutions and companies looking for global research partners, as well as by universities seeking to analyze their position in the world, and to publicize their characteristics and track record.

The university rankings are becoming increasingly important. The third recommendation (May 28, 2013) of the Japanese government's Education Rebuilding Council called for more than ten Japanese universities to enter the top 100 world universities in the next ten years, among the other targets proposed. TMDU which was recently selected to receive support as a Top Global University, is expected to play a role in reinforcing Japan's international competitiveness in higher education by improving its ranking as a global university.

The main world university rankings are the Times Higher Education World University Rankings (hereafter THE World University Rankings) and the QS (Quacquarelli Symonds) World University Rankings. Here we will take a look at the placement of TMDU in these rankings.

In the 2014/2015 QS World University Rankings for the medical field announced September 15, 2014, Tokyo Medical and Dental University was ranked 101-150 in the world, and fourth in Japan. This surely attests to the high regard in which Tokyo Medical and Dental University's achievements are held worldwide in the field of medical science. For overall ranking for all academic fields, Tokyo Medical and Dental University is ranked in the top 300 universities worldwide.

However, our score for individual categories suggest some issues for the future. Our score for individual categories in the QS World University Rankings indicates that what we must focus on in future is improving our international visibility, as well as maintaining high-quality research activities.

TMDU plans to strengthen its competitiveness in the World University Rankings by focusing the efforts of the

university as a whole to the Program for Promoting the Enhancement of Research Universities and the concept for the development of TMDU-style global health professionals. We are promoting joint research and researcher exchanges through our overseas offices in Thailand, Chile, Ghana and so on, continuously presenting our research achievements to the world.

Placement in university rankings represents an evaluation of wide-ranging university activities including education, research, consultation, international exchange and social contribution from very limited points of view. Nevertheless, evaluation in the university rankings indicate what society wants from universities, and the rankings represent one benchmark that enables universities to maintain activities that meet the requirements of society. Henceforward, TMDU aims to become a leading university in the medical field globally, as well as domestically, through efforts to improve our placement in the university rankings.

## TMDU's Place in the Rankings of World Universities

	World ranking	Domestic ranking
QS World University Rankings by subject 2014 - Medicine	101-150	4*
THE World University Rankings 2014-15(General)	276-300	8
QS World University Rankings 2014-15(General)	294	12

## QS World University Rankings:TMDU's Score for Individual Indicators

Indicator	Weightings	Score
Academic reputation (Research)	(40%)	18.7
Employer reputation (Education)	(10%)	11.9
<b>Faculty/student ratio</b>	<b>(20%)</b>	<b>100</b>
Citations per faculty	(20%)	60.2
International faculty ratio	(5%)	5.4
International student ratio	(5%)	17.1

## QS World University Rankings by subject-Medicine: Comparison of Japanese Universities

World ranking	Domestic ranking*	Overall score*	University
20	1	81.8	University of Tokyo
35	2	77.3	Kyoto University
51-100	3	74.2	Osaka University
<b>101-150</b>	<b>4</b>	<b>68.6</b>	<b>Tokyo Medical and Dental University</b>
101-150	5	66.7	Nagoya University
101-150	6	66.2	Keio University
101-150	7	66.0	Tohoku University
151-200	8	64.9	Kyushu University
151-200	9	60.9	Hokkaido University
151-200	10	60.4	University of Tsukuba

\*The domestic ranking and overall score of universities ranked below 50 are calculated from the individual indicator scores.

## Promoting TMDU's Global Education Initiatives

# Global Perspectives in Health Professional Education — University-Wide Curriculum Reform —

**TMDU's initiative in creating next generation professionals for global health promotion, the proposal that won the government's "Top Global University Project" grant in 2014, will be propelled by governance system restructuring, comprehensive university-wide curriculum reform, and an expansion of international outreach, with its engine being a new division provisionally called "Institute for Excellence in Education". We inquired about this initiative with the main focus being curriculum reform.**

**IN 2014**, TMDU won the "Top Global University Project" grant funded by the Ministry of Education, Culture, Sports, Science and Technology. TMDU's project reflects our new initiative in creating next generation professionals for global health promotion with its catchphrase "Health for All". The project plans to promote this initiative through the following three drivers: governance system restructuring, comprehensive university-wide curriculum reform, and an expansion of international outreach through multidisciplinary global health research, education, and aid activities.

Under a previous government grant, "Promotion of Global Human Resource Development", which TMDU won in 2012, we have concentrated our curriculum reform efforts on our undergraduate programs and created multiple compulsory as well as optional learning opportunities for those students who aspire to pursue global careers in health sciences. Under the new initiative, the scope of our curriculum reform has now expanded to encompass admissions as well as graduate schools. The reform will also accelerate the currently ongoing joint degree program initiative, with a launch prospective of 2016, in collaboration with institutions in Chile and Thailand.

As a main engine for the promotion of the initiative, TMDU is planning to build a new division, provisionally named "Institute for Excellence in Education". The division will play an integral role in university-wide curriculum reform, and blend our undergraduate and graduate programs with our domestic and international global health research activities for further enrichment.

The flagship global education project under the former grant is the Health Sciences Leadership Program (HSLP). HSLP, which started in 2013, enrolls

Director, Office for  
Global Education and  
Career Development,  
International Exchange  
Center  
Professor

**Kazuki Takada**



approximately 10% of undergraduate freshmen who are highly-motivated and enthusiastic for pursuing global leadership careers in health sciences, and provides many inquiry-based learning opportunities to help students acquire knowledges, skills, and the mindset necessary for world leaders in this global era. The program's courses are taught in English and very demanding, but students help each other to thrive, and form a community of those aspiring to be world leaders. Under the new initiative, we are planning to expand the undergraduate HSLP and to also start an HSLP for graduate students.

The new initiative plans to nearly double the number of international graduate school students (from 13% in 2014 to 25% in 2023). In addition, TMDU will further expand opportunities for interaction between undergraduate students and international graduate school students, thereby creating a diverse and stimulating learning environment throughout the campus and cultivating global perspectives in students at all levels.

The flagship global health promotion project under the new initiative is a new graduate degree (master's/doctor's) program for global health, provisionally named "Global Health Leadership Program". The intent of this new program is to attract motivated and competitive students from Asian countries and to produce next generation leaders in academia and in international organizations who will advance global health enabling literal achievement of the new initiative's catchphrase, "Health for All".

## Messages from Faculty Staff of Global Education

### Intercultural Experience and Problem Solving

Having a variety of experiences assists us in becoming leaders in whatever field we choose, because they help us make decisions and formulate ideas. One of these “experiences” should be collaboration with people from a different culture. Whether it is a community level or a governmental level project, working with people from other countries helps us to broaden our viewpoint, and hopefully lessen our biases towards others.

Since joining TMDU I have been able to utilize all of my past work experience from ward nurse, and in-house patient/ staff educator, to volun-

teering at Tokyo Maternal and Child Welfare Office. All of these experiences have been invaluable in assisting students to learn new skills, and teaching the importance of working as members of a team instead of individually.

Working towards a solution to problems requires us to think of solutions that are currently available and if they are not applicable to our problem, to look for a new solution. Doing this by oneself is possible, but by working in a group we can often come up with even better ideas. One of our department's goals is helping students to strengthen these skills.



**Janelle Moross**  
Associate Professor

1984 graduated and passed California Registered Nursing Exam. 1985 certified intubation instructor and NICU specialist. 1987 became charge nurse in nursery and NICU, conducted patient education classes and in-house training. 1990 moved to Japan and volunteered at Tokyo Women and Children's Welfare Center, then taught at Tokyo Medical University, Chiba Medical University and Otsuma Gakuen. 2008 became instructor at Tokyo Medical and Dental University.

### Inquisitive Empathy

I am fascinated by people. As an anthropologist, I study what people say, what they think, and what they do. When I meet someone new, I want to hear their stories and see from their perspective. This kind of inquisitive empathy is a valuable characteristic for anyone interested in the pursuit of medicine. Whether engaged in frantic clinical settings or negotiating in the boardrooms of policy-making, it's easy to lose sight of the fact that health is an intimate human experience.

Health is not solely an expression of biological functioning, but is intertwined with, and

therefore inseparable from, social experience. This means that something we may perceive to be straightforward and even universal, menopausal hot flashes for example, vary from time to time and place to place. We teach our HSLP students that because health is the outcome of bio-social factors, they must first see from another's perspective, and in seeing, question what they assume to be true. It is with inquisitive empathy that they will be able to keep human experience at the center of solutions for global health challenges in the future.



**Rebecca Carlson**  
Assistant Professor

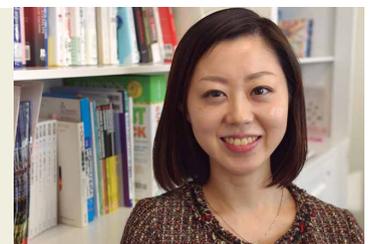
Rebecca Carlson has an MFA in Film and Media Arts and an MA in Anthropology and has been teaching media and social science at numerous universities in the US since 2001. She has been advanced to candidacy in the PhD program in Anthropology at the University of Pittsburgh and is currently writing her dissertation. In May of 2014 she joined TMDU's Office of Global Education and Career Development as Assistant Professor.

### Quest for Health Equity

As a medical student at TMDU, I backpacked around the world and witnessed vast disparities in health both within and across the countries I visited. Feeling helpless, I desperately wanted to gain the clinical skills necessary to provide healthcare in these areas as well as to help train local healthcare providers, so that I could contribute to better health outcomes for people living in underserved regions.

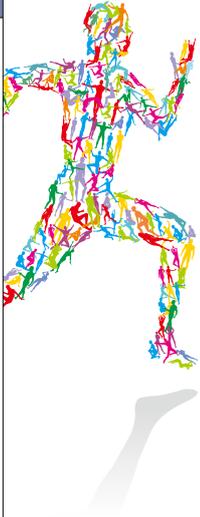
Now as an obstetrician/gynecologist, I am pleased to be able to perform operations, assist with the birth of new lives, and teach young doctors. However, in the field of global health, where health challenges are complex and broad,

abundant knowledge of clinical medicine alone cannot relieve patients' suffering. Clinical practice is based on the assumption that people in need of healthcare have access to medical facilities and to drugs and medical technology when they need them. In HSLP, we create a student-centered learning environment through interactive lectures and discussions, and utilize a bio-social approach—one that incorporates sociological, philosophical, political, and economic perspectives—to teach students to identify and critically analyze the causes of health inequity and to seek effective solutions to these challenges.



**Rei Haruyama**  
Assistant Professor

Rei Haruyama, MD, is an Assistant Professor in TMDU's Office for Global Education and Career Development and a practicing obstetrician-gynecologist at TMDU Medical Hospital (as of March, 2015). She graduated from TMDU in 2008. Along with clinical practice, her current concentration is on teaching undergraduate students in the HSLP and FOCUS programs. She has a special interest in global health practice, especially in improving prenatal care and access to obstetric surgical care in underserved countries.



# Inviting Koji Murofushi as a Professor Establishing a New Sports Science Organization to Provide Total Care for Athletes

In October 2014, the TMDU established the Sports Science Organization, leveraging its strengths as a comprehensive medical university. We invited Koji Murofushi, a top athlete with a doctorate in physical education, to teach at the Institute, with the aim of creating Japan's first university center combining sports dentistry with sports science.



At the press conference. From the left, Kazuyoshi Yagishita (Director of the Center for Sports Medicine and Sports Dentistry), Yujiro Tanaka (Executive Director for Hospital Administration and International Health Care Partnerships and future director of the Organization), President Yasuyuki Yoshizawa, Koji Murofushi, Kazunori Kihara (Director, Medical Hospital), Kazuaki Kanda (Deputy Director, Hospital Administration General Affairs)

**WITH THE TOKYO** Olympics and Paralympics scheduled for 2020, an environment providing total care is required, from the prevention and treatment of injuries, to the development of training for improved performance.

At TMDU, the Sports Medicine Center of the Medical Hospital and the Sports Dentistry of the Dental Hospital offer diagnosis and treatment for athletes. In addition, the Department of Sports Medicine and Dentistry in the Graduate School of Medical and Dental Sciences conducts research into the effects of sport and exercise on the body.

This is the foundation on which the Sports Science Organiza-

tion was established. Koji Murofushi is a global athlete who has a doctorate in physical education and who conducts research into sports science and theory. We have invited him as a professor and the Director of the Sports Science Center to oversee the total care required by athletes.

The Sports Science Organization comprises two centers, the Sports Medicine and Dentistry Center and the Sports Science Center. The Sports Medicine and Dentistry Center supports athletes with a medical approach focused on athletic rehabilitation through the treatment of sports injuries and disorders. Treatment and rehabilitation aims to achieve quick recovery,



The athletic rehabilitation room at the Sports Medicine Center of the Medical Hospital. After checking core muscular strength and right and left balance, we develop the optimum rehabilitation program.



The signing ceremony and commemorative symposium held for the 2020 Tokyo Olympics and Paralympics University Partnership Agreement. TMDU along with 552 universities and junior colleges nationwide, signed the agreement.

as well as to enable patients to return to competition at a higher level of performance. The Center has departments devoted to sports medicine and dentistry and Japan's biggest hyperbaric oxygen therapy facility representing the strengths of TMDU.

Meanwhile, the Sports Science Center conducts motion analysis research, developing training programs and training athletes. We plan to use Prof. Murofushi's experience as an Olympic gold medalist and his theoretical expertise to support the achievement of high levels of performance.

