

NATIONAL UNIVERSITY CORPORATION

# TMDU

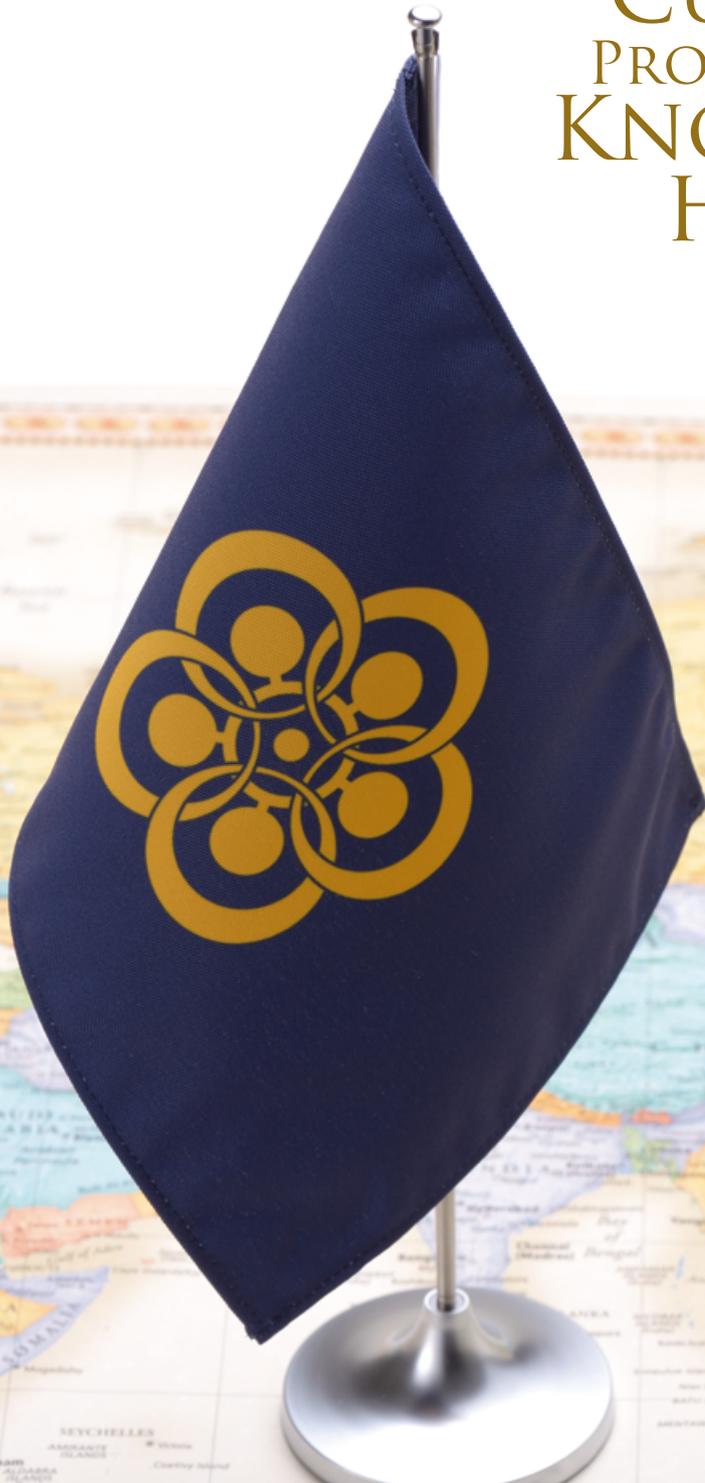
# ANNUAL NEWS



Tokyo Medical and Dental University

Vol. 6, March 2014

## CULTIVATING PROFESSIONALS WITH KNOWLEDGE AND HUMANITY





# Looking Back Over the History of the Past Six Years

NATIONAL UNIVERSITY CORPORATION

**TMDU** | ANNUAL NEWS 

Tokyo Medical and Dental University

Vol. 6, March 2014

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## MESSAGE FROM THE PRESIDENT

# Takashi Ohyama

President

al Trustee to the existing Research Trustee, Education Trustee, Medical Trustee, and Financial Trustee roles. The number of trustees at National University Corporations is fixed, so I eliminated the role of General Affairs Trustee. I wanted to choose somebody who is familiar with the workings of the university, so I replaced the extramural Trustees with staff from within the university.

With these Trustees in place, I established the Strategy Council and Implementation Council as a top-down fiduciary organization and as a means of gathering opinions from the bottom up. When an opinion is put forward concerning the direction proposed by the Board of Trustees, the representatives of each faculty get together in the Strategy Meeting to discuss it. Meanwhile, with the bottom-up approach, we made a mechanism where opinions from each faculty are passed up directly to a respective Strategy Meeting and so on, via the Trustees to the Board of Trustees.

Work such as admissions, information management, and academic-industrial cooperation is carried out directly below the President. Here I created the new post of Vice Presidents to oversee these projects. Under these Vice Presidents I established committees where various sorts of staff gather for discussion.

In my second year after taking office, I asked Professor Sei Sasaki who was then Trustee of Planning and International Exchange to propose the mission for the university. I edited the booklet *“Attitude and Knowledge of Health Care Providers, The Analects of Confucius,”* and I had lectured all the students on my philosophy. A person first qualifies as a medical practitioner when they combine knowledge and skill with a strong human sensibility. Professor Sasaki

Six years have passed since I was appointed the tenth President of Tokyo Medical and Dental University. At the time of my appointment, I was working on the preparations for the start of private office and I didn't imagine I would be made President. But it's my character to do something thoroughly if I end up doing it. My first task after taking office as President was sorting out governance. I placed particular emphasis on addressing top-down and bottom-up issues. As a general framework, I added the new role of Internation-



encapsulated this in the wonderful expression “Cultivating Professionals with Knowledge and Humanity.”

One of the things that I started as President was the Student Council. I started it because I like students, and I wanted an opportunity to engage with them directly. Although there are lots of highly capable students at the university, there are some who require “moral” education. I hope that in future they won’t become hubristic doctors who can’t understand the feelings of patients.

You can’t teach empathy. However, you can create learning opportunities. Nowadays, people often mistake the word “*toku*” in “*toku wo migake*” (polish your virtue) for another “*toku*” (profit), which sounds the same in Japanese. There’s also a proverb “Virtue is the master, ability the servant.” It means that virtue is the master of ability, and ability is nothing more than the servant of virtue.

## International Strategy

Before I took office as President, I regarded international strategy as a problem for the university. Consequently, over the last six years, I established the International Exchange Center for a start, and then set up overseas offices in Chile, Ghana, and Thailand and so on. The Chile office received no support from the government. Starting three years ago, we’ve been seconding people there for a personnel development project. This project has won praise as an achievement of the university. As project for the support of medical equipment and medical technology overseas, it recently became eligible for funding support from the Ministry of Economy, Trade and Industry, the Ministry of Education, Culture, Sports, Science and Technology (MEXT).

Furthermore the plan to establish a graduate school in Chile is making progress. It will be an educational center that draws people from countries all over Central and South America, like Chile, Ecuador, Paraguay and Brazil. This will be a six-year course, unlike the four-year system at Japanese graduate schools. In Japan you can become a leader by excelling in research alone, but in developing countries, you aren’t any help to the nation if you lack top class clinical abilities too. Consequently, we’re going to make it a graduate school where you can study both clinical practice and research at a high level. Students will spend two of those years at TMDU.