TMDU is also participating in the University Partnership

- We have established the Sports Science Organization with the aim of creating Japan's first university center combining sports dentistry with sports science.
- The Sports Science Organization was established in October 2014. Koji Murofushi, is currently active as a top athlete and with a doctorate in physical education, he also has significant achievement in research. We invited him to teach at the Organization and serve as the Director of the Sports Science Center. From August 1, he has been working to set up the Organization in the capacity of specially-appointed professor.
- In inviting Prof. Murofushi, we introduced a cross-appointment system\* with Mizuno Corporation.
- In addition to undertaking Olympic education based on the University Partnership Agreement with the Tokyo Organising Committee of the Olympic and Paralympic Games, we are providing medical support to top athletes with the aim of becoming the official hospital for the Olympics.
- We provide the total care that athletes require including prevention of disorders and injuries, consultation, athletic rehabilitation, nutrition, training to enable athletes to return to competition, and training for improved performance.

\* Cross-appointment system: A system that enables personnel to receive a salary from another institution, maintaining their status and performing work at each institution. The proportion of work at each institution is codified by agreement, and each institution pays a salary accordingly.



Agreement of nationwide universities and junior colleges for the Tokyo Olympics and Paralympics. While pursuing Olympic education, we will also establish a care organization.

“We expect that the scientifically based mental and physical training provided by the Sports Science Organization will have benefits going beyond the care of athletes to include improved motor function for the elderly, the maintenance of quality of life, and preventive medicine,” says Yujiro Tanaka, Executive Director for Hospital Administration and International Health Care Partnerships. We will use our achievements in the field of sports to contribute to advances in public health.

# The Research Partnership between TMDU and Noguchi Memorial Institute for Medical Research, Ghana: Prospects for the Next Step

Ghana-Tokyo Medical and Dental University Research Collaboration Center

Nobuo Ohta  
MD, PhD

Professor, Environmental  
Parasitology, TMDU

## Research Collaboration in West Africa

Our international research collaboration project between Japan and Ghana started in 2008 as part of the Program for Founding Research Centers for Emerging and Reemerging Infectious Diseases, sponsored by the Ministry of Education, Culture, Sports and Technology (MEXT). The aim of this program is to promote on-site research into infectious diseases to improve public health in Japan and the counterpart countries, as well as to develop human resources in the field of infectious disease research. We are now in the second phase of the MEXT program, which is named the Japan Initiative for Global Network on Infectious Diseases (J-GRID). From a global point of view, sub-Saharan Africa is an area with an urgent need for the control of infectious diseases. There are only two J-GRID projects being implemented in Africa. One is the project at our Ghana Center in West Africa, and the other is at the Zambia Center in East Africa. In this sense, our situation in the MEXT project is quite important, and it is expected to lead to expanded and more intensive research collaboration be-

Professor Kwadwo Koram, Director of NMIMR and Visiting Professor at TMDU.



tween Africa and Japan.

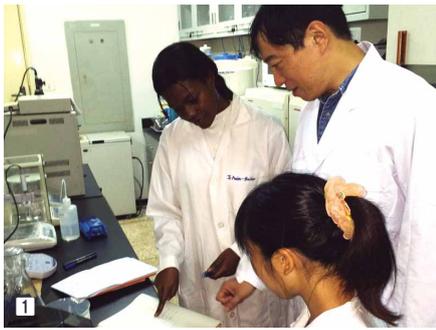
Our counterpart in Ghana is the Noguchi Memorial Institute for Medical Research (NMIMR). Using the MEXT scheme, TMDU founded its International Collaboration Center at NMIMR in 2008. Since then, two researchers, Professors Eiji Ido and Takashi Suzuki, have been dispatched to the collaboration center at NMIMR, to implement research and to promote the exchange of students and researchers between TMDU and NMIMR.

The final year of the J-GRID program was 2014, and it has been announced that the scope and scheme of the MEXT program will be reconstructed for the next five years of activities. Members of our project have started discussions for the next phase of our collaboration project.

Virology and Parasitology are the two main components of our research project. HIV and viral hemorrhagic fever are the topics of our virology research. Both diseases represent a serious health problem in the West African sub-region. The main targets of our parasitology research are malaria and trypanosomiasis. All of these are globally significant diseases, with pathogens specific to Africa. This means that Japanese researchers have had direct access to the pathogens, which is an important opportunity for researchers in infectious disease. Our collaborative center provided unique and significant opportunities for the Japanese researchers, and TMDU is expected to maintain and expand this research collaboration project.

## Education and Training in Ghana

One of the aims of our international collaboration center at NMIMR was to promote exchange in education and training, as well as in research. For this purpose, several mutual visits were arranged between Ghana and Japan, and more than 20 young Japanese and Ghanaian staff and students have visited each other in the past years.



In order to provide young Japanese students and researchers with experience in an African setting, we sought to establish a procedure for dispatching Japanese undergraduate students to Ghana. In the past two years, medical students from TMDU were dispatched to NMIMR to join the MEXT research project. Although three students were scheduled to go in 2014, it was unfortunately cancelled because of the Ebola epidemic in West Africa. Ebola was not epidemic in Ghana, but for the sake of security, TMDU decided to pass up traveling to Ghana. The program will be resumed when the epidemic subsides.

Encouraging young Ghanaian researchers is another obligation of our exchange. Based on the agreement, TMDU has invited young researchers from NMIMR for training in conducting laboratory experiments. Although they were short-term experiences, young Ghanaians enjoyed the training, and the opportunity to engage with Japanese culture and people.

Another project added to this program was a PhD course funded by the Japanese Government. The PhD program named Global Health Leaders for Disease Prevention started in 2014. This is for fostering health leaders with a scientific mind. In 2014, two talented young people from NMIMR joined the PhD course at TMDU. This is important for promoting the research capabilities of our partner towards stronger collaboration.

### Kind Support from the Diplomatic Scheme

Recurrence of diseases in West Africa; The Ebola epidemic in Guinea, Sierra Leone and Liberia, located in West African Sub-region was a major news item. Although those countries are far away from Ghana, NMIMR was designated to be the reference center for testing Ebola. In the latter half of 2014, NMIMR was busy testing

samples from patients thought to be infected. Fortunately, all samples tested at NMIMR were negative, but all the staff including our TMDU team were nervous when we received the samples.

Another topic was a recurrent episode of African trypanosomiasis. Another name for this is African sleeping sickness, and it can be fatal without sufficient care. Although no human patients were reported in the past decade, human cases have been reported in Ghana since 2013. Ghana can be considered to be located on the front line of infectious diseases.

With help from various organizations, the collaboration project between TMDU and NMIMR is making steady improvement towards the future.

- ① Research collaboration in a parasitology laboratory.
- ② Joint meeting of research output from J-GRID project. Researchers from both sides met and discussed self-evaluation.
- ③ A PhD student of TMDU gave seminar at NMIMR to exchange scientific information of entomological research carried out in the joint project.

2014年9月5日  
JICAガーンナ事務所

エボラウイルス感染症に伴う対応について

本年3月末からギニアで流行が始まったエボラウイルス感染症が、隣国シエラレオネ、リベリアに拡大し、患者数の増加が見られます。また、これらの地域から移動した患者がナイジェリアやセネガルで発症したケースも出ています。

エボラウイルス感染症の初期症状は、発熱・頭痛・倦怠感などが主で、マラリアやインフルエンザと似たような症状です。引き続く、嘔吐や下痢を起こし、かなり状態が悪化し出血まで至ります。エボラウイルス感染症は、触れなければうつりませんので、空気感染する感染症と比べ、予防しやすい感染症です。ガーナを含む流行国以外の国々で「エボラ疑い」という患者が増加していますが、その殆どはエボラではなかったという事実があります。

エボラウイルス感染症は、潜伏期間内(症状発生前)に感染することはありません。すなわち、熱が出ていない人からうつることはありません。熱が出ている人の汗や唾液などが目や口などの粘膜に付着してしまうと、感染の危険がありますが、健康な人が皮膚に触れた程度では、すぐに洗えば感染は避けられます。(別添をご参照ください。)

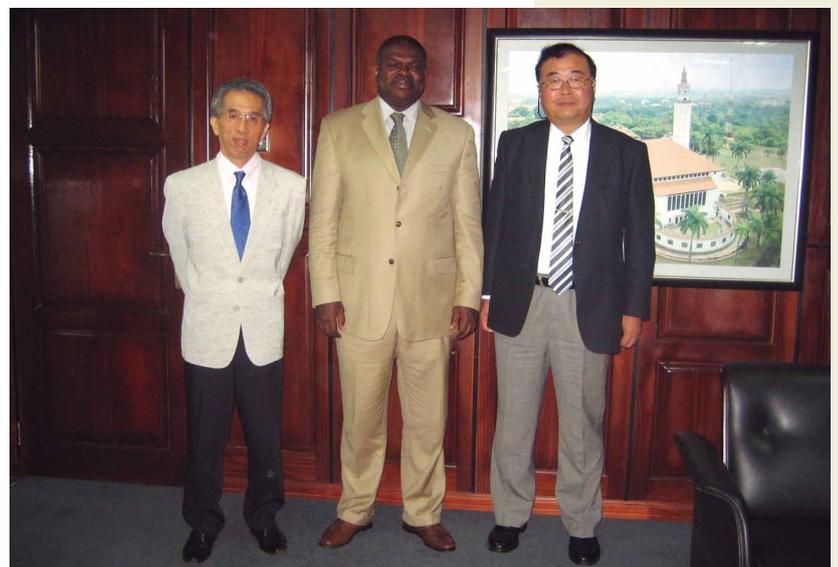
ガーナでは、現在まで、エボラウイルス感染症が陽性(Positive)と確認されたケースはありません。また、ガーナ政府は、万一感染例が出たとしても流行が止められるよう対策を練っています。

JICA事務所としても、情報の収集に努めており、重要な情報については、早急に皆さんにご連絡いたします。また、地元の情報はカバーできない場合がありますので、カウンターパートや近隣の住民等から「エボラウイルス感染症にかかる情報」を得ましたら、担当職員、ボランティア調整員、健康管理員にご連絡ください。当事務所からも、新たな情報がありましたら、随時連絡させていただきます。

万一、感染が確認された患者が発生する際にも、通常の生活を返る限り「感染」する恐れはないと考えます。一方、この影響で、地域封鎖(道路封鎖)や会社の不稼により、フライト等の交通手段が確保できなくなる恐れがありますので、アクラ等への一時的な回避も検討します。また、医療関係機関に勤務されている関係者については、感染予防のため、自宅待機や一時的な回避をお願いすることがあります。このため、常日頃から食料品や水の備蓄(おおよそ1週間程度)、バスボートや貴重品をすぐに持ち出せるようにする等、心構えを行うようにお願いいたします。

Information about the Ebola epidemic in the West African sub-region was released through official and private channels in 2014.

TMDU staff visited Vice Chancellor, Professor Aryeetey, to discuss further collaboration between TMDU and the University of Ghana.



# Growing TMDU Network in Latin American Countries; Academic, Educational and Clinical Collaborations

Latin American Collaborative Research Center,  
Tokyo Medical and Dental University, Santiago, Chile

**Tatsuyuki Kawano**  
MD, PhD  
Professor, Esophageal and  
General Surgery, TMDU

**IN 1968, PROFESSOR** Tadashige Murakami, former professor of surgery of TMDU, visited Chile to give a lecture on gastric cancer. This was the start of long relationship between TMDU and Chile. In the 1970s, the Japan International Cooperation Agency (JICA) launched a project for the early detection of gastric cancers in order to reduce their high mortality rate. The Gastric Cancer Center in Santiago was founded in 1977 at Hospital Paula Jaraquemada (now the Hospital Clinico San Borja Arriaran), and this center has long played a major role in the project. TMDU also dispatched numerous experts there to support the prevention of gastric cancer. The Gastric Cancer Center was later renamed the Chilean-Japanese Institute for Digestive Diseases, and it still contributes to maintaining the health of the Chilean people.

## Colorectal Cancer Screening in Chile, Supported by TMDU

In Chile, the mortality from colorectal cancer has been increasing in the last two decades, and the requirement for colorectal cancer screening has grown rapidly. Based on a proposal from Dr. Lopez of the Clinica Las Condes (CLC), one of the biggest and most advanced hospitals in Chile, approval was given to start a screening project for colorectal cancer. Due to the long history between TMDU and Chile, our university was invited to supervise the project. In 2009, the Ministry of Health of Chile, CLC and TMDU signed a collaboration agreement for colorectal cancer

screening (Fig. 1), and the Latin American Collaborative Research Center (LACRC) was established at CLC in 2010. TMDU has continuously sent experts in pathology, endoscopy and research to LACRC. From 2012, PRENEC (the Prevention Project for Neoplasia of Colon and Rectum) has been implemented in three major cities, Punta Arenas, Valparaiso and Santiago. More cities are planning to join the project in the near future. The Japanese method using immunological fecal occult blood test and colonoscopy has been adopted for the detection of colorectal cancer. From 2012 to 2013, 11,311 participants were enrolled through PRENEC, and 99 of them (0.89%) were found to have colorectal cancers.

Furthermore, approximately two-thirds of these patients were treated endoscopically using polypectomy or mucosectomy, without surgery. The Chilean-Japanese Institute for Digestive Diseases at Hospital San Borja Arriaran is the headquarter of PRENEC in Santiago. The institute also serves as a training center for endoscopy. Three Chilean doctors took a training course in endoscopy, acquiring the skills required for colonoscopic cancer screening. The Institute's endoscopy unit has been renovated for PRENEC, with extensive support from the Japanese Embassy in Chile.