However, we still face many challenges with our

international strategy. TMDU currently ranks 260 among the world’s universities. Although we’re ranked eighth in Japan, further globalization is essential for us to meet our target of getting into the top 100 worldwide. Globalization can be considered from various perspectives, but the shortage of foreign academic staff is one of the weaknesses of the university. Of 1,400 graduate students, more than 200 are international students, so in this regard we’re very global. But with undergraduates, we believe our main goal should be to train doctors who can provide proper medical care in Japan, and so we don’t intend to increase the number of international students or conduct lessons in English. Even if students study medicine in English, they can’t do their clinical training with Japanese patients.

In terms of globalizing our academic staff, we’ll employ Chilean professors to teach the graduate school courses in Chile. Likewise, we’ll employ all local academic staff in our offices in Ghana and Bangkok, thereby increasing our roster of foreign professors by nearly 30 at one go. Of course it’s not just a question of numbers. We consider this a very important project for fostering medical professionals who will lead their countries.

Personally, I’ve actively pursued engagement overseas from the latter half of the 1980s, visiting most countries except for the Middle and Near East. Since I can speak a little Thai, I’ve volunteered at villages without dental services in Thailand for the last ten years or more. Even after becoming President, I take about a week off every year to go.

If you’re interested in this sort of volunteering, naturally you have to acquire some of local language. Heart-to-heart understanding can only happen in the local language. Some students are keen to volunteer in Chile and other Central and South American countries, so I want to start Spanish classes shortly.

## Education and Research

In terms of student education, we’ve begun the process of educational reform, starting interprofessional medical and dental education and partnering with Harvard University. Speed is important for educational reform. When you know that there’s a better way of education, taking several years for preparation before you implement it is disadvantageous to the future of students who are learning now. I’m very grateful to have the outstanding academic staff who made the first round of educational reform possible.

Interprofessional medical and dental education was one of our educational reforms, but considering today's healthcare, there's nothing surprising about it. Many new drugs have been developed in recent years, and the causes of various illnesses are being discovered. For example, massive amounts of data have been accumulated on illnesses arising from the sphere of dentistry, such as heart problems from periodontal disease and pneumonia from aspiration.

Conversely, if a patient receiving bisphosphonate drugs to treat cancer that has metastasized to bone loses a tooth, there's a danger of necrosis of the jaw. A patient taking the anticoagulant aspirin who has a tooth removed risks severe blood loss. In any case, when a doctor who is providing treatment introduces their patient to a dentist, they must pass on information about the drugs that have been prescribed. Dentists need to know the basics of medicine, and doctors need to know the basics of dentistry. That's why we think it's essential to implement interprofessional medical and dental education.

And as with education, there are a great many aspects of research that must be done "now." The university qualified for MEXT's program for promoting the enhancement of research universities in 2013.

We established the URA (University Research Administrator) Office, the Research Center for Medical and Dental Sciences, the Center for Experimental Animal, and the TMDU Bioresource Research Center. Since research changes according to the needs of society, it's necessary to allocate resources strategically to areas that are considered necessary if you can spot a trend. In this case we will allocate people, equipment and money as a priority. Furthermore space is also essential in undertaking research, and so we won't stint on funding here either. This is a resolution that must be taken at the top.

What's important is to take the first step quickly. You don't need to seek perfection in the first stage. First of all you establish a Center. Then if the Director of the Center finds highly capable colleagues who gradually build up the Center, that's good.

## Looking to the Future

I didn't expect to be appointed President, but if I don't pursue my duties with determination, there's no interest in it for me. Looking back, when I took office as President, I had all sorts of ideas. That I was able to implement them is surely because the job of President was more interesting than I expected.

Zeami is known for his line "Don't forget your original intention in youth." But he continues "Don't forget your intention at each moment," and "Don't forget your intention in your old age." In other words, don't persist in your first idea to the end. Instead, pay heed to your beginner's mind from moment to moment. Whatever ideas you have don't need to be perfect from the beginning. It's good enough if you can get over each problem that you encounter and grow the idea.

What I've learned in my six years as President is that the person at the top mustn't put forward ready-formed ideas. Leaving all the decision-making to others saying, "Have you got any thoughts about how we might go about this?" is a lazy way to manage things. But if you suggest a general framework for what you want to do, your capable colleagues will do the rest. TMDU has highly capable academic staff, so I can leave things to them with complete confidence.

The next President of the Medical and Dental University can make of it what he wants. I think today's TMDU has a different character from the time of Akio Suzuki, the previous President. But my ideal university doesn't have a fixed mold. I believe that if we read the trends of the time and combine the wisdom of my outstanding colleagues with bold decisions from the top, the university will make progress. I want us to keep moving all the time. If we keep moving ahead, things are sure to change for the better. I look forward to seeing the ongoing progress of TMDU.



A handwritten signature in black ink that reads "Takashi Ohyama".

Takashi Ohyama, President

## Yasuyuki Yoshizawa

# Aiming to Establish a Consistent Tradition I Want to Work with the University as a Whole

**IT WAS 45** years ago that I graduated from the Tokyo Medical and Dental University Faculty of Medicine. As a specialist in pulmonary medicine, I have worked in clinical medicine, research and education, and now I have been appointed the new president of TMDU. My principle task as president is to complete the second medium term plan undertaken by the previous president, Takashi Ohyama. Then, I will be formulating the third medium term targets and plan.

TMDU has the wonderful mission of “Cultivating Professionals with Knowledge and Humanity,” established during President Ohyama’s time. Here, knowledge includes learning, technology, and identity, while humanity means culture, sensitivity, and communication ability that accepts diversity. We will aim to deploy these professionals domestically and globally, to become a world-leading integrated

medical university.

I hope that the faculty and staff who share this mission will feel a strong sense of affiliation with TMDU, which will motivate everyone to realize our ideal. To achieve this, the university executive will provide overall management of our human and material resources, and ensure that we have the best hardware. In addition, we will establish a project planning office and a joint strategy council under the president, and we will strengthen governance so that each organization will be able to make proactive planning proposals for the development of TMDU.

The Faculty of Medicine was founded 69 years ago, and I believe it is necessary for us to establish consistent traditions for clinical medicine, basic research, education, regional healthcare, and international contribution. The Faculty of Dentistry has a tradition going back to its founding 85 years ago. In order to break out of the deadlock that dentistry faces, I want to expand the field of activity of dentists by establishing dental departments in affiliated hospitals, among other initiatives.

I will address individual issues including establishing personnel development and strategic research systems, internationalization and so on in accordance with this basic approach. In terms of personnel development, I want to foster medical professionals who can give advice as specialists while understanding distress of their patients. Consequently, education at the university will shift from giving students problems to solve, to fostering the ability to discover problems and find the means to solve them.





I intend to start discussions towards a more flexible educational system that will permit switching courses between the faculties of Medicine and Dentistry, as well as exchanges and transfers between the Four-University Alliance of TMDU, Tokyo University of Foreign Studies, Tokyo Institute of Technology, and Hitotsubashi University. There may be regulatory issues and so on that make this difficult to achieve in fact, but I want to pursue this actively to expand the opportunities for study and to improve personnel mobility.

To improve the strategic research system, it will be necessary to strengthen cooperation between the medical, dental and engineering departments, and to work towards implementation of the Research University Development Office with the future merger of the TMDU Research Organization and the URA Office established under MEXT's program for promoting the enhancement of research universities.

In pursuit of safe and reliable healthcare, we will further enhance the ongoing coordination between the Medical and Dental Hospitals. In order to achieve comprehensive healthcare, we will establish Clinics for General Medicine and strengthen cooperation between the clinics.

From the time of President Ohyama, TMDU has actively sought to make international contributions. In addition to the joint degree offered in Chile, we are pursuing a range of activities at our overseas offices in Thailand and Ghana. Currently the Faculty of Dentistry is taking the lead, but the Faculty of Medicine must also pursue international contribu-

tions through more active personnel development overseas. Besides our overseas offices, TMDU also plans to export its medical and dental educational curriculum to Southeast Asia and South America.