## Conversation with the First Lady of Japan

In July, Japan's Prime Minister Shinzo Abe and the first lady Akie Abe paid an official visit to Chile. On the occasion of their visit, a ceremony was held at Hospital San Borja Arriaran, commemorating the donation of medical devices from the Japanese Embassy in Chile. Ms. Akie Abe attended the ceremony and had a conversation with doctors from LACRC and the hospital. Ms. Akie Abe spoke encouraging words for the dedicated activities of LACRC, and expressed her hope for the improved welfare of the Chilean people (Fig. 2).

1 Conclusion of an agreement for colorectal cancer screening between the Chilean Ministry of Health, CLC and TMDU





## LACRC members and University Activities in 2014

LACRC is staffed by experts from the pathology, endoscopy and research departments of TMDU, and various doctors have been involved in their work in Chile. As of 2014, LACRC is operated by three TMDU doctors, Dr. Hiroshi Kawachi (pathologist, since March 2012), Dr. Maki Kobayashi (molecular biologist, since July 2012), and Dr. Takuya Okada (endoscopist, since April 2013). Two more doctors joined the endoscopic department, Dr. Masahiro Tsubaki in October, and Dr. Tomoyuki Odagaki in November 2014.

TMDU operates the Project Semester program, appointing medical students to institutions overseas. Four to six students are sent to Chile every year. The students are attached to the laboratories at the University of Chile and CLC, where they participate in innovative studies with local researchers. LACRC supports their work and everyday lives in Chile (Fig. 3).

TMDU seeks to enhance its academic and educational relationship with Chile. In 2013, TMDU and the University of Chile, the leading university in the country, reached an agreement of on a Joint Degree Program that will enable doctors or researchers to receive a joint degree issued by both universities. Through this attractive program, the two universities offer interchangeable classes and courses, and participants can select the most suitable curriculum from a wide range of options. Thorough preparation is currently underway and the program will start in 2016 (Fig. 4).

## Projects in Ecuador and Paraguay

TMDU came to an agreement regarding a cancer screening program with the government of Ecuador in 2012. At that time, a pilot project for colorectal cancer screening was being carried out at National Hospital Pablo Arturo Suarez in Quito, with clinical and project management support

from TMDU. LACRC sent doctors from Chile to Ecuador several times, for discussions and to make suggestions about the cancer screening system (Fig. 5).

Academically speaking, the Ministry of Health of Ecuador holds annual medical congresses in Quito, and TMDU professors are regularly invited as presenters. In Paraguay, TMDU agreed to a direct request from the President of Paraguay for support for the colorectal cancer screening project. Dr. Kawachi from TMDU attended a signing ceremony for the agreement held in Asuncion in June 2013.

## METI Project for Colorectal Cancer Screening in Brazil

The Ministry of Economy, Trade, and Industry, Japan(METI) recently asked TMDU to start colorectal cancer screening in Brazil. In July 2013, TMDU set up a consortium to handle the project offered by METI, with two Japanese enterprises, Fujifilm Corporation (endoscopy) and Eiken Chemical Co., Ltd (immunological fecal occult blood tests). The first delegate of the consortium visited Sao Paulo in October 2013, and reached an agreement for collaboration with three major hospitals, including the University of Sao Paulo. Brazilian doctors, nurses and coordinators visited Chile twice in September 2013 and January 2014, to receive guidance in colorectal cancer screening.



② Ms. Akie Abe, the First Lady of Japan, with LACRC staff and TMDU at Hospital San Borja Arriaran in Santiago

③ Research presentations by TMDU students at CLC

④ Dr. Vivaldi, President of the University of Chile and staff, with the TMDU delegate to Chile

⑤ Dr. Kawachi and Dr. Okada from LACRC at the workshop in Ecuador

# Strengthening Relationships between TMDU and Universities in Southeast Asia

CU-TMDU Research and Education Collaboration Center, **Thailand**

**Yoko Kawaguchi**

DDS, PhD  
Professor, Oral Health  
Promotion, TMDU

## Joint Degree Program

TMDU and Chulalongkorn University held their first meeting on May 12, 2014 with the aim of establishing a Joint Degree Program on Dental Science. The purpose of the meeting was to form a Joint Degree Program committee with the aim of starting the program in August of 2016. For the Faculty of Dentistry, Chulalongkorn University, this is the first time to create a joint degree program. Both universities have agreed to open this joint degree program in August of 2016 as scheduled, and it is expected that students of this joint degree program will become leaders of dental science in Southeast Asia, as well as in Japan.

## Studying Abroad at TMDU

TMDU provided information about our school, especially the graduate school, to potential candidates of our Ph.D. program at meetings of the South East Asia Association for Dental Education (SEAADE) and International Association for Dental Research Southeast Asia Division (IADR SEA) in Kuching, Malaysia, held August 9-14, 2014. Many people stopped by the TMDU booth to listen to the explanations given by TMDU staff, especially international students. International students described their own experiences and student life at TMDU. Nearly 200 visitors from Africa, the Middle East, and Asia, especially East Asia, came to the TMDU booth.

The first joint meeting for Joint Degree Program



## Student Exchange Program

### School of Dentistry, Faculty of Dentistry

Three 4th year students from the Faculty of Dentistry, TMDU received training at Srinakharinwirot University and Chulalongkorn University. They also visited the health center in Bangkok and the children's center in a suburb of Bangkok to study dental care in Thailand. This program was conducted from August 29 to September 6, 2014, under the Re-inventing Japan Project.

### School of Health Care Sciences, Faculty of Medicine

TMDU concluded a memorandum of understanding on Academic and Student Exchange with the Faculty of Allied Health Sciences, Chulalongkorn University on November 8, 2013. As part of the student exchange program, six students from the School of Health Care Sciences and Graduate School received training and held a cultural exchange event at the Faculty of Allied Health Science, Chulalongkorn University from August 17 to 27, 2014 under the sponsorship of the Re-inventing Japan Project.

### School of Medicine, Faculty of Medicine

Three 4th year students from the School of Medicine received training in the Faculty of Medicine, Chulalongkorn University, June 25 to November 21, 2014 as part of the Project Semester and Re-inventing Japan Project. These student exchange programs will contribute to an expanded medical and dental network between TMDU and universities in Southeast Asia in the future.

### Agreement on Academic Exchange Faculty of Dentistry, Naresuan University

On June 23, 2014 an Agreement on Academic Exchange was concluded between Prof. Keiji Moriyama, Dean of Faculty of Dentistry, TMDU and Dr. Thaosapol Piyappattamin, Dean of Faculty of Dentistry, Naresuan University at Naresuan University located in Phitsanulok, Phitsanulok



Province, Northern Thailand. After the agreement signing ceremony, Prof. Keiji Moriyama, Dean of Faculty of Dentistry and Prof. Yoko Kawaguchi, Graduate School of Medical and Dental Sciences gave special lectures to the students of the Faculty of Dentistry, NU.

### Health Seminar and Consultation for Japanese Residents

TMDU conducted a health seminar and dental consultation for Japanese residents in Thailand at Bangkok General Hospital with co-sponsorship from Bangkok General Hospital on May 31, 2014. In the health seminar, Prof. Yasunari Miyazaki, Director of the Office of Student Support and Health Administration Organization, Junior Associate Professor Tatsuo Kawamoto from Maxillofacial Orthognathics, and Dr. Thiravud Khuhaprema, Visiting Professor of TMDU and Director of Cancer Center of Bangkok Hospital gave presentations.

The dental consultation was conducted by Dr. Yoshiaki Ono from the Department of Pediatric Dentistry, Dr. Shinji Kuroda from the Department of Oral Implantology and Regenerative Dental Medicine, Dr. Kazuto Kurohara from the Department of Maxillofacial Surgery, Dr. Yuichi Ikeda from the Department of Periodontology, and Dr. Tatsuo Kawamoto from the Department of Maxillofacial Orthognathics.

### Dental e-learning Seminar

On July 15, 2014 a dental e-learning seminar was conducted at the CU-TMDU Research and Education Collaboration Center, located in CU, for 18 former international students in the Faculty of Dentistry, CU and Chiang Mai University.

In the seminar, Prof. Atsushi Kinoshita, Director of the Institute for Library and Media Information Technology, TMDU and Assistant Prof. Masayo Sunaga from the Institute for Library and Media Information Technology, TMDU, intro-

duced the idea of e-learning, explained how to use e-learning, and gave instructions on how to create software. Participants asked TMDU to offer the dental e-learning seminar at other universities too.

### Chiang Mai University

On November 11, 2014, an Agreement on Academic Exchange was concluded between Prof. Yoshinobu Eishi, Dean of Faculty of Medicine, TMDU and Assoc. Prof. Watana Navacharoen, Dean of Faculty of Medicine, Chiang Mai University. A collaboration in the field of anatomy is planned for the near future.

### Srinakharinwirot University

A memorial event was held in the Faculty of Dentistry at Srinakharinwirot University to celebrate the 20th anniversary of the founding of the Faculty. Prof. Keiji Moriyama, Dean of Faculty of Dentistry, TMDU attended and delivered a congratulatory address. TMDU and Srinakharinwirot University signed an Agreement for Academic Exchange in 2010, and we have since conducted a student exchange program.

### Tree of Friendship in Chulalongkorn University

On February 28, 2014, we held a memorial tree planting ceremony at Chulalongkorn University. Prof. Takashi Ohyama, President of TMDU at the time, and Prof. Pirom Kamolratanakul, President of Chulalongkorn University, planted a “Thai-Sakura” tree to represent the friendship between both universities. This tree is a symbol of the enhanced collaboration between the universities. The “Thai-Sakura” tree is a very famous tree in Thailand. It was planted in front of the administration building where many people pass by. The tree is getting taller day by day, symbolizing our hope for further engagement between our universities.

- ① Signing ceremony of MOU between TMDU and Naresuan University
- ② Dental training program in Thailand
- ③ Cultural exchange program in Thailand

# 6th TMDU International Summer Program (ISP2014) Report and Announcement of ISP2015

The International Summer Program (ISP) has proven to be an increasingly important way for TMDU to reach out to the international community and connect with promising students and young researchers in Asia. Through this annual program, TMDU brings approximately 25 students and young researchers to the Yushima campus for four days of lectures, lab visits, cultural and social events, and other activities.

## Yoshihiro Ogawa

Professor,  
Molecular Endocrinology and  
Metabolism, TMDU

## David Cannell

Associate Professor,  
International Exchange Center,  
TMDU

AS OF APRIL 1, 2014, there were 204 international students studying at TMDU, and 28 of them are ISP alumni. With the increasing influence of the ISP Special Selection program, which was introduced as part of ISP2012, we look forward to even deeper integration of the ISP and alumni of the program with our graduate schools and the TMDU community as a whole.

ISP2014 was convened under the leadership of Prof. Kikuo Ohno, the Trustee of Planning/International Exchange. Prof. Yoshihiro Ogawa, Department of Molecular Endocrinology and Metabolism, was chosen to chair the ISP2014 Working Group. The ISP2014 WG included representatives from several departments, especially those involved with ageing and metabolism, in either basic science or clinical applications. The faculty and staff of the International Exchange Center also participated actively in the planning of ISP2014. As one of its first orders of business, the WG finalized the theme, "Ageing and Metabolism", and invited leading researchers such as Professor Domenico Accili of Columbia University (USA), Professor Peter Tontonoz of University of California, Los Angeles (USA), Professor Naoko Ohtani of Tokyo University of

Science (Japan), and Associate Professor Junichi Furuya of Iwate Medical University (Japan), to speak at ISP2014.

As with previous ISPs, ISP2014 featured a two-day Lecture Course, a Poster Session and an International Symposium. ISP2014 also marked the third year for the "ISP Special Selection", which allowed participants to take an entrance examination to enter a Ph.D. program at TMDU, and be considered for a full scholarship upon admission. ISP2014 attracted 61 applications from 17 countries in all. Of these, 25 applicants were selected, representing 17 countries, Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Korea, Laos, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Singapore (Iranian nationality), Taiwan, Thailand, and Vietnam.

ISP2014 was held 25 to 28 August 2014, along with Professors Accili, Tontonoz, Ohtani, and Associate Professor Furuya, the featured speakers at ISP2014 and several TMDU-based researchers who are conducting leading-edge research in the field. The participants of ISP2014 enjoyed meeting researchers at TMDU, attending the various social functions, visiting labs on campus, and getting to know other invitees and presenters, as well as



Prof. Yoshihiro Ogawa  
(Chair) at the Social Hour  
party

Tokyo Medical and Dental University

## 7th International Summer Program (ISP2015)

**August 28th-September 3rd at the TMDU campus, Tokyo, Japan**

We will provide support to selected students and young scientists from Asia to attend ISP2015 (including airfare and onsite accommodation). Please visit the website for more information.

Organized by: Tokyo Medical and Dental University  
To register: Please apply via the International Exchange Center (IEC) website

<http://www.tmd.ac.jp/english/international/isp/isp2015/index.html>

**Aug. 28 - Sep.3**  
**ISP2015**  
(Lab Visit, Mini-lectures, etc.)

**Aug. 29 - Aug. 30**  
**Student Symposium**



attending the presentations that are the core of ISP. In addition, many invitees and TMDU graduate students made poster presentations. Winners of the Best Poster awards were ISP2014 invitees Tselmuun Chinzorig (Mongolia) and Arun Kumar Rajendran (India), and 3rd-year Ph.D. student Maria Jacinta Rosario Hernandez Romero, of the Cariology and Operative Dentistry Department at TMDU, who hails from the Philippines.

At the Social Hour, which was held on the third evening of ISP2014, the participants, speakers, and TMDU faculty and students gathered together at the Faculty Lounge on the top floor of M&D Tower. After President Yoshizawa officially welcomed the participants to the reception, the window shades were raised, revealing the beautiful night view from the 26th floor. Later in the evening the audience was treated to performances by Ochanomizu University students, with comedic skits by the Kyogen Club, and a dance performance by the Japanese Traditional Dance Circle. Everyone enjoyed a night of talking, eating and snapping pictures. The next day was reserved for the ISP Symposium, when the lecturers shared their current research and answered many questions from the invitees, graduate students, and professors in the audience.

The day after ISP2014, the Special Selection participants took an entrance exam for the TMDU

Graduate School. Three successful candidates plan to enter TMDU from 2015, and they are eligible to receive a full scholarship to support their Ph.D. studies. We are glad to report that the feedback from the participants was very positive; for example, 96% of participants marked “Yes” when asked “Would you recommend this program to others?” on the questionnaire that was distributed on the last day of ISP2014.

The seventh annual International Summer Program, ISP2015, will be held 28 August to 3 September 2015, with the re-constructed program. The planning for ISP2015 will be led by Prof. Junji Tagami, the Executive Director/Executive Vice President of Education and International Student Exchange. One innovative change in ISP2015 is a greater focus on laboratory visits, which will provide more chances for the invitees to interact with researchers at TMDU and to learn more about TMDU. As the detailed plans for ISP2015 are made, the information on the International Exchange Center’s website will be updated. The website also has links to full information about the first six ISPs, which helps students and young researchers across Asia learn more about this increasingly popular international outreach program and TMDU in general.

<<http://www.tmd.ac.jp/english/international/isp/index.html>>

- ① A participant from Singapore giving his presentation at the ISP2014 Poster Session
- ② A participant from China asking a question at ISP Symposium 2014
- ③ Participants at the Social Hour Party

**ISP2014 Working Group**  
 Prof. Yoshihiro Ogawa (Chair), Prof. Tetsushi Furukawa, Prof. Yuichi Izumi, Prof. Hajime Karasuyama, Prof. Akinori Kimura, Prof. Kohji Mitsubayashi, Prof. Shunsuke Minakuchi, Prof. Ikuo Morio, Prof. Hiroshi Nishina, Prof. Takashi Ono, Prof. Shoji Yamaoka, Prof. Masayuki Yoshida

ISP2014 speakers and participants at the Social Hour Party in the evening



# Project for Promoting Medical and Dental Education and Research in Southeast Asia

The main purposes of the Project for Promoting Medical and Dental Education and Research in Southeast Asia are as follows: (1) Compiling guidelines for harmonizing dental education in Southeast Asia, (2) Providing continuing education opportunities in dentistry, (3) Supplying information on research and education at TMDU, and studying in Japan in general, (4) Providing health education and medical information to Japanese nationals living in Southeast Asia.

Ikuko Morio

DDS, PhD

Director, International Exchange Center, TMDU

**CONCERNING PURPOSE** (1) above, a special event, “Development of Dental Education in Asia 2014” was held at TMDU on October 28 to 31, 2014, the third of its kind since 2012, when the project started. The reason for organizing such events was that sharing information and holding discussions among the affiliated universities and related organizations in Southeast Asia

was understood to be highly important to dental schools in this region and to TMDU as well.

The third meeting was rather different from the previous two meetings in terms of participants. This time, TMDU invited participants who were closely related to the ASEAN mutual recognition arrangement (MRA) for dental practitioners in each member nation, rather than from our affiliated universities.

Ten ASEAN-member countries agreed to mutually approve professional licenses, including dental practitioners, by 2015 via the mutual recognition arrangement (MRA) concluded in 2009. The mutual recognition of professional licenses, which has been achieved in the European Union (EU), is also going to become a reality in Asia.

In Japan, new accreditation systems for dental and medical education have recently begun to be introduced. In 2014, a new dental accreditation system, consisting of a self-evaluation and a site visit by external evaluators, started on a trial basis in Japan. As is clear from the fact that the curriculum at TMDU has been constantly reinvented with a sense of responsibility to provide the best undergraduate education at all times, it goes without saying that TMDU has also paid close attention to global trends regarding systems for quality assurance in dental education.

Against this background, TMDU has invited 12 representatives from the ASEAN community to share information and opinions on MRA and also to evaluate TMDU’s dental education from a global perspective.

After the sessions at TMDU, the participants moved to Kanuma City to visit NSK-Nakanishi Japan to discover more about the recent development of dental technology and products in Japan.

## Development of Dental Education in Asia 2014

MC: Dr. David Richard Cannell  
(International Exchange Center, TMDU)

### Opening Address

Professor Junji Tagami  
(Executive Director / Executive Vice President of Education and International Student Exchange)

### Introduction of TMDU

#### “Introduction of Tokyo Medical and Dental University”

Dr. Naoko Seki  
(Assistant Professor, Dental Education Development, TMDU)  
Dr. Ailreza Sadr  
(Junior Associate Professor, International Exchange Center, TMDU)

### Keynote Presentation 1

#### “Mutual Recognition Arrangement (MRA) on Dental Practitioners: An Update”

Dr. Patrick S K Tseng  
(Former Chair, ASEAN Joint Coordinating Committee on Dental Practitioners (AJCCD) , Chief Dental Officer, Ministry of Health, Singapore)

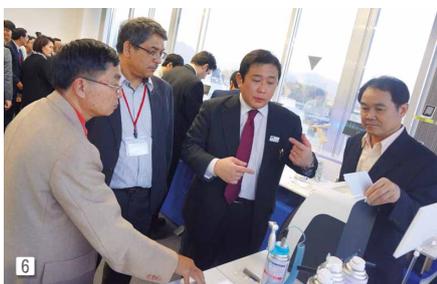
### Keynote Presentation 2

#### “Free Flow of Dental Services and Professionals: European Union Experiences”

Dr. Suchit Poolthong  
(Dean, Faculty of Dentistry, Chulalongkorn University, Thailand)

### External Evaluation of TMDU’s Dental Curriculum

Presided by Prof. Junji Tagami, Prof. Keiji Moriyama  
(Dean, Faculty of Dentistry, Graduate School of Medical and Dental Sciences)  
and Prof. Sachiko Iseki (Deputy Director, Accreditation and Evaluation)



① Development of Dental Education in Asia 2014 participants at the venue ② Prof. Tagami's opening address ③ Q&A session ④ Discussion on dental education ⑤ Prof. Moriyanama's opening address at the external evaluation session ⑥ Tour to NSK-Nakanishi Japan

## Participating in a Golden Jubilee Celebration at the University of Dental Medicine, Yangon (Myanmar)

ON DECEMBER 27, 2014, the University of Dental Medicine, Yangon, with which our dental school concluded an academic collaboration agreement in 1995, celebrated its 50th anniversary. Prof. Junji Tagami, Executive Director, and other dental professors, current and retired alike, participated in the ceremony and related events held in the university and its vicinity to express our congratulations on their historic event. The immediate past rector of the university is Prof. Thein Kyu, who received TMDU's first honorary doctoral degree in October, 2014.



Prof. Thein Kyu received a TMDU commemorative plaque from Prof. Junji Tagami

TMDU graduates are active at the forefront of their field in countries worldwide. Studying abroad helped them deepen their knowledge as healthcare professionals, benefiting both their field and patients in every corner of the globe.

# Letters from TMDU Overseas Alumni

Letter 01

## Valuable Experiences at the Perfect University



**Pham Anh Vu Thuy**  
University of Medicine and Pharmacy  
from Vietnam



**MY NAME IS** Pham Anh Vu Thuy, from Vietnam. I graduated from the Faculty of Odonto-Stomatology, University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam in 2000. After graduation, I worked as a dentist at the National Hospital of Odonto-Stomatology in Ho Chi Minh City for several years. I really want to contribute to improving the oral health of Vietnamese people, especially in poor communities that are very far from the big cities. I often went to these communities to give dental lessons to schoolchildren, to provide knowledge of preventive dentistry to school teachers, or to join dental mobile teams for primary oral health care.

During my time working in Vietnam, I noticed the gap in knowledge and tech-



Studying with international students at Department of Oral Health Promotion

nology between developing countries like my country, and well-developed countries like Japan. I never expected to have a chance to study in Japan because in my country, it is very difficult to get a full scholarship to study abroad. It was a great opportunity the first time I met Prof. Yoko Kawaguchi, Department of Oral Health Promotion, TMDU at a training course on dental public health for Southeast Asian countries in Thailand, 2004. She recommended me to apply for the Monbusho scholarship and unbelievably, my dream came true when I was selected as the PhD student at the Department of Oral Health Promotion, TMDU in 2007.

My life of study was certainly busy and full of hard work. However, I often enjoyed seeing the cherry blossom in spring, fireworks in summer, the leaves changing color in autumn, and the snow festival in winter. I especially enjoyed traveling to many beautiful places and tasting many kinds of delicious Japanese food. Furthermore, I made friends with a great number of Japanese and international students who come from dif-



At the gate of TMDU

ferent countries. Looking back over my four years at TMDU (2007-2011), I feel extremely grateful to the people who supported me during my life in Japan. It was hard at the beginning, but my professor and other staff in the department were always extremely generous and willing to understand and help me, despite my mistakes due to the language and culture barriers. I am very pleased to have studied in a perfect university such as TMDU, where I have practiced in high-tech study facilities and trained with high-quality professors and lecturers. I learned a lot of subjects including research methodologies, statistical analysis and data interpretation, and writing scientific papers. I also took part in numerous oral health care activities held in community and schools.

The program was well organized and structured to accommodate learning across a broad range of professional backgrounds. Using various knowledge from TMDU, I conducted my research project regarding periodontal disease and oral malodor in Vietnamese people

and successfully published five articles in international journals during the course. I think the findings from my study project on the PhD program at TMDU are now proving useful for evidence-based dentistry for the treatment and prevention of oral malodor and periodontal diseases in Vietnam. I also took part in some activities outside the university to introduce my country to Japanese and foreign people.

After graduation from TMDU, I came back to Vietnam and worked as lecturer

at the Department of Periodontology, Faculty of Odonto-Stomatology, University of Medicine and Pharmacy, Ho Chi Minh City. The knowledge I absorbed and activities I took part in on the course at TMDU and the experience from living in Japan help me a lot in teaching and research. I am contributing to the education of younger generations of dentists using what I achieved during my study in Japan. I have also tried to promote the relationship between TMDU and my university. My



Consulting oral hygiene for children at the clinic

experience with Japanese culture, language and tradition during the four year period in Japan allows me to be part of a bridge of friendship between Japan and Vietnam.

## Letter 02

### Trip of a Lifetime



**Turki A. Bakhsh**  
King Abdulaziz University  
from Saudi Arabia



**MY PAST 4-YEARS** stay in Japan was the most beautiful, challenging and abundant experience in my life. It is well-known to everyone how much Japan is advanced in technology that we see everyday on TV or receive them in our countries. For me, my passion for Japan was something else because I got more insight into Japanese culture from my readings and watching Japanese drama.

After graduation and joining Operative Dentistry Department at King Abdulaziz University (KAU) in Saudi Arabia as a teaching assistant in 2008, they awarded me a scholarship to study abroad. Hence my personality is always trying to be very unique and very different from my colleagues in the department who studied in USA and UK universities, I was thinking of Far East Asian Universities. Upon searching the internet, DEAN'S MESSAGE (Prof. Junji Tagami) of faculty of dentistry in Tokyo Medical and Dental University (TMDU) was the first to pop-up among the Japanese universities. I did not know at that time my future and whole life will change after clicking the link on that day in 2009.

The well-repetition of TMDU in Tokyo with positive responses and prompt

replays by Prof. Tagami and Dr. Alireza Sadr (who became later my Adviser) were the major influencing factors in choosing TMDU specifically.

Living there from October 2009 through September 2013 had inspired and affected me a lot. I still remember my first day in Japan after arriving from Saudi Arabia. Everything was organized and well-prepared by TMDU. They picked me up from the airport and took me to the student dormitory and showed me the neighborhood. Warm welcoming was waiting in TMDU upon meeting Prof. Tagami and his department members in a very friendly atmosphere. Later, many events, trips and activities were organized by Prof. Morio and her team in the International student office center that was the most joyful part after a very hard busy week in the school to break the intense of the alienation



Group picture on visiting a dental clinic in Sendai after the Great Japan Earthquake in 2013



Group picture with TMDU Student Chapter and Kurary Company R&D team

and the home sickness. I still keep every memory that was shared with my friends in Atama beach, Sendai area after earthquake, dental companies, conferences and department parties.

During my study period in Operative Dentistry, I found many differences in the medical field between what I used to see in my country and what I experienced in Japan. The way of welcoming every patient in front of the hospital door at 9 am with official Japanese greeting, playing music in the hospital lobby that would be helpful for the patients' relaxation, as well as the staff, the usage of the most sophisticated medical-technologies in their routine medical examination and providing excellent patient care based on the latest trend in clinical/medical research, and until the patient get discharge, all of these are very exclusive to only this country (Japan).