However, I am also aware of the importance of contributing to regional healthcare. We are now conducting personnel exchanges with affiliated hospitals and enhancing hospital-clinic cooperation while preparing the cooperative organization utilizing ICT by networking with clinics in the Ochanomizu area. The unfortunate reality is that private clinicians around TMDU still see it as a university that specializes in research and education.

We will also establish a working group for the 2020 Tokyo Olympics and Paralympics. From care of top athletes with our unique Hyperbaric Medical Center and Sports Medicine and Dentistry and expanded ER in response to terrorist threats, to our foreign language support for care of foreign tourists and IOC members in cooperation with other universities, we will consider how we can play an active role based on TMDU's strengths.

Besides these plans, there are many issues that must be addressed with greater urgency including improvement of incentives and working conditions for faculty and staff, and professional development for medical staff other than doctors. We will meet each of these requirements in accordance with the mission of TMDU.

Since I became president, I have decided to work in the spirit of my mottos, "Do your best to be a positive thinker," and "If you know yourself, you can not be wicked."

## The Program for Promoting the Enhancement of Research Universities

# To Be a Leading Research University in the World

MEXT established the program for promoting the enhancement of research universities with the aim of improving the research capabilities of universities and research institutions. TMDU was selected as one of 22 universities and institutions in FY2013.

**Ikuo Morita**

Vice President (Trustee (Research))

**WHEN THE UNIVERSITY** was selected as a leading research university (RU), a number of activities of our university has been scored including the ability to obtain research grants, the number of citations in research papers, achievements in academic-industrial cooperation and other indices. The score was also assigned to a hearing. In this way, TMDU was selected as a leading research university, based on a visualization of its capabilities, with a focus on improving its international competitiveness. Japanese Government support three hundred million yen per year will be provided for ten years, with the securing and utilizing of research support personnel such as URAs (University Research Administrators) as a precondition. The aim of this program is to provide a research environment that achieves higher level outcomes by employing RAs who will handle research strategy, intellectual property management and so on, so that researchers can focus on their research.

TMDU holds first place in Asia in terms of citation rates per paper, and the eighth place in Japan in university ranking. Furthermore, in terms of RU projects with a particular emphasis on internationalization, TMDU has international exchange agreements with 78 universities in 28 countries with a focus on Thailand, Ghana and Chile, in which overseas offices and research center have been set up. Through joint research, clinical training and so on, the university is undertaking personnel exchanges and training. Based on this strength, TMDU has established a university-wide Research University Development Office under the direction of President Ohyama to further enhance our research capabilities. The office is working to improve the university's research environment and to reorganize its research system.

TMDU's initiative to enhance its research involves five areas; obtaining superior personnel, improving the research environment, strengthening governance, promoting aca-

demical-industrial cooperation, and establishing a URA Office. In order to obtain superior personnel, the university is establishing an environment that can attract highly capable young researchers by adopting an international recruitment tenure track system and by offering new graduate school courses and so on. To improve the research environment, the university aims to create a better working environment by developing our Research Center, and by introducing work sharing for female researchers and staff who are facing to their life events. To strengthen governance, the university will enable speedy reform including expanding the annual salary system and revising the personnel regulations, as well as establishing new fields and centers and augmenting staff at the President's discretion. Considerable improvements have already been achieved through the establishment of inter-professional medical and dental education and reorganization of the graduate schools, but the policy of the university is to focus on strengthening its research capability and flexible working circumstances. In pursuit of academic-industrial cooperation, the university is accepting special graduate research students from private enterprise, establishing new academic-industrial cooperation accounts, formulating and implementing medical COI (conflict of interest) management guidelines, and introducing evaluation indices for academic-industrial cooperation. TMDU is further developing its existing Industry Alliance Division, and is considering establishing an Innovation Promotion Agency to support the international commercialization of the university's germinal research in advanced medical care, medicines, and medical equipment in a streamlined manner.

The URA Office is the agency tasked with cross-organizational support for these four initiatives. The TMDU-URA Office implemented as part of this project comprises three divisions, (1) the Research Expenses Acquisition Branch,

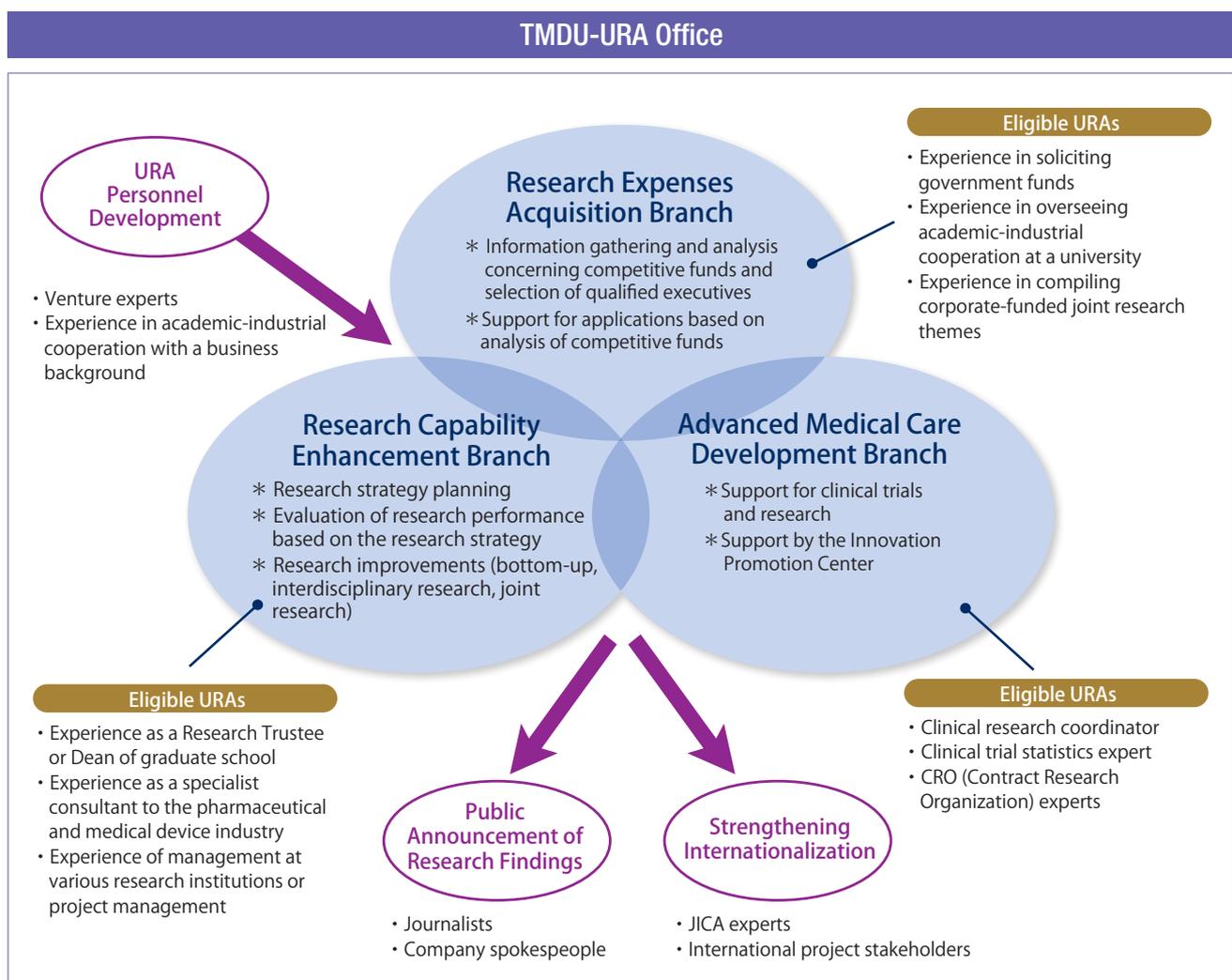
(2) the Research Capability Enhancement Branch, and (3) the Advanced Medicine Development Branch. The office will be staffed by specialists in each field who will support research activities. After five years, the URA Office and TMDU Research Organization will be merged, with the aim of further reducing the distance between research and academia-alliance.