After 4 years of living there, I did not realize how much I become japanized. My self-confidence has elevated and I became workaholic, open-minded and enthusiastic on my life and profession. This experience had improved me a lot and reflected on my performance and

response to the different challenges during my profession as consultant and as assistant professor in Operative Dentistry department at KAU. In academia and beside the research activities, my general goal is to educate my student on how to optimize the performance of dental fillings and making them long-lasting. Actually, they are keen to know more about Japan and where I graduate from. Interestingly, although most of my students are at undergraduate level, we are now conducting several research

works on Nanoleakage, bond-strength and Tomographic imaging that would enhance their understanding of the academic subject as well as developing their research-skills. Recently, I got rewarded of those diligences when my students obtained a research grant from a well-recognized organization in Saudi Arabia "Saudi Dental Society" to pursue their novel research that is entitled "Time Sensitivity Associated with Application of HEMA-free Adhesive". While from the clinical perspective,

providing excellent patient care using the latest trend in dental management and improving community knowledge in dental public health in Saudi Arabia are the most important goals.

Actually, this experience was all great, all rewarding and I cannot express the extent of thanks and gratitude. I enjoyed my stay in Japan and hope to keep in touch with those very polite and kind people. I will always have Japan in my mind & will keep the heartfelt memories alive!

### Letter 03

## Experience of Living in Japan



Osmar Kenji Yagi  
University of Sao Paulo  
from Brazil



**IN 1994, AFTER** finishing the fourth year of the Medical Residence Program in Gastrointestinal Tract Surgery at the University of Sao Paulo, I obtained a Monbusho scholarship to study in Japan.

I chose Japan because it is well known that this country is the most important center for diagnosis and also treatment of digestive disease globally. The results attained by Japanese surgeons in the treatment of gastrointestinal cancers are amazing. I elected TMDU because it was one of the most important Institutions in this field and at that time headed by the renowned Prof. Mitsuo Endo.

For me, the choice could not have been more appropriate. Thanks to Prof. Endo and so many others from the Department of Surgery, I had the opportunity to take part and thereby learn many types of surgery, performed so differently and meticulously. In my opinion, the most substantial aspect of learning about surgical techniques was the standardized lymph node dissection. From my point of view, this is the element that really ensures that the results of treatment of gastrointestinal cancers are better in the East than in Western countries.

When I started my research project towards a PhD degree, I was fortunate to be introduced to Prof. Yasuhito Yuasa, head of Molecular Oncology Department. He is a brilliant scientist, with a boundless kindness, who taught me patiently and thoroughly about molecular biology and cancer. With his direction and with the help of all the members of his Department, I was able to publish four papers in prestigious international journals and coauthor many other papers, in addition to my thesis.

Thanks to the amazing and unforgettable Japanese people, beyond this medical and scientific knowledge, I had the chance to learn about many aspects of Japanese culture, language, art, history and food. My ancestry is Japanese. My father was born in Yamaguchi Prefecture and my mother's grandparents were born in Hiroshima Prefecture. I also had opportunities to meet wonderful people from many other countries who were living in Japan that time. Every person and every memory will remain in my mind for the rest of my life.

I returned to Sao Paulo in 1999, and went back to work at the same University of Sao Paulo, where I try somehow to convey this unforgettable experience



My family: Osmar, Heloisa, Isabela, Claudia and Ana Yagi

of living and learning in Tokyo to many people, especially the residents. Fortunately, almost all the surgeons here use the Japanese Methods and Treatment Guidelines for the treatment of gastrointestinal cancers. This is due in part to the superiority of the Japanese results, but also due to the fact that we have a great opportunity to learn with such distinguished teachers. Now, specifically in my area of Brazil, the challenge is in establishing laparoscopy and robotic surgery. For Brazilians, it is very important to continue these exchanges of knowledge.

Last but not least, during our stay at Japan, my wife Claudia gave birth to our daughters Isabela and Heloisa. From the point of view of my family too, the experience was incredible. In 2005, Ana Luisa was born here in Sao Paulo, and now we are a family of five people. Since I came back to Brazil, I have been fortunate enough to go back to Tokyo to see friends at TMDU twice. Other friends came to Brazil and I had the chance to welcome them here. I hope such friendships continue forever.



There are a wide variety of exchange programs for young people at different levels. TMDU students and young researchers improve their skills by participating in training programs abroad.

# Reports of TMDU Students in the World

## Report 01

### Study at Imperial College London



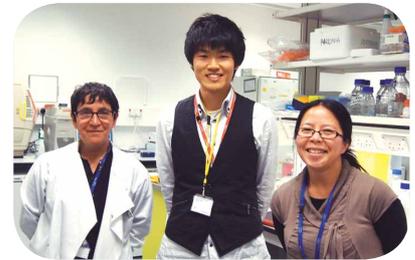
**Takahisa Mikami**  
4th year student, Faculty of Medicine  
TMDU-Imperial Exchange Program



TEN YEARS HAVE passed since the exchange programme with Imperial College London (ICL) started. In commemoration of its 10th anniversary, I would like to express deep appreciation to Prof. Masao Takata, one of the principal founders of this project and a professor at ICL. The well-established curriculum helped us acclimatize ourselves to life in London comfortably, even though this was my first time to live abroad.

In London, all five of the exchange students from Japan belonged to a separate laboratory. My research was on a protein that can play a vital role as the bridge between circadian rhythm and metabolic regulation, involving condi-

tional knockout mice. I was glad to have this intriguing topic. At the same time, it was really fortunate to have a great supervisor. Every time I discussed things with her, I was amazed by her deep and comprehensive knowledge, as well as her insightful comments and suggestions for my experiments and report. Sometimes we also touched on the subject of the culture, education, and medical systems in the U.K. and Japan. She always gave me something to mull over. She also taught me the advantage of collaborating with researchers outside the laboratory by letting me do so. It seemed to me that collaboration enabled her to handle big, state-of-the-art research projects that one single labora-



With my supervisor and the technician, who always helped me learn a lot about research techniques and scientific thinking.

tory could not deal with.

Because I've had an interest in research since I entered TMDU, I have been involved in some kind of research every year. Although what I've learned during the period such as the research techniques and scientific thinking really came in handy, I still had a lot to learn in the lab, and I have to admit I occasionally made some mistakes. I still remember that my supervisor encouraged me at times like that, saying, "It's not the end of the world, and what is important is how much you can learn from the mistake". She was a good role model as well as my mentor.

ICL is full of opportunities in many respects, too. From an educational point of view, the university hosts a series of seminars. I attended seminars about diabetes once a week. Moreover, in London, extracurricular activities also come in all shapes and sizes according to your interest. I attended some official medical seminars to learn the advantag-



All five of our exchange students from TMDU, in a visit to Queens' Square in the University College London (UCL) hospital.

es and disadvantages of the British medical system. This was quite fruitful because this let me reconsider Japan's medical system. I also joined the handball club in ICL and the club team in London. Playing sports in club which is a bit like an international team, and going out to a pub for a drink afterwards were great ways to work off stress. Besides, ICL can boast of the diversity of its students, with students from abroad with a range of backgrounds. So it was also interesting to discuss differences in cultures and lifestyles with them. This way I really enjoyed immersing myself not only in research but also in the culture in London.

There are many benefits of studying abroad while you are an undergraduate. Gaining an appreciation of a foreign culture, making a network for your future, and improving your second language skills are only a few of the benefits. In my case, I was able to enjoy fulfilling, enriching, and academically intriguing experiences, thanks to the continuous support and warm encouragement of my supervisor and all the people who provided me with this precious opportunity. Whatever your goal of studying abroad might be, I can assure you, studying abroad is literally a once-in-a-lifetime adventure you cannot afford to miss, where you



Games as a member of the club team in London in the Copper Box Arena, which hosted handball tournaments at the 2012 Olympic Games in London.

can make both academic and personal progress.

## Report 02

# Wonderful People in Chile



**Keigo Sugisawa**  
4th year student, Faculty of Medicine  
Project Semester in Chile



**ABOUT TWO MONTHS** have passed since I came back from Chile. One of the most frequent questions I get from my friends is “Do you want to go back to Chile again if you get a chance?” My answer is “Sure!”. In this report, I would like to share my great experience in Chile with all of you.

I was in Chile last year (2014) from July till November. I went there with five other classmates and we belonged to different laboratories of the University of Chile or in a hospital named Clinica Las Condes in Santiago. I joined

the laboratory of integrative physiology at the University. My research was on acute kidney injury and proteins associated with the relevant mechanisms. My supervisor was very supportive and informative. He was very fluent in English, so for the first several days I had difficulty in following what he meant. However, as I got used to the pace of his conversation, I came to be able to respond or ask questions quickly. He taught me not only how to perform experiments but also about scientific thinking, which was essential for plan-



With my supervisor and members of my laboratory

ning my research project. It was a meaningful experience to discuss my results with him. He was so energetic that he worked not only in the laboratory, but also for a hospital as a clinical doctor. He is now my role model and I want to become like him. I want to pursue clinical practice, while serving as a researcher and instructor like him. The professor of the laboratory was a great mentor and he gave me much valuable advice on my research plan and experiments. He also taught me how to give a good presentation. Thanks to him, my presentations became much more informative and persuasive. Other members of the laboratory were also friendly to me and gave me several tips on experimental methods. Casual chats with them helped me to relax. I spent enjoyable days working hard with great teachers and researchers. I was so lucky to collaborate with them.

Besides the research experience, the Chilean people I met were impressive



Dinner with lab members

too. My senior students who went to Chile before introduced us to some of their Chilean friends who studied Japanese. We went around sightseeing in Santiago, had some parties and enjoyed chatting with them. I was surprised to learn that some of them could speak fluent Japanese. Seeing them, I gradually developed an interest in speaking Spanish. In addition, we encountered some Chilean medical students by chance. It was interesting to talk about different topics related to health care

and compare the Japanese and Chilean medical situation. I also met several Japanese students who came to study in Chile and listened to their interesting stories about different fields.

As I mentioned above, I met wonderful people in Chile from many walks of life and I had unforgettable experiences with them. This is why I want to visit Chile again. On the final day of my research, my supervisor said “It’s a small world” and he suggested that we might see each other again. I definitely hope

so, next time as medical professionals. My experience stimulated me to study Medicine and English harder.

Finally, I would like to express my gratitude to all the teachers and staff of the University of Chile, TMDU, and the Latin American Collaborative Research Center (LACRC). Their support enabled me to visit Chile and focus on my research without any serious trouble. I am also grateful to my classmates who I went to Chile with and all my friends in Chile.

Report 03

## Babies, Cardiac Surgeries, and Boston Strong...



**Sayaka Kawamura**  
6<sup>th</sup> year student, Faculty of Medicine  
HMS Exchange Clerkship Program



We are supportive of each woman's choices around pain control in childbirth. OB Anesthesia team, at BIDMC

**“CONGRATULATIONS! YOU HAVE** a beautiful baby”. I have started many days with this greeting, smiling and shaking hands with new parents. I participated in a clerkship program at Harvard Medical School. I spent a pleasant month with the Obstetrical (OB) Anesthesia team at Beth Israel Deaconess Medical Center (BIDMC) and the following month with Cardiac Anesthesia team at Massachusetts General Hospital (MGH).

At Labor and Delivery service, the OB anesthesia team provides analgesia for labor, and anesthesia for cesarean delivery. I have experienced a lot of procedures for epidural/spinal anesthesia with residents and attending doctors. They encouraged me by demonstrating the procedure step by step. They also clearly informed patients that I was a

medical student and then patients readily agreed to let me treat them. I was really happy when a woman who was just having her first baby said “Thank you, Sayaka, thank you...”.

Also, I have observed some high-risk deliveries complicated with placenta accreta, vasa previa or pregnancy induced hypertension. I realized that the key to the success of those deliveries was to take a multidisciplinary approach and ensure sufficient preparation. In one case with a cesarean section

with placenta accreta, a special team including obstetricians, urologists, anesthesiologists, neonatologists, nurses and other co-medical staff was formed, and all possible medications, blood and devices were prepared. In that case, only two out of ten units of blood were transfused to the patient after all but when it comes to massive hemorrhage, there isn’t a moment to lose.

In the following month, I participated in the management of a cardiac surgical patient. I have taken part in surgeries including 11 coronary artery bypass grafting (CABG), 14 valve replacements, 2 aortic procedures and 5 others. In some cases, I experienced central/arterial line placement, intubation and hemodynamic monitoring. Management of weaning off cardiopulmonary bypass was often difficult as a result of structural or functional cardiac abnormalities or ventricular dysfunction. Though the management of the cardiac surgery was complicated and difficult, residents and fellows were willing to teach me the mechanism of hemodynamics. It really helped me to understand cardiac anat-



A lot of machines in cardiac surgery OR, at MGH



Boston Strong, at the finish line of the Boston marathon, Boylston Street

my, physiology and how to read echocardiography.

In addition to the clinical training, I had a chance to meet some active physicians. For example, the course director of cardiac anesthesia was a Croatian female physician who had lived in the U.S. for more than 20 years. She considerably took care of me and gave me practical advice about how to manage English presentation as a foreign language. There were also some Japanese physicians who worked at MGH. It was

a good shock for me to see that they have adjusted themselves to their environment by extraordinary effort.

In addition, I would like to mention my daily life in Boston. For two months, I had a good experience at a homestay with my friend. We stayed in rooms on the third floor of a traditional house and enjoyed doing our own cooking, talking with the host family and being invited to an Easter party. Early in May, the whole town was filled with the slogan “Boston Strong” and it was dec-

orated with blue and yellow, as a reaction to the Boston Marathon bombings in April 2013. That horrible affair suddenly seemed real to me. I felt that an indomitable spirit had been passed on to the people in Boston.

Finally, I would like to express my deepest gratitude to the attendants, fellows and residents at BIDMC and MGH, my host family, teachers and friends at TMDU and my family for giving me this wonderful opportunity in Boston.