These five initiatives will not be pursued piecemeal. By undertaking them simultaneously, the university will generate a high degree of synergy, and the initiatives are expected to further strengthen TMDU's research capability. Besides reinforcing the university's strengths, this project must also aim to overcome our weaknesses. For example, TMDU had issues with insufficient management staff to handle the procurement and management of research funds and to manage and leverage its intellectual property. Therefore URAs, with their business mindset, will support research management from acquisition of research funds to commercialization of germinal research.

Furthermore, the Public Relations Office was reorganized as the Public Relations Division in April 2013 in order to raise the profile of TMDU. It will strengthen the university's external communications in Japan and overseas to improve the visibility of TMDU, commensurate with its highly acclaimed research outcomes. To implement the program for promoting the enhancement of research universities, communication between faculty and staff across the university and a shared understanding of the issues are necessary. It is also important for all the faculty and staff members to be aware of the benefits for them of improved research capabilities.

Some may think that strengthening research capabilities supports not only basic research fields, but also clinical research ones. In the case of clinician-led studies, research center for Medical and Dental Sciences can help with measurements. This will reduce the burden on clinicians. We could also raise the education level by understanding the RU project.

## The Activities and Personnel of the URA Office



# 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 between Africa and Japan.

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

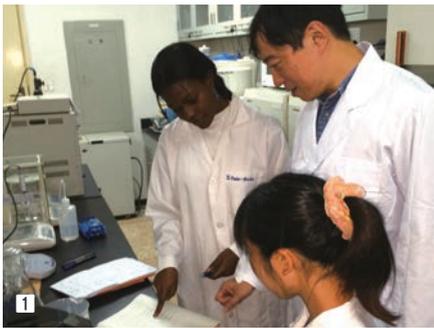


Our counterpart in Ghana is the Noguchi Memorial Institute for Medical Research (NMIMR). Using the MEXT scheme, TMDU founded its International Collaboration Center at NMIMR in 2008. Since then, two researchers, Professors Eiji Ido and Takashi Suzuki, have been dispatched to the collaboration center at NMIMR, to implement research and to promote the exchange of students and researchers between TMDU and NMIMR. 2013 was the penultimate year of the five-year J-GRID program, and activities were focused on laying the foundation for the next stage of J-GRID. All the researchers involved made every effort to expand the collaboration. Professor Kwadwo A. Koram, Director of NMIMR, was appointed Visiting Professor at TMDU to promote a tighter partnership between the two institutions. Based on the achievements of the past few years, the members are looking forward to future collaborative research.

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 two 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. In 2013, TMDU started official support by covering part of the living costs of Japanese students in Ghana, enabling them to focus on their research in tropical diseases. The Japanese Association in Ghana is also expected to strengthen its research collaboration between Ghana and Japan. Ohayo Ghana Foundation, a Japanese NGO, is also working to support our medical students in Ghana. This encourages the Japanese students to pursue more intensive exchanges with Ghanaian researchers and students.

On the other hand, encouraging young Ghanaian researchers is another obligation of our exchange. Based on the agreement, TMDU has invited young researchers of 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.

The TMDU students who went to Ghana were so impressed by their experiences that they planned to introduce Ghanaian foods at the 2013 Ochanomizusai Student Festival where they set up a Ghana kitchen. For their efforts at the festival, they won the President's Award.

### Kind Support from the Governments of Ghana and Japan

Our project in Ghana is now well known in both the Embassies of Ghana and Japan. It is expected to continue as an on-going project for collaborative research, and education and training. At the Ghanaian Embassy in Japan, the TMDU students visited the Ghanaian Ambassador before going to

Ghana. In October 2013, students visited the Embassy and met Mr. Edmond Kofi Deh, the Ambassador to Japan. He expressed his pleasure that we would be going to Ghana, and kindly wished us well in strengthening the collaboration between Ghana and Japan.

The support from the Embassy of Japan in Ghana is very encouraging. Our project is not a governmental activity, but the Japanese Embassy understands the importance of research exchanges between Ghana and Japan. The TMDU team is glad to have the kind support of the Japanese Embassy in arranging various diplomatic matters, which is essential in enabling us to carry out international exchange. For the students from TMDU, it is a good opportunity to experience medical care in a developing country like Ghana. They come to understand what needs to be improved, but they also gain an understanding of important matters that should be observed even in a developed country like Japan. The medical officer at the Embassy is always supportive of the TMDU students in Ghana.

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 TMDU staff visit Vice Chancellor, Professor Aryeetey, to discuss further collaboration between TMDU and the University of Ghana.
- ③ TMDU students visit Professor Koram, Director of NMIMR.

TMDU students visit the Ambassador of Ghana to Japan.



# Toward Implementation of a National Cancer Screening Program in Latin America and Joint Degree Courses with the University of Chile

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

**Yoshinobu Eishi**  
MD, PhD  
Professor, Human  
Pathology, TMDU

## LACRC Activities in 2013

The Latin America Collaborative Research Center (LACRC), located within Clinica Las Condes (CLC) in Santiago, Chile, is operated by three TMDU doctors, Hiroshi Kawachi (pathologist, in Chile since March 2012), Maki Kobayashi (molecular biologist, since July 2012), and Takuya Okada (endoscopist, since April 2013). They will be joined by two other medical doctors, Masahiro Tsubaki (colorectal surgeon, from October 2014) and Tomoyuki Odagaki (endoscopist, from November 2014). LACRC is a center for supporting implementation of the national colorectal cancer screening program, not only in Chile but also in other Latin American countries such as Ecuador, Paraguay, and Brazil. LACRC is also a TMDU overseas activity center for research and education, and it will be developed into an overseas graduate school of TMDU. As such it will offer joint degree courses with the University of Chile for young Latin American doctors who will lead the gastrointestinal cancer prevention program in their respective countries. The Japanese community in Chile has given generous assistance to the LACRC staff in their daily life.

## Projects in Chile

The pilot project for colorectal cancer screening has expanded from Santiago to other cities in Chile, including Punta Arenas (since May 2012),

Valparaiso (since June 2012), La Serena (since March 2014), Antofagasta (since April 2014), and Osorno (since March 2014). This rapid expansion of the screening program in Chile has been possible not only due to the efforts of CLC and LACRC, but also thanks to support from the Chilean Ministry of Health. Through the strong leadership of the Minister, Dr. Jaime Mañalich, colorectal cancer has recently been designated as one of the diseases targeted by the governmental health promotion strategy. Consequently, screening, diagnosis, and treatment are fully covered by national medical insurance. The screening project is now gaining popularity among Chileans thanks to the efforts of the media (Fig. 1). In August 2013, the TMDU mission headed by President Ohyama attended the opening ceremonies of new endoscopy centers for implementation of the screening project in Hospital Dr. Eduardo Pereira, Valparaíso, and Hospital Base San José de Osorno (Fig. 2). He also signed an agreement for collaboration between TMDU and the University Austral of Chile in research and education.

The Chilean-Japanese Institute for Digestive Diseases located in National Hospital Clínico San Borja Arriaran in Santiago is working as a training center for the screening project. The Institute's endoscopy unit was renewed for the project, and training activities started with induction of the first Chilean trainee, Dr. Pamela Briones, from Hospital Sótero del Río, in October 2013 (Fig. 3). She successfully completed the three-month training course and was awarded a certificate from TMDU and Ministry of Health of Chile, which allows her to participate in the relevant colorectal cancer screening program held in her home city.

## Projects in Ecuador and Paraguay

In Ecuador, a colorectal cancer screening project started from January 2012 at National Hospital Pablo Arturo Suarez, with the support of TMDU and JICA. The TMDU mission headed by Presi-



1 Interview by a CNN reporter about the colorectal cancer screening project in Chile.



dent Ohyama visited Quito for a one-day TMDU conference on digestive diseases in August 2013. LACRC doctors in Chile visited Quito in February, April, June, August, and October 2013 to provide knowledge and practical training for the screening. The president of Ecuador, Mr. Rafael Correa, acknowledged TMDU and offered encouragement for its activities in Ecuador when President Ohyama met him by chance at a resort hotel during Sunday recreation time (Fig. 4). TMDU and CLC also agreed to support a colorectal cancer screening project in Paraguay, in response to a request last year from the president of Paraguay, Dr. Federico Franco. Dr. Kawachi from TMDU and Dr. Francisco Lopez from CLC attended a signing ceremony for the agreement in Asunción on June 6, 2013.

### METI Project for Brazil

The Japanese Ministry of Economy, Trade, and Industry (METI) has recently encouraged TMDU to proceed with its activities in Latin America for distributing knowledge and techniques using Japanese medical products, especially in Brazil considering the size of its population. In July 2013, supported by a METI grant, TMDU formed a consortium with Fujifilm Corporation (endoscopes) and Eiken Chemical Co., Ltd (immunological fecal occult blood tests) to implement the METI

project. The METI project will provide a “Japanese flag” for TMDU activities in Brazil. The first mission of the consortium visited São Paulo in October 2013, and agreed to collaborate with three major hospitals including the University of São Paulo. Doctors and nurse coordinators were invited to CLC in September 2013 and January 2014 to receive guidance and training for a pilot study of colorectal cancer screening in each hospital.

### Joint Degree Courses

When the TMDU mission visited the University of Chile in August 2013, President Ohyama presented his concept and ideas for joint degree courses between the two universities supported by CLC. The concept for the joint degree course basically follows the strategy of the Japanese government for promoting globalization of Japanese universities. Representatives from the University of Chile agreed with the concept, and they proposed forming a working group from both sides to discuss and prepare in more detail, including the curriculum. According to this agreement, three members of a mission from Chile visited TMDU in November 2013 to propose a basic structure for the joint degree courses and further collaborations in a post graduate nurse training program and a lung cancer screening project for copper miners in Chile (Fig. 5).

② Interview with President Ohyama by a domestic television reporter about the project.

③ Colonoscopy training by Dr. Okada at the Chilean-Japanese Institute, Santiago.

④ Chance meeting of President Ohyama with the President of Ecuador.

⑤ Meeting for joint degree courses between TMDU and the University of Chile.



# Expanding the Medical and Dental Network in Southeast Asia and Japan

CU-TMDU Research and Education Collaboration Center, Thailand

Yoko Kawaguchi

DDS, PhD  
Professor, Oral Health  
Promotion, TMDU

## Providing Information about TMDU

TMDU was an exhibitor at the 2nd IADR-APR in Bangkok, Thailand, which was held on August 21-23, 2013. Our purpose was to provide information about TMDU and our graduate school (Dentistry) to prospective PhD candidates. We displayed a TMDU academic gown at our booth and provided pamphlets and advice to interested students. TMDU alumni also visited our booth to say “Hello” and it became the designated spot for alumni to meet up and have a reunion.

## Student Exchange Programs between CU and TMDU

In 2013, two medical and ten dental undergraduate students and three postgraduate students from CU visited TMDU, and took part in medical/dental training programs. From TMDU, three fourth-year medical students spent five months in CU during their project semester. Fourteen

fourth-year dental students (Schools of Dentistry and Oral Health Care Sciences) also spent two weeks in CU. The TMDU students engaged in basic research, attended the English class, observed the CU university hospital and private clinics, and experienced community health care activities in Thailand. They also enjoyed discussions with Thai Faculty staff and students, and reported that the program increased their interests in international exchange, as well as improving their English skills, presentation skills, and medical/dental knowledge.

These student exchange programs were financially supported by the Re-inventing Japan Project, scholarships from JASSO (Japan Student Service Organization), Lion Futokukai and TMDU funds. We expect that the exchange programs for young students will contribute to an expanded medical and dental network in Southeast Asia and Japan in the future.

## Global Retreat in the Rayong District

Forty-eight students and staff from CU and TMDU participated in a stay-over Global Retreat in the Rayong district, Thailand. Programs included group discussion, a presentation about the ideal dental curriculum, a special lecture in English, and cultural exchanges. In this retreat, students were encouraged to express their opinions in English.

For the cultural evening, the TMDU students held a Japanese tea ceremony and *Bon odori* dance wearing the traditional *yukata* costumes. They invited Dr. Suchit Poolthong (Dean, Faculty of dentistry, CU) and Dr. Prim Auychai (Associate Dean, Faculty of Dentistry, CU) to the ceremony with the spirit of “*o-mo-te-na-shi*.” The Thai students performed a traditional Thai dance. All the students enjoyed this global retreat and deepened mutual understanding and friendship.

TMDU exhibition booth at IADR-APR.





## Dental Seminar and Consultation for Japanese Residents

The second Dental Seminar and Consultation was held for the students of the Thai Japanese Association School in Bangkok and their parents or guardians, on September 8, 2013. It was managed by the CU-TMDU Center and TMDU International Exchange Center, with support from the Thai Japanese Association School and Japan Dental Alumni of Thailand (JDAT).

In the seminars, nine TMDU dental faculty staff gave lectures and offered individual dental consultations. Each consultation was carried out by a two-person team, consisting of a member from the TMDU Faculty of Dentistry and a Japanese-speaking Thai dentist (JDAT member) with the same specialty. They provided up-to-date information and advice on treatment in Japan and Thailand. Continuing these kinds of activities and expanding the amount of information available to Japanese living in Thailand must be important for future dentistry.

## Oral Health Education for Pre-School Children at a Kindergarten

On September 9, 2013, TMDU dental students went to Bangkok to participate in an overseas



TMDU students prepared oral health education materials for pre-school children.

exchange program, gave instructions pre-school children (3-5 years old) at Rainbow Kindergarten on how to brush their teeth and maintain oral hygiene.

Many children of Japanese expats in Thailand attend the kindergarten, and this was the second time to hold this project. The TMDU students broke into teams to give instructions on the importance of tooth-brushing, good nutrition and hand washing to each age group.

They also provided toothbrushes from Japan to each child, along with posters illustrating proper tooth brushing techniques and a tooth-brushing calendar that the students made by themselves. These are the health support activities offered by the CU-TMDU Center for Japanese residents in Thailand.

- ① Students who participated in the dental training program.
- ② Oral presentation at the global retreat.
- ③ The TMDU staff and JDAT members who participated in the dental seminar and consultation project.