#### Report 04

## What I Acquired through Repeated Visits to Canberra



**Kosuke Takemura**  
6th year student, Faculty of Medicine  
Study program in Australia



**CANBERRA, THE CAPITAL** of Australia, is one of the best places to study. Since my first visit to Australian National University (ANU) in 2012, I have visited ANU repeatedly as part of the MD-PhD course. My visits can roughly be divided into two categories: basic medical research at John Curtin School of Medical Research (JCSMR) and the clinical elective at ANU Medical School.

At JCSMR, I conducted biochemical research under the supervision of Prof. Philip Board. He is an authority in the field of antioxidant molecules such as glutathione. I had been working on an enzyme named gamma-glutamylcysteine transferase (GGCT), which contributes

to the synthesis and degradation of glutathione. As my principal investigator, Prof. Eishi Yoshinobu, was an old friend of Phil's, he advised me to visit him so that I could pursue more sophisticated research into GGCT by combining both clinical and biochemical approaches.

I learned how to measure the activity of GGCT using Phil's original assay in Australia. I had found out that GGCT expression level was significantly higher in oesophageal cancer cells than in normal cells. However, the remaining question was whether the over-expressed GGCT maintained its enzymatic activity. We were interested in this



At the laboratory bench at JCSMR

because some proteins merely accumulate in cancer cells without function (e.g. p53, a famous tumour suppressor protein). Thus, it was essential to show that the increasing GGCT kept its activity in cancer cells.

Initially, the results were quite different from what I was expecting. No sooner had I shown the strange data to Phil than he pointed out the possibility of non-specific reactions caused by miscellaneous cellular organic compounds. Then, he suggested a way to eliminate them by applying appropriate controls. Following his advice, I eventually obtained beautiful data and succeeded in publishing a full paper on GGCT as a novel biomarker. More than anything, he emphasised the importance of a scientific attitude, to observe things from various aspects.

In ANU Medical School, I belonged to the gastroenterology and hepatology unit under the supervision of Professors Narci Teoh and Geoff Farrell. Being the first student from Japan, I was somewhat nervous but they made me feel very welcome. What surprised me most was the positive behaviour of medical



After ward rounds with directors, registrars, interns and medical students

students at ANU. They voiced their own opinions even in front of top professors, whilst ordinary Japanese medical students hesitate to state what they think even in a group of their peers. I joined case-based learning, where we discussed a patient based on the clinical information presented.

At first, I could barely keep up with what they were talking about whilst looking up medical terms and abbreviations frantically in my Stedman's Medical Dictionary. I had no opportunity to

speak in the group. To be honest, it was one of the most stressful classes for me. Additionally, it was not a compulsory class. However, I never wanted to give it up and I believed that what I learned in Japan should be valid in Australia. Therefore, I got rid of the dictionary and started to actively state all that I knew without hesitation. Then, I finally succeeded in commenting upon what they did not know (e.g. effectiveness of leukocytapheresis for ulcerative colitis, the mechanisms of hypercalcaemia in

Sarcoidosis and so on).

Had I not studied overseas, I could not have been able to broaden my horizons. There were literally innumerable impressive encounters and discoveries in Canberra and in Tokyo, too. I would like to express my gratitude for the comprehensive support of the Department of Human Pathology as well as the Office of Global Education and Career Development. Making the most of this experience, I aim to become an international-minded physician scientist.

Report 05

## Study Trip to Finland



**Y. Kajiwara, A. Ichikawa**  
3rd year students, Faculty of Medicine  
Study program in Finland



**Written by Yuiko Kajiwara**

3rd year students, Nursing Science

Last summer I spent three weeks studying in Seinajoki University of Applied Science (SeAMK). Seinajoki is one of the rapidly growing cities in Finland. During the trip, I had opportunities to visit a lot of places; the Seinajoki Central Hospital, the Attenda—where elderly people live together helped by nurses, a kindergarten and a school for people with disabilities. It is said that Finland is one of the most developed countries in terms of social welfare. I was surprised to find that it would cost the same whether a patient had a sur-

gery or an injection while he was hospitalised.

Finnish high taxation, which is 24% in consumption tax, covers the rest of the money. Therefore it is necessary for women to work even after getting married. Almost 90% of Finnish women have jobs and nursing is one of the most common occupations. Having seen nurses working at different places, I have learned that nurses are needed in diverse ways and there are things that only nurses can do. These experiences brought home to me the idea of working as a nurse in a variety of ways.

Another great thing I experienced in Finland was time spent with a Finnish family through a weekend homestay program. Spending time with a family with four children changed me a lot as



Reproductive nursing class at SeAMK

their way of living often differed from mine. Living in one place, talking with certain people, and thinking in one way sometimes make me stereotypical and even blind to what is outside my world. This awareness made me realise the importance of taking a broad view of things in order to become an internationally-minded person. I have definitely changed through this trip, and this could not have happened without the people who had supported me. I would like to thank them all for giving me such a wonderful opportunity.

**Written by Akiko Ichikawa**

3rd year student, Nursing Science

I went to Finland for 18 days to learn



Lecture from Ms Helli Kitinoja at SeAMK



TMDU students made a presentation about Japan for SeAMK students.



With Ms. Helli Kitinoja and her dog.

about the health care system, social welfare, and culture. I stayed mainly in Seinajoki, which is located in the southwest of Finland. It is a rapidly growing urban area. In Finland, I had lectures at Seinajoki University of Applied Sciences (SeAMK), visited medical institutions and welfare facilities, and stayed with a host family. I'd like to tell you about some of my interesting experiences in Finland.

Firstly, I visited the pediatric ward and outpatient in Seinajoki Central Hospital. There were many cute paintings on the walls and many toys in the waiting room. I thought they would relieve children's stress. If patients visit the hospital, they have two interviews, one with

a nurse and the other with a doctor. In Finland, nurses and doctors each work as independent professions, so they each get the necessary information about patients.

Secondly, I visited a school for handicapped children. I saw class rooms for occupational training programs. There were various programs, for example, cooking, computer, and industrial art. The most interesting program for me was Finnish traditional textiles. This school provided a wide variety of programs so that students could find what suited them.

Thirdly, I visited an elderly care home. I was surprised to see a sauna in the facility. Finnish people want to take

a sauna just as Japanese want to take a bath. Private rooms were like real homes, so residents could relax. Residents wore an alarm shaped like a watch for calling nurses. This elderly care home offered a private environment and security for the residents. I felt it was an ideal place for elderly people. I had so many other wonderful experiences on this program. Consequently, I'd like to compare the healthcare system and social welfare and so on of Finland and Japan, so I will continue to study the situation in Japan.

Finally I would like to thank everybody who supported me during my study visit to Finland.

## Report 06

# Overseas Study Program in Laos



**K. Murakami, A. Nakamura**  
3rd year students, Faculty of Medicine  
Study program in Laos



Visiting Setthathirath hospital

### Written by Kirika Murakami

3rd year student, Medical Technology

I took part in a 10-day study program in Laos with two other students and my professor in 2013. I felt uneasy because this was my first time abroad. However, I thought I would like to learn about the medicine of a developing country and spend time in a different sort of country, so I decided to study in Laos.

We visited the university, hospitals, and a farming village. I learned a lot from the farming village in particular. It was in Thakhek, located about six hours' drive from the capital city, Vientiane. The nonprofit organization ISAPH supports the people who live

there. They provide education on healthcare, nutrition, and hygiene. They also conduct health checkups called mobile clinics, and conduct fecal examination to check for parasites. I was impressed by how the staff provided knowledge about health so that people could understand it easily. They use painted panels, offered quizzes, and provided experiences. People listened seriously to the explanations, and children seemed to enjoy the study. I realized how important it is to teach from the viewpoint of the villagers. Moreover, I felt the importance of educating children, because taboos against eating some foods prevented people from changing harmful customs. It is necessary to teach children correct knowledge.

In this program, I not only saw the medical situation in Laos, but also communicated with many Lao people and learned about their culture. I thank my professor who gave me this opportunity and all the people who helped me.

### Written by Ayaka Nakamura

3rd year student, Medical Technology

I participated in the study tour conducted by ISAPH in Thakhek and the program at the University of Health Sciences of Lao PDR in Vientiane, Laos from 30th August to 7th September with Shuhei Ishii, a medical technology student and Asuka Koyanagi, a graduate student.

Although Laos is an Asian country like Japan, I was worried a little about going there because it still has public health problems. However, I had a really nice time there.

There were three purposes to studying there. The first was to learn about the medical situation in Laos. I learned that health offices did not have enough equipment to test patients' samples and few people received examinations because they cost too much for the villagers. On the other hand, there were fully equipped central hospitals



With children who live in a farming village



At The University of Health Sciences of Lao PDR  
 Students from middle row from the left : Ms Asuka Koyanagi, Mr Shuhei Ishii  
 Front row from the left : Ms Satsuki Shiga, Ms Minami Ito, Ms Ayaka Nakamura, Ms Mariko Sada

in Vientiane in contrast to the hospital in Thakhek, a rural city. What impressed me most was participation in the ISAPH activity in the local village. The staff taught villagers how to

wash their hands and gave pregnant women vitamin tablets to prevent children from suffering from vitamin B1 deficiency.

The second purpose was to study para-

sitology. Ms. Oda at the Malaria Center showed us how to conduct a medical checkup for detecting parasites. It was interesting, because I saw the test for the first time. The third purpose was to understand the culture in Laos. We stayed with Laotian families for five days and this was a great experience for me. During the stay, I found many differences between Laos and Japan, for example, spicy food and taking shower many times in a day. Everything was exciting.

Finally, I would like to express my gratitude to everybody who supported me. If I have a chance in the future, I want to go back to Laos and join the support activity.

Report 07

## Dental Training Program at the University of Melbourne



**Takuya Matsumoto**  
 6<sup>th</sup> year students, Faculty of Dentistry  
 Study program in Australia



Dental hospital

**I PARTICIPATED IN** a dental training program at the University of Melbourne with six classmates. This is a short-term study program for 6<sup>th</sup> year dental students in the Re-Inventing Japan Project. My main purposes in attending this program were to learn about the situation of Australian dentistry and to study with dental students in Melbourne.

On the first day, we attended a seminar by Prof. Mike Morgan, who explained to us about the dental education and oral health care systems in Australia. We learned the differences and similarity between dentistry in Japan and Australia. For example, in Japan we have four kinds of dental personnel, dentists, dental hygienists, dental technicians and dental assistants. However in Australia an oral health therapist can provide diagnosis and simple dental treatment directly to patients under the supervision of a dentist. There is also a dental prosthetist who can make dentures independently. We were surprised

to learn that Australian dentists had to take a continuing professional development course for at least 60 hours every three years to renew their dental licenses. In Japan, we do not have this sort of system.

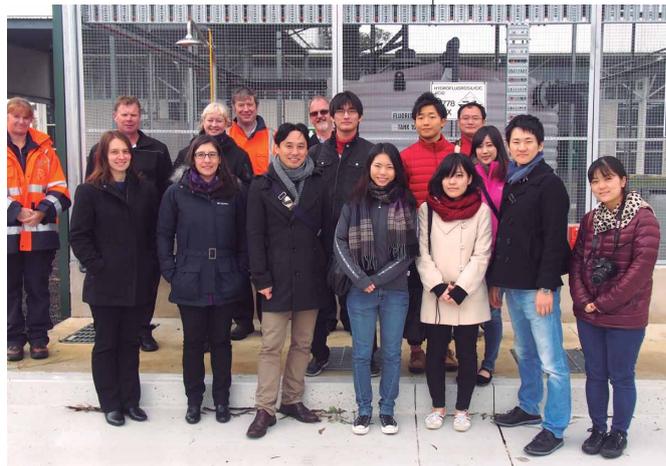
In Australia they have a similar public medical care insurance system as Japan. However dental treatment is not included in this public insurance system, so people usually have private insurance which covers dental treatment. Further, the cost of dental treatment differs between public and private institutions. In public dental hospitals where students provide dental treatment, the fees are very low, but at private hospitals, treatments fees are ten times higher than in Japan.

In Japan we have no fluoridation areas, but in Australia, most of the tap water is fluoridated. Water fluoridation is widespread all over the country and the coverage of Victoria State is more than 90%. We attended a lecture on wa-

ter fluoridation by public health experts from Victoria State and learned the history, materials, detail methods and effectiveness of water fluoridation. We also visited the Rosslynne water fluoridation plant located in the suburb of Melbourne. We observed the water purification process and the double-check monitoring system for fluoride concentration. Through this study tour we learned about the safety and effectiveness of water fluoridation in preventing dental caries.

On a hospital tour, we observed the pre-clinical training rooms for dental students. They are well equipped with cutting edge facilities so that students can practice just like in a real dentistry setting. In particular we were excited to encounter a 3D device that reproduced the resistance of drilling a tooth, for simulating grinding softened dentin with cavity preparation for caries treatment.

On the last day we participated in the Melbourne students' dental clinic. In this clinic, one instructor supervises five students and checks the students' performance step by step. The system is almost the same as that in our clinical practice at TMDU hospital. Most of the tools and instruments used in the clinic were also the same. The major difference between treatment in Japan and Australia is that patients in Australia wear safety glasses during treatment. Safety glasses protect patients from medical accidents, such as dropped equipment or dental materials in their eyes. The Melbourne students were really surprised to hear that patients in Japan do not usually wear safety glasses.



Water fluoridation plant

It was very interesting to discussing differences in treatment procedures and culture with the students in Melbourne. I felt that I would become a member of a worldwide dental network.

Although the study period was short, we learned a lot and spend a fruitful time. We would like to express our deepest appreciation to the staff and the teachers who supported us.

## Report 08

# My Little Summer Project in London



**Miho Hanaoka**  
4th year students, Faculty of Dentistry  
Study program in UK



With my laboratory members

**I WOULD LIKE** to express my sincere gratitude to everyone who supported my overseas study on the research project. From June through August 2014, I carried out my small research project at the Department of Craniofacial Development & Stem Cell Biology in King's College London. I studied the expression pattern of transcription factors expressed in the developing otic placode and tried to clarify a part of the transcriptional pathway in otic placode for-

mation.

It was my first time to live abroad for a long period. Since I am not good at English, at first I felt nervous. At the beginning it was not easy to understand my project including the background. In addition I worked on chick embryos which are very fragile, so I had to be very careful in dealing with them. However, my professor, Andrea Streit and the laboratory members were very kind and taught me politely. Towards the end, I realized how precious this experience was for me.

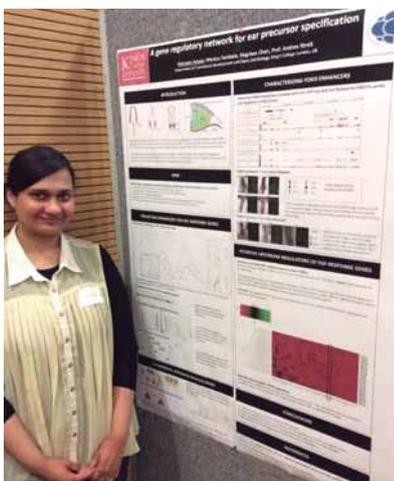
I found that there are some differences between the laboratories at TMDU and London. Of course, language is one of them, and in Japan the majority of people in the laboratory are Japanese. By contrast, people in London come from various countries such as Pakistan, India and Italy. Therefore, I had many opportunities to learn about cultural aspects of other countries that I did not know about in Japan. For instance, I learned about vegetarians and

Ramadan.

In August, a big scientific scandal broke in Japan. Prof. Streit sent us a message "I am sure you have heard about the recent scandal.... of course this was not the brightest moment for stem cell research, but what happened afterward lead to very sad news and shows us to be careful about how we judge people." I fully agree with her, and we should have been more considerate of the people involved in the scandal. From this incident, I realized that it is always important to try to take an objective view in certain situations.

In London, there are many beautiful places like Buckingham Palace, Tower Bridge and London Eye, some of which I visited. In addition, the daytime is long and the weather is nice in British summer, which made my stay more enjoyable.

There were no Japanese working in the Department, but fortunately I had a



At an embryology meeting in London

chance to meet Japanese scientists working in Britain at an embryology meeting in London. I felt shy, but I encouraged myself to talk to them. It was an excellent opportunity to learn about life in Britain. They told me that being

a researcher was an established occupation in Britain, therefore, researchers can concentrate on their research projects, but at the same time it is not easy to work abroad. I strongly felt that Japan needs to be more globalized.

If there is something you would like to do, give it a try! A little courage can bring you to a new world. If you are interested in going abroad, there are many support programs available in TMDU.

Report 09

## Wonderful and Meaningful Experience in Australia



**Kaede Ishihara**  
4th year students, Faculty of Dentistry  
Study program in Australia



At the lab

**I STUDIED AT** the Universities of Sydney, Newcastle and Melbourne in Australia. I had three purposes in doing this training. The first was to learn about the education of Australian dental hygienists. There are several educational programs for becoming a dental hygienist in Australia. I was interested in the Bachelor of Oral Health (BOH). The universities where I studied use this BOH program. The second purpose was to learn about preventive dentistry and national motivation. People emphasize preventive dentistry because insurance does not cover dentistry in Australia. Almost all Japanese think that dentistry is for curing caries. I thought that it may be possible to resuscitate dentistry in Japan if we understand the current state of preventive dentistry in Australia, so I made that one of the themes of my studies. The third purpose was to improve my language ability.

The main part of my study was observing clinical training at the University of

Newcastle. I did a homestay in Newcastle, and my host mother was a dental hygienist. She works in a nursing home. So I could also observe the nursing home and the work of a dental hygienist in the home. It was a very meaningful experience.

I also studied for seven days at University of Sydney. I attended many interesting lessons and observed basic and clinical training. First, I joined basic training for 1st grade students who were learning about brushing. The 1st graders had just entered university, so everyone had a different way of brushing. I was surprised that they used mainly the Stillman and Charters methods. The scrubbing method is used primarily in Japan. I was interested in the different methods that are recommended in each country.

Next I took part in flossing training. The teacher paid no particular attention to the length of the dental floss, so I told them about the “length of the arm” rule

of thumb in Japan. Thus there were many chances for learning and also for talking about Japanese methods, and I think it was very meaningful to participate in the training. I also went to the public hospital near the main campus. I talked with the director of the hospital about the education of dental hygienists and dental therapists, and aging in Australia and Japan. I had a very meaningful discussion.

At the University of Melbourne I observed 2nd and 3rd grade clinical training. Training for dental hygienists and dental therapists is separate. Students were taking X-rays in the X-ray room. I heard that dentists do not want to work with dental hygienists because dental hygienists can do perform many tasks. I was interested in the differences in work backgrounds.

A major theme of this training was prevention, but I learned that insurance plays a major role in this. Students and



I met a lot of wonderful students.



With classmates at the University of Sydney

patients told me that people take care of their teeth because insurance doesn't cover dental treatment. Prevention is effective, so they do not have to spend a lot of money, and they generally have good teeth. Fear of periodontitis means that Australians take preventive measures. The Japanese tendency to treat

dental problems once they get out of hand is linked to the fact that medical insurance covers dental treatment. It may be difficult to change the insurance system, but we can do so sufficiently to raise awareness about periodontitis and prevention.

I visited a nursing home, where I real-

ized that a dental hygienist can also play an active part in welfare simply by discussing it. Dental hygienists can still play a role in Japan, and I think the aging society of the future will provide new opportunities. I'd like to make further efforts towards study, using the valuable experience I gained in Australia.

## Report 10

# Studying Abroad to Sweden



**Dotaku Saito**  
4th year students, Faculty of Dentistry  
Study program in Sweden



**WHEN I ATTENDED** the open campus, I was deeply impressed by the study abroad program of TMDU. Since I enrolled in the course, studying abroad had been a dream that I finally accomplished in 2013. I was very interested in implant prosthesis, which originated in Sweden. So I chose to study at the Dental Technology Institute of Odontology and Sahlgrenska Academy at the University of Gothenburg in Sweden, from March 1 to April 2. Gothenburg is located in the southwest of Sweden and it is the second biggest city. The University of Gothenburg was established in 1891. Now it comprises 9 faculties and 44 courses, and it is famous for the Branemark implant system, which was named after its inventor, Professor Branemark of the university. The dental technology course in Sweden lasts three years, and students receive a diploma on completion of the course.

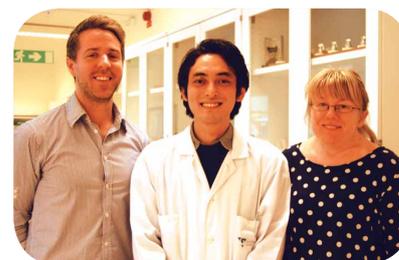
During my stay at the Dental Technology Institute, the faculty provided me with a substantial program. I attended the classes to practice manufacturing metal ceramics with first year students and manufacturing implant prosthesis with second year students. The content of the prosthetic practice is similar to our university.

In addition to the study at the department, I visited private dental clinics and dental laboratories in Gothenburg. First I visited dponova, a commercial labora-

tory at the University of Gothenburg. Then, I visited Atlantis-Dentsply Implants, a CAD/CAM design and milling center and Branemark Osseointegration Center (BOC). BOC is a very famous clinic all over the world, which has a branch in Tokyo.

Throughout my visit, all of the faculty and students of University of Gothenburg were friendly and kind. Unlike us, they have a very attractive custom where they take a coffee break in the afternoon everyday. During the coffee break, they enjoy chatting with their friends. I think that Japanese people should emulate this custom, because Japanese people work too hard and enjoy their lives less. Japanese dental technicians are too busy and sacrifice their private time for work. When I observed the Swedish lifestyle, I felt that Japanese society would be better if people could enjoy more relaxed lives.

On the final day, I made a presentation to students and teachers about Japanese

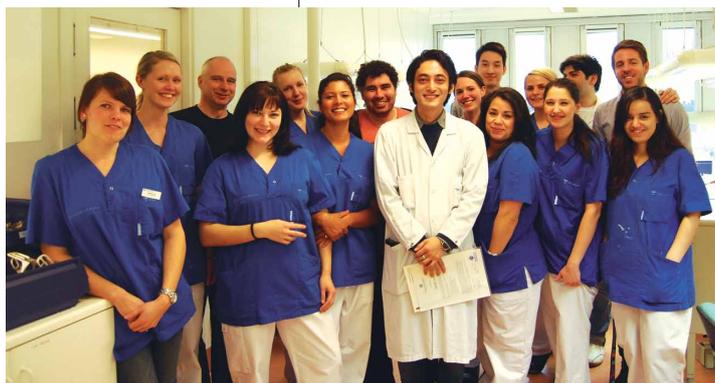


With teacher

culture, an outline of TMDU and the work of Japanese dental technicians. I guess that they were very interested in my talk, because they asked me many questions after the presentation. Although it was difficult for me to answer all of the questions, it was a great experience.

At the beginning of my visit, I had a hard time since this was my first experience to live abroad alone and my English ability was so poor. However, everyone in the department was very kind to me and helped me to make my visit fruitful. Therefore, I had a very comfortable and fulfilling time there. Finally, through this experience I learned many things about Swedish dental technology and extended my ability to think internationally. I would like to express my sincere gratitude to everyone who gave me this opportunity and supported my study abroad.

With students



# Campus Information

## To the Future from the 40th Anniversary of Medical Research Institute

**THIS YEAR MARKS** the 40th anniversary since the Medical Research Institute was established in September 1973, for the purpose of studying intractable diseases and their diagnosis and treatment. The Research Institute was founded with 17 departments following the restructuring of seven medical research institutions, and went through numerous reiterations before covering 22 departments in three divisions today. The original vision of bringing the various different facilities of the Medical Research Institute under a single roof will soon become a reality as departments are amalgamated within the M&D Tower.

To commemorate this 40th anniversary milestone, an international symposium was held at the Akio Suzuki Memorial Hall on November 28, 2014, where leading re-

searchers who play an active role on the international stage presented the results of their research. “The 40 Years Anniversary of the Medical Research Institute” was also published in March 2015.

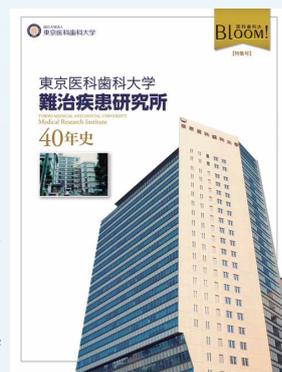
The Institute building was built at Surugadai since 1973.



The President Yoshizawa greeting presenters at the international symposium.



Signboard that has adorned the gate since 1975.



The front cover of the book published to commemorate the 40th Anniversary of Medical Research Institute, showing the M&D tower where most of the departments of the Institute are located now.

## The Summer Festival

**TMDU TEAMS UP** with Juntendo University to hold a wide range of events as part of efforts to provide international students opportunities to come in greater contact with Japanese culture. The Summer Festival was held in the evening of September 17 this fiscal year at the TMDU multistory parking space.

After greetings by Junji Tagami, Executive Director for Education and International Student Exchange at TMDU and Hajime Arai, Dean of the Faculty of Medicine at Juntendo University during the opening ceremony, Yoko Okita, TMDU Associate Professor, introduced students to the activities planned for the Summer Festival.

The watermelon splitting game was undoubtedly the main highlight of the festival, which proved to be a great hit as international students wearing Japanese yukata and blindfolds called

out to one another to find the elusive target. With yo-yo fishing games and snacks such as takoyaki and rice dumplings, international students found plenty of opportunities to make the most of Japanese culture.

TMDU International Exchange Center Director Ikuko Morio gave the closing remarks before the Summer Festival was drawn to a close.



Students enjoying the watermelon splitting game



Servings of takoyaki and rice dumplings

## Discovery of the Mechanism by which Mitochondria are Eliminated from Red Blood Cells and the Involvement of Alternative Autophagy

**RED BLOOD CELLS (RBCs)**, or erythrocytes, originate from stem cells and mature into erythroblasts, which possess nucleus and mitochondria. During erythrocyte maturation, the erythroblasts lose their nuclei to become reticulocytes, which are transformed into erythrocytes by the elimination of organelles, including the mitochondria (Fig. 1). It has been considered that autophagy might be involved in this process, but the detailed mechanisms have not been elucidated yet.

Autophagy is a catabolic process where cellular contents, including proteins, lipids, and even entire organelles, are digested within lysosomes. The process of autophagy begins with the formation and elongation of isolation membranes. These membranes invaginate enclosing various intracellular components inside, resulting in the formation of double-membrane vesicles, called autophagosomes. Subsequently, autophagosomes fuse with lysosomes to generate autolysosomes, allowing the degradation of the autophagosomal contents. Autophagy occurs constitutively at low levels but is accelerated by various cellular stressors. Autophagy is driven by more than 30 autophagy-related proteins (Atg5) that are well con-

served from yeasts to mammals. Among them, Atg5 and LC3 are crucial, because these molecules are required for the expansion and closure of isolation membranes. Furthermore, the translocation of LC3 from cytosol to autophagosomes is recognized as a reliable marker of autophagy.