## The Second Dental Seminar and Consultation

1. Dr. Zusei Kanno (Orthodontics)  
"Learn about teeth alignment - orthodontic treatment for children in a growth period -"
2. Dr. Haruko Fujita (Pediatric Dentistry)  
"How to prevent dental caries? When are deciduous teeth replaced by permanent teeth?"
3. Dr. Tomonari Suda (Periodontics)  
"Periodontal diseases and treatments - maintaining your gums healthy -"
4. Dr. Shinji Kuroda (Dental Implant Clinic)  
"Dental implant prostheses - artificial teeth alternative to the missing teeth -"
5. Dr. Norihisa Higashihori (Orthodontics)  
"Learn about teeth alignment - orthodontic treatment for children in a growth period -"
6. Dr. Yoshiaki Ono (Pediatric Dentistry)  
"How to prepare your children to cooperate well in a dental visit"
7. Dr. Yasuyuki Michi (Maxillofacial Surgery)  
"Why wisdom teeth should be extracted?"
8. Dr. Naoko Seki (Operative Dentistry)  
"Tooth Whitening"
9. Dr. Yuji Fukui (Prosthodontics)  
"Bruxism, metal - free dental treatment"

# 5<sup>th</sup> TMDU International Summer Program (ISP2013) Report and Announcement of ISP2014

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.

## Kazuo Takakuda

Professor, Director of  
the Medical and Dental Device  
Technology Incubation Center

## Kevin Cleary

Professor,  
International Exchange Center,  
TMDU

AS OF MAY 1, 2013, there were 206 international students studying at TMDU, 19 of whom are ISP alumni. With the increasing influence of the ISP Special Selection program, which was introduced as part of ISP2012, we look forward to ISP and the alumni of the program enjoying even deeper integration with our graduate schools and the TMDU community as a whole.

In late 2012, a working group to organize the fifth TMDU International Summer Program, ISP2013, was convened under the leadership of Prof. Kikuo Ohno, the Trustee of the Planning/International Exchange. Prof. Kazuo Takakuda of the Institute of Biomaterials and Bioengineering was chosen to chair the ISP2013 Working Group. This included representatives from several departments, especially those involved with biomaterials, in either basic science or clinical applications.

The faculty and staff of the International Exchange Center also participated actively in the planning of ISP2013. As one of its first orders of business, the working group set the theme of the program, Biomaterials: From the Laboratory to the Clinic, and invited leading researchers such as Professor Dennis Discher, of the University of Pennsylvania, and Professor Karl-Heinz Kunzel-

mann, of the University of Munich, to speak at ISP2013.

As with previous ISPs, ISP2013 featured a two-day Lecture Course, a Poster Session and an International Symposium. ISP2013 also marked the second year for the ISP Special Selection, which allowed participants to take an examination to enter a PhD program at TMDU, and be considered for a full scholarship on admission.

ISP2013 attracted 75 applications from 17 countries in all. Of these, 25 applicants were selected, representing 16 countries, namely Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Korea, Laos, Malaysia, Myanmar, Nepal, Pakistan, Singapore, Taiwan, Thailand, and Vietnam.

ISP2013 was held from 26 to 29 August 2013. Along with Professors Discher and Kunzelmann, featured speakers at ISP2013 included Professor Masaya Nakamura from Keio University, and several of the TMDU-based researchers who are conducting leading-edge research in the field; Prof. Takao Hanawa, Prof. Shohei Kasugai, Prof. Kenji Kawashima, Prof. Akio Kishida, Prof. Akiko Nagai, Prof. Atsushi Okawa, Prof. Alireza Sadr, Prof. Kazuo Takakuda, Prof. Atsushi Tamura, and Prof. Kenji Yasuda. The Poster Session

Tokyo Medical and Dental University

## 6<sup>th</sup> International Summer Program (ISP2014)

August 25<sup>th</sup> - 28<sup>th</sup> at the TMDU campus, Tokyo, Japan

### Ageing and Metabolism

Bringing together students and young scientists from Asia to study with leading international researchers in the field

We will provide support to selected students and young scientists from Asia to attend ISP2014 (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/TMDU-e/isc/isp2014>

Aug. 26 - 27 (Tue & Wed)  
Lecture Course

Aug. 28 (Thu)  
ISP Symposium



Prof. Takakuda at the Social Hour party.



was facilitated by Prof. Akinori Kimura, Prof. Takamitsu Hosoya, and Prof. Mutsumi Okazaki. See the ISP2013 website for full details of the schedule and presentations.

The participants of ISP2013 enjoyed meeting the researchers of TMDU, attending the various social functions, touring the Institute of Biomaterials and Bioengineering, visiting other labs on campus, and getting to know other invitees and presenters, as well as 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 ISP2013 invitees Iris Liew Ee Jiun (Malaysia) and Navdeep Bhusri (India), and fourth year PhD student Turki Bakhsh (Saudi Arabia), of the Cariology and Operative Dentistry Department at TMDU.

At the Social Hour, which was held on the third evening of ISP2013, the TMDU faculty and students and guest participants and speakers gathered at the Faculty Lounge on the top floor of M&D Tower. After President Ohyama 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, including comic skits by the Kyogen Club, and a dance performance by the Japanese Traditional Dance Cir-

cle. Everyone enjoyed a night of talking, eating and snapping pictures. The next day was reserved for the ISP Symposium, where the lecturers shared their current research and answered many questions from the invitees, graduate students, and professors in attendance.

The day after ISP2013 concluded, the Special Selection participants took an entrance exam for the TMDU Graduate School. Three of these participants plan to enter TMDU from 2014 if they pass the exam and are eligible to be chosen to receive a full scholarship to support their PhD studies.

The sixth annual ISP, ISP2014, will be held from 25 to 28 August 2014, with the theme Ageing and Metabolism. The planning for ISP2014 will be led by Prof. Kikuo Ohno, the Trustee for Planning/International Exchange, and Prof. Yoshihiro Ogawa, Professor of Molecular Endocrinology and Metabolism, Graduate School of Medical and Dental Sciences, who will chair the ISP2014 Working Group.

As the detailed plans for ISP2014 are finalized, the information will be posted on the International Exchange Center website. The IEC website also has full information on the first five ISPs, which helps students and young researchers across Asia learn more about this increasingly popular international outreach program.

① A participant from India giving his presentation at the ISP 2013 Poster Session.

② Participants visiting Prof. Kawashima's laboratory on the tour of the Institute of Biomaterials and Bioengineering.

③ Participants listening to the lecture.

#### ISP2013 Working Group

Prof. Kazuo Takakuda (Chair), Prof. Takamitsu Hosoya, Prof. Hajime Karasuyama, Prof. Akinori Kimura, Prof. Akio Kishida, Prof. Ikuko Morio, Prof. Masaki Noda, Prof. Atsushi Okawa, Prof. Mutsumi Okazaki, Prof. Junji Tagami, and Prof. Motohiro Uo.

Observers: Assoc. Prof. Kevin Cleary, Assoc. Prof. Matazo Iztani, Assoc. Prof. Koji Masuda, Assoc. Prof. Yoko Okita, Prof. Katsuji Onoda, and Prof. Takeshi Yoshida.

ISP2013 speakers and invited participants at the Social Hour party on Wednesday evening.



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

The Faculty of Dentistry at TMDU has concluded academic exchange agreements with 39 overseas dental schools, of which 30 are in Asia. The first academic exchange agreement was with Chulalongkorn University in Thailand on January 18, 1991. Since that time, academic exchange agreements have been concluded between the TMDU Faculty of Dentistry and 15 dental schools in eight Southeast Asian countries.

**Ikuko Morio**

DDS, PhD  
Director, International Exchange Center, TMDU

**Yuji Fukui**

DDS, PhD  
Junior Associate Professor, International Exchange Center, TMDU

**THE MAIN PURPOSES** of the Project for Promoting Medical and Dental Education & 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/medical information to Japanese nationals living in Southeast Asia.

A special event, “Development of Dental Education in Asia -Workshop and Exchange-” was held at TMDU from November 5 to 7, 2012. The

Workshop and Exchange seminar was held because it was understood that sharing information and holding discussions among the affiliated universities in Southeast Asia is very important for achieving the first purpose above. Although there have been active exchanges of students, staff, and information with affiliated universities on an individual basis, this workshop marked the first time for TMDU to invite such a sizable group of deans and associate deans for academic or international affairs to Tokyo for a meeting at one time.