Despite the crucial role of Atg5 in autophagy, we discovered Atg5-independent autophagy (named alternative autophagy) from ultrastructural analysis (Nishida et al., Nature 1999). The morphology of alternative autophagy was indistinguishable from that of Atg5-dependent autophagy. Alternative autophagy also digests proteins and organelles. Therefore, mammalian cells possess at least two different autophagic pathways, the Atg5-dependent pathway and an alternative pathway. We recently discovered that this alternative autophagy, but not Atg5-dependent autophagy, is essential for mitochondrial clearance from reticulocytes during terminal differentiation (Honda et al., Nature Commun. 2014). This conclusion was drawn from following evidence: (1) we have observed that mitochondria were engulfed and digested by autophagic vacuoles in wild-type reticulocytes and Atg5-deficient reticulocytes; (2) the

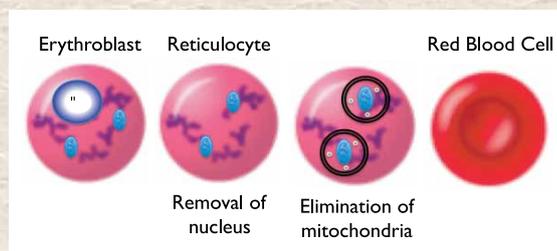


**Shigeomi Shimizu**  
PhD Professor,  
Pathophysiology,  
Medical Research  
Institute, TMDU

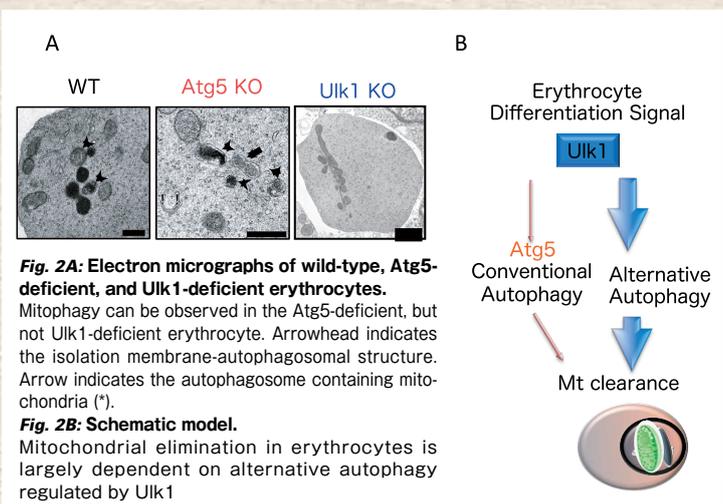
number of persisting mitochondria in Atg5-deficient reticulocytes and erythrocytes was the same as in wild-type cells of each type; (3) mitochondrial clearance in reticulocytes did *not* occur in mice lacking Ulk1, an essential molecule for alternative autophagy; (4) abnormality in mitochondrial clearance in Ulk1/Atg5-double deficient mice was approximately the same as that in Ulk1-deficient mice, indicating limited involvement of Atg5. Thus, it is likely that the Ulk1-dependent Atg5-independent alternative autophagy is the dominant force for mitochondrial elimination from reticulocytes. This study identified one of the physiological roles of alternative autophagy, and also identified the mechanism of final differentiation in erythrocytes.

References

Nishida Y, Arakawa S, Fujitani K, Yamaguchi H, Mizuta T, et al. Discovery of Atg5/Atg7-independent alternative macroautophagy. *Nature* 2009; 461, 654-658.  
Honda S, Arakawa S, Nishida Y, Yamaguchi H, Ishii E, Shimizu S. Ulk1-mediated Atg5-independent macroautophagy mediates elimination of mitochondria from embryonic reticulocytes. *Nature Commun.* 2014; 5, Article number: 4004.



**Fig. 1: Terminal stage of red blood cell maturation.** During erythrocyte maturation, erythroblasts lose their nuclei to become reticulocytes and reticulocytes are transformed into erythrocytes by elimination of mitochondria. Autophagy is involved in the latter process.



**Fig. 2A: Electron micrographs of wild-type, Atg5-deficient, and Ulk1-deficient erythrocytes.** Mitophagy can be observed in the Atg5-deficient, but not Ulk1-deficient erythrocyte. Arrowhead indicates the isolation membrane-autophagosomal structure. Arrow indicates the autophagosome containing mitochondria (\*).

**Fig. 2B: Schematic model.** Mitochondrial elimination in erythrocytes is largely dependent on alternative autophagy regulated by Ulk1

## DNA Demethylation-Dependent Regulation of Hepatic Lipid Metabolism

**EPIDEMIOLOGICAL AND ANIMAL** studies have suggested that a number of chronic disorders, especially non-communicable diseases (NCDs) in later life may be acquired during the fetal and postnatal periods (Fig. 1). However, how the nutritional status in early life affects the susceptibility to NCDs in later life has been poorly understood.

The methylation of cytosine residues in DNA is a major epigenetic modification, and its role is well studied in organ development and cell differentiation. In most cases, DNA methylation of the promoter region suppresses gene expression. DNA methylation may be affected by environmental factors, thereby regulating a diverse range of biological processes. Although the fetal and postnatal periods, which are highly plastic to environmental changes, should be under epigenetic control, the role of DNA methylation in early life has been ill-defined.

The metabolic function of the liver changes dramatically during early life in mammals so that they can adapt to sequential changes in nutritional environment. For instance, during the suckling period, when fat intake is high, the rate of hepatic *de novo* lipogenesis is very low, but it increases with the onset of weaning and diminished intake of

milk. We have reported the role of DNA demethylation in the induction of glycerol-3-phosphate acyltransferase 1, a rate-limiting enzyme of triglyceride biosynthesis, in the postnatal mouse liver (Diabetes 61:2442-2450, 2012).

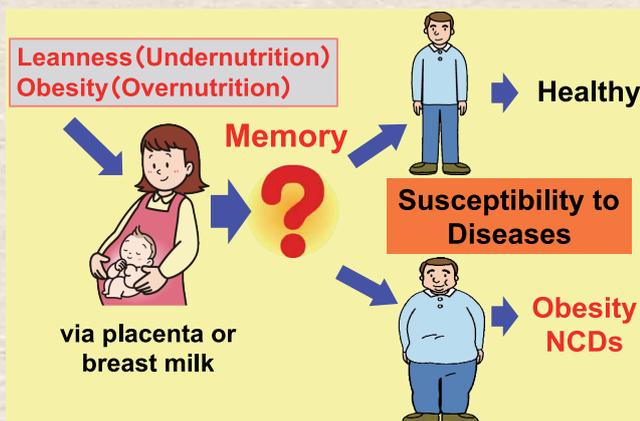
On the other hand, hepatic fatty acid  $\beta$ -oxidation is activated after birth to produce energy from breast milk lipids. In this study, we show DNA demethylation and increased mRNA expression of the fatty acid  $\beta$ -oxidation genes in the postnatal mouse liver. The DNA demethylation does not occur in the fetal mouse liver under the physiologic condition, suggesting that it is specific to the neonatal period. Analysis of mice deficient in the nuclear receptor PPAR $\alpha$  and maternal administration of its synthetic ligand Wy14643 during the gestation and lactation periods reveal that the DNA demethylation is PPAR $\alpha$ -dependent. We also find that DNA methylation of the fatty acid  $\beta$ -oxidation genes is reduced in the adult human liver relative to the fetal liver.

This study is the first demonstration of gene- and life stage-specific DNA demethylation on the fatty acid  $\beta$ -oxidation pathway, which is triggered by the ligand-activated PPAR $\alpha$  during liver maturation (Diabetes 64:775-784,

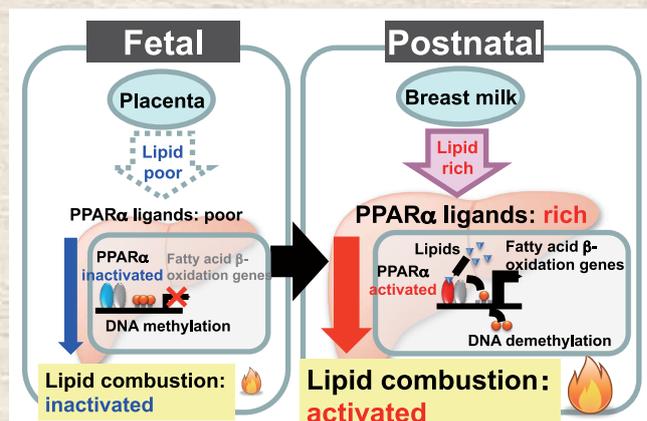


**Yoshihiro Ogawa**  
Professor,  
Molecular Endocrinology and Metabolism,  
Graduate School of  
Medical and Dental  
Science, TMDU

2015). Before birth, when glucose, a major source of energy during the fetal period, is provided via the cord blood, expression of all the fatty acid  $\beta$ -oxidation genes may be suppressed in a DNA methylation-dependent manner, which is partly because PPAR $\alpha$  ligands are unavailable. After birth, activation of hepatic PPAR $\alpha$  by milk lipid ligands may lead to the induction of the fatty acid  $\beta$ -oxidation pathway via a DNA demethylation mechanism. It is conceivable that during the postnatal period, milk lipids may serve as a nutrient signal as well as nutrients, so that they can be oxidized efficiently as an energy source (Fig. 2). Given that the DNA methylation status established in early life is relatively stable throughout life, our data support the concept that the nutritional status in early life affects the metabolic phenotypes in later life, thus providing clues to “preemptive medicine” for adult-onset metabolic diseases in early life in the form of formula milk and functional food for both babies and mothers.



**Fig. 1: Impact of the Nutritional Status in Early Life on Susceptibility to NCDs in Later Life**



**Fig. 2: Hepatic Fatty Acid  $\beta$ -oxidation Genes During the Fetal and Postnatal Liver**



## Cultivating Professionals with Knowledge and Humanity, thereby Contributing to People's Well-being

**TMDU IS LOCATED** in the Yushima/Shoheizaka area, which is considered the sacred birthplace of scholarship and learning in Japan. As a comprehensive medical university, TMDU cultivates “professionals with knowledge and humanity” who embark on a lifetime of service, advancing the health and social welfare of people in the local community and spreading their wings to do the same in other communities across the globe.

### Education

We foster independent, creative, pioneering, and internationally-minded leaders who have a broad range of knowledge, deep humanity, and a strong sense of ethics.

### Research

We seek to gather wisdom from every field of learning in order to advance interdisciplinary and cutting-edge research that will ultimately contribute to the greater public good.

### Medical Care

We provide high-quality medical and dental care that nurtures the heart, mind, and body, not only for the local community, but also for the world.

Guided by these basic principles, all TMDU students, faculty, staff, and alumni endeavor to serve the diverse communities in which they work and study.



Shoheizashi, Yushima Seido and Kanda River  
(Woodblock print showing the view nearly equivalent to the photo above)



## EDITORIAL SUMMARY

**WE ARE PLEASED** to send you Vol. 7 of TMDU Annual News, with highlights of TMDU's international activities and campus events for the 2014 academic year. In **Message from the President**, Yasuyuki Yoshizawa, who takes office from April 2014, talks about his aim to establish a consistent tradition by introducing TMDU's international activities in line with the school's mission of "Cultivating Professionals with Knowledge and Humanity." TMDU was selected in 2014 by the Ministry of Education, Culture, Sports, Science and Technology to receive **Support for the Creation of Top Global Universities** in 2014. Executives of the university held a round table to discuss the action plan and targets. This issue features the University's initiatives to develop global personnel as part of educational reform led by the newly established Education Integration Organization. For the Tokyo Olympics and Paralympics scheduled for 2020, TMDU has established the **Sports Science Organization** with the director of which newly appointed Prof. Koji Murofushi, a top athlete with a doctorate in physical education.

In addition, we have three reports from each of our three **International Collaboration Centers**, where TMDU faculty, staff, and students interact with international colleagues: the Ghana-TMDU Research Center at the Noguchi Memorial Institute for Medical Research in Ghana, reported by Prof. Nobuo Ohta; LACRC in Chile, reported by Prof. Tatsuyuki Kawano; and the Chulalongkorn University—TMDU Research and Collaboration Center in Thailand, reported by Prof. Yoko Kawaguchi. We also have two reports from the TMDU **International Exchange Center**. First, Prof. Yoshihiro Ogawa and Prof. David Cannell report on the 6th TMDU International Summer Program (ISP2014), which attracted 25 students who are keen to study at TMDU. Prof. Ikuko Morio report on the Workshop on Dental Education in Southeast Asia, at which representatives from 12 dental schools in this region discussed dental curricula and related subjects with each other and TMDU faculty and staff.

This issue also features nine growing **Reports on Study Abroad Programs** from TMDU students and three inspiring **Letters from Overseas Alumni** from graduates who tell us about their careers after graduation. Rounding out this issue of TMDU Annual News, you will find two **Press Releases**, in which Prof. Shigeomi Shimizu and Prof. Yoshihiro Ogawa report on recent research successes.

**THE EDITORIAL OFFICE** expresses many thanks to those who took special effort in preparing articles for this issue. If you have any suggestions or news to be included in the future issues of TMDU Annual News, please feel free to contact the Public Relations Division by e-mail ([kouhou.adm@tmd.ac.jp](mailto:kouhou.adm@tmd.ac.jp)).



*Open Windows Leading to the Global World*

*TMDU's activities are reported through the open windows to the world.*

*The window represents TMDU as the Global base for its speedy exchange of information.*

# TMDU

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