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

In Japan, discussion of new accreditation systems for dental and medical education has recently begun. As is clear from the fact that TMDU has constantly updated its curriculum to meet its responsibility to provide the best undergraduate education at all times, it goes without saying that TMDU has also paid close attention to global trends in systems for assuring the quality of dental education.

Against this background, TMDU invited 27 deans or associate deans for academic affairs from affiliated universities and three specialists from the ASEAN community to the symposium on October 29, 2013 to talk about standardization of higher education, mutual recognition of dental licenses, and providing dental education in English.

After the symposium, the participants moved to Tsukuba City to visit the Tsukuba Research

## Program of the Symposium

MC: Professor Kevin Cleary  
(International Exchange Center, TMDU)

Opening remarks: Professor Junji Tagami  
(Dean, Faculty of Dentistry; Vice Dean, Graduate School of Medical and Dental Sciences; Professor and Chairperson, Cariology and Operative Dentistry)

### Keynote Presentation 1

“Journey of AUN-QA to ASEAN Credit Transfer System for Fostering Student Mobility”

Dr. Nantana Gajasen  
(Executive Director, ASEAN University Network (AUN), Assoc. Prof., Biology Department, Faculty of Science, Chulalongkorn University, Thailand)

### Keynote Presentation 2

“Mutual Recognition Agreement (MRA) for Dental Practitioners”

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

### Keynote Presentation 3

“Dental Education in English in the ASEAN Community”

Dr. Melinda Lopez-Garcia  
(Professional Regulation Commission Member, Philippine Board of Dentistry, Philippines)

Closing remarks: Professor Hideaki Suda  
(Trustee / Vice President, Education; Professor and Chairperson, Pulp Biology and Endodontics)



President Ohyama and participants of the Development of Dental Education in Asia 2013 -Symposium and Exchange-



- ① Lecture at JAXA.
- ② Demonstration at Tsukuba Research Laboratory of Tokuyama Corporation.

Laboratory of Tokuyama Corporation and the Tsukuba Space Center of the Japan Aerospace Exploration Agency (JAXA) from October 30 to 31. At JAXA, Dr. Chiaki Mukai, the first Japa-

nese female astronaut, gave a welcome address, and Dr. Takashi Zaitzu, a TMDU alumnus, gave the group a special lecture about the importance and necessity of space dentistry.

## The 3<sup>rd</sup> Tri-University Consortium on Oral Science and Education

**THE FACULTY OF DENTISTRY, TMDU**, the Faculty of Dentistry, Chulalongkorn University, and the School of Stomatology, Peking University concluded a Tri-University Consortium agreement in 2010 to promote the following programs: (1) Joint conference on oral sciences and education, (2) Exchange of research outcomes, academic publications and other academic information, (3) Exchange of faculty members, (4) Exchange of students, (5) Other academic and educational exchange programs.

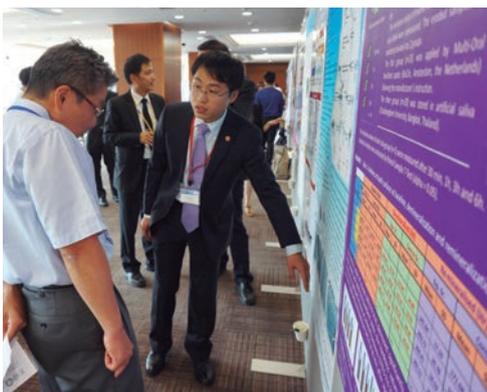
We have had annual meetings from 2011 to realize our mission. The 1st and 2nd consortiums



Opening session of the 3<sup>rd</sup> Tri-University Consortium on Oral Science and Education.

were held in Bangkok and Beijing, respectively and the 3rd Tri-University Consortium on Oral Science and Education was held on November 6 and 7, 2013 at TMDU. Following the Opening Remarks by Professor Junji Tagami (Dean, Faculty of Dentistry, TMDU), dean's reports, keynote presentations, and other presentations on current researches were given from each institute. About 100 faculty members and young researchers have attended at the Consortium and exchanged a great deal of information and many opinions regarding current dental research.

The three schools agreed to renew the agreement to start another three years for further cooperation and exchange.



Poster session.

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

## Water and salt link Japan and Taiwan



Sung-Sen Yang  
National Defense Medical Center  
from Taiwan



IN MARCH 2001, I was a tourist in Tokyo walking along the Kanda River when I had my first look at TMDU. Two weeks later, Prof. Sei Sasaki, a world-famous physician-scientist from TMDU, was invited to give a state-of-the-art lecture entitled Water and Salt Homeostasis at the National Defense Medical Center (NDMC) in Taipei, Taiwan, where I was a nephrology fellow at the Tri-Service General Hospital (TSGH). I was awe-struck by his research and scientific team. After the talk, I mustered up the courage to inquire about studying for a PhD at TMDU. From that moment on, my life has been tightly intertwined with TMDU and Prof. Sasaki.

After completing my nephrology fellowship, I was offered a scholarship to join the PhD program at TMDU with letters of strong recommendation from Profs. Sasaki and Shih-Hua Lin, my mentor at NDMC. I was assigned to work with Prof. Shinichi Uchida in the Department of Nephrology. In his lab, all members, including Drs. Rai, Yamachi, Suzuki, Shohara, and Ms. Goto, taught me not only bench techniques but also Japanese language and culture.

In my second year at TMDU, my wife and son joined me in Tokyo. To accommodate my whole family, I moved from Ichikawa City to the Tokyo International Exchange Center (TIEC) at Odaiba



Prof. Sei Sasaki's first visit to NDMC in 2001.

with the help of a Monbusho scholarship. Surrounded by the love and support of my colleagues and family, I was able to immerse myself totally in research, which began to yield interesting results.

In the third year of my graduate study, I successfully created the first WNK4 disease-mutant knock-in mouse model, which enabled me to decipher the underlying pathogenesis of pseudohypoaldosteronism type II (PHAII), an inherited familial hypertensive hyperkalemic disorder. The results were very encouraging and were successfully published in Cell Metabolism in 2007.

My hard work finally paid off, and not surprisingly, I passed the thesis defense and received my PhD degree from TMDU in 2007.

After successfully defending my thesis and receiving my PhD from TMDU in 2007, I returned to Taiwan to start the genetically-modulated (GM) mouse lab at NDMC, with the tremendous support of Profs. Sasaki, Uchida, Lin, Huey-Kang Sytwu, the current President of NDMC, and Shu-Whea Lin at National



Plenary lecture by Prof. Sei Sasaki at the Annual Meeting of the TSN, 2007.



Plenary lecture by Prof. Sinichi Uchida at the Annual Meeting of the TSN, 2012.

Taiwan University. Several strains of GM mice—including SPAK-null (J Am Soc Nephrol 2010), kidney-specific OSR1 knock-out (PNAS USA, 2011), and Na-Cl cotransporter (NCC) S707X (Human Mutation 2010) and T58M knock-in mice (J Am Soc Nephrol 2013), common causes Gitelman syndrome both in Japan and Taiwan—have been successfully created and analyzed in my lab over the past five years. Using these GM mice, we have also determined the individual roles of these proteins in the PHAII mouse model (PLOS ONE 2013). These findings clearly demonstrate a novel signaling cascade of WNK4-SPAK/OSR1-N(K)CC in the pathogenesis of PHAII and hypertension, giving scientists and pharmacists key insights into sodium homeostasis and hypertension. SPAK/OSR1 inhibitor(s) could be promising new anti-hypertensive agents.

On the recommendation of Prof. Uchida, I was invited to give a plenary lecture on WNK4-SPAK/OSR1-N(K)CC signaling in the kidney at Renal Week 2011, the annual meeting of the American Society of Nephrology (ASN). Since then, I have also received the Young Investigator Awards from the TienTe Lee biomedical foundation in 2012 and the National Science Council



of Taiwan in 2013.

The close relationship between TMDU and NDMC has been further cultivated by regular exchange between the institutions. In 2007 and 2013, Prof. Sasaki and in 2012, Prof. Uchida, were visiting scholars of NDMC and guest lecturers at the annual meetings of the Taiwan Society of Nephrology (TSN). These efforts have greatly bolstered the friendship between TMDU and NDMC and between Japan and Taiwan.

On December 2, 2013, TMDU and NDMC signed a memorandum of agreement to promote bilateral academic exchanges in Taipei. The key TMDU participants at that ceremony included President Takashi Ohyama, Vice President Profs. Ikuo Morita and Sei Sasaki, Dean Prof. Yasuhito Yuasa, Vice Dean Prof. Yoshinobu Eishi, and Director of

Signing ceremony for the agreement of academic exchange between Medical Faculties, TMDU and NDMC, 2013.

International Exchange Center, Prof. Takashi Yoshida. At the signing ceremony, President Ohyama challenged everyone to further the spirit of collaboration, so I was pleased to hear the Dental Faculties of TMDU and NDMC will be signing an agreement of cooperation in March of 2014.

For me, it has been a tremendous and fateful journey since that day along the Kanda River, one filled with professional and personal satisfaction in the company of incredible colleagues and mentors. The metaphor of “water and salt” aptly describes the closeness of TMDU and NDMC and I feel my story is that of a lucky sailor riding the current of “shiomizu,” carrying the spirit of eternal friendship between Taiwan and Japan.

## Letter 02

# Memories are timeless treasures of the heart



**Pichayanoot Rotkrua**  
Thammasat University  
from Thailand



**AT THE BEGINNING** of spring 2006, a direct JAL flight from Bangkok, Thailand brought me to the whole new world of Japan. This was my first journey abroad. Sakura cherry blooming around the town welcomed me warmly even though the weather was so cold. Even now, every time I see the cherry blossom, it always recalls me to my first day in Japan, where my life was changed forever.

I came to TMDU on a Japanese Government (Monbukagakusho: MEXT) scholarship. I elected to study here because my professor, who graduated from a Japanese university himself, advised me that TMDU was the top-ranked medical school in Japan. I would be able to conduct cancer research as I wished. Professor Yasuhito Yuasa kindly accepted as a graduate student in the Department of Molecular Oncology at



Working as a lecturer in the Division of Biochemistry of the Department of Preclinical Science in the Faculty of Medicine at Thammasat University, Thailand.

the Graduate School of Medical and Dental Sciences.

Everyone in the laboratory was so nice and friendly. They always helped me, not only with educational issues, but also in my everyday life. Although I could not understand the Japanese documents many times, they never refused

to lend a hand.

One time, I felt severely homesick and depressed. At that time, going back to see my family in Thailand was the only thing on my brain, but something good happened. Everyone in my laboratory tried to cheer me up in several ways. I suddenly realized that my family, which I had thought was only in Thailand, was actually in Japan as well. If you are reading this story, please accept my appreciation and thanks.

For scientific experience, my own research involved carcinogenesis and diagnosis of gastric cancer, which gave me a strong background in biomedical research. I improved my communication skills by writing a scientific article in the International Journal and having opportunities to present my works in many international conferences. I also had an extracurricular experience as a Research Assistant (RA) and Teaching Assistant (TA) in my department. My responsibilities were to perform experiments related to research projects, including planning, testing and data analysis, and preparing teaching materials for laboratory classes. There is no doubt



Feeling happy with my medical students on their graduation day.

in my mind that my entire experience at TMDU prepared me rather well to be a good scientist in the future.

Time has gone so fast. The six years spent completing Master's and Doctor's degrees in Japan matured me; now I am ready to follow my next dream. After coming back to Thailand, I am working as a lecturer in the Division of Biochemistry of the Department of Preclinical Science in the Faculty of Medicine at Thammasat University. I love teaching and feel very happy every time I participate in class with my students. I always keep in mind how well I used to be taught by my teachers. Therefore, my promise to my students is the same.

I will train them the best way I can.



Teaching a graduate student to perform cell culture.

Learning to be a professional with happiness is the goal. The serious shortage of medical practitioners in Thailand is an urgent issue, so producing qualified staff is necessary. Being a teacher has changed my attitude. Once I used to think that the feeling on my graduation day was the greatest moment, but I was wrong. I have discovered that the pride I feel for my students' successes on their graduation day is more truly touching.

Finally, let me say that Japan is my second home. I never felt any regret to be there. If life is a work of art, living and studying in Japan is my masterpiece. Memories are timeless treasures of the heart. You will be in my heart forever, TMDU.

### Letter 03

## A most memorable experience



**Chinthika Gunasekara**  
University of Sri Jayawardenepura  
From Sri Lanka



**I ENTERED TMDU** as a Mombukagakusho scholar from Sri Lanka in April 2007. It was my first visit to the beautiful country of Japan. I vividly remember the breathtaking view on the way to the TMDU dormitory near Sato-mi Park, Ichikawa. The cherry blossoms were in full bloom, strewing their soft petals on my path as I walked along. It looked as if thousands of butterflies were fluttering joyfully in the wind. It was a lasting impression of my visit to Japan.

My first task was to meet my supervisor Professor Takeshi Tsubata, Head of

the Department of Immunology in the Laboratory of Immunology at the School of Biomedical Sciences. The journey into research at TMDU, which began with the first meeting with my supervisor, was a milestone in my life. Under Professor Tsubata's guidance and the friendly cooperation of the staff and students of the laboratory, I was able to achieve my goal.

I consider it a privilege to have read for my PhD in biomedical science (Immunology) at TMDU under Professor Tsubata's supervision in his laboratory. I found the environment at TMDU very



Working as a senior lecturer in the Department of Microbiology of the Faculty of Medical Sciences at the University of Sri Jayawardenepura, Sri Lanka.

different from the university life in Sri Lanka that I was used to.

The exposure to international conferences, summer schools and seminars were very helpful and motivating. The study environment, discussions, progress meetings and journal clubs concentrating intensely on research were impressive. It was an exciting period as I learned many skills related to immunology and research methods which now help me immensely in my career.

Why was I interested in TMDU? Tokyo Medical and Dental University is a prestigious university specializing in medical, biomedical and dental subjects. I was interested in entering the School of Biomedical Sciences, and TMDU was the ideal place for me. Considering its location, academic excellence, and the presence of other Sri Lankan students there, I was very happy to be accepted at TMDU. The International Students' Center was always very helpful in all matters, which helped me to adjust to the life in Japan and overcome the language barrier.

Currently I am working as a senior lecturer at the department of Microbiology in the Faculty of Medical Sciences at the University of Sri Jayawardenepura, Sri Lanka. My work involves

teaching immunology and microbiology to undergraduate and post graduate students, and supervising their research projects.

Currently the academic staff of Sri Lankan universities have better access to opportunities for research, in terms of technology and funds. Therefore the experience I gained studying at TMDU has helped me to start work on the area of infectious diseases of relevance to Sri Lanka, and to investigate aspects of host immune response.

It is with great pleasure that I remember the time I spent as a student in Japan, mingled with moments of joy and sorrow. Having experienced first-hand the earthquake leading to the Fukushima disaster near the date of my graduation in 2011, I was sad to leave Japan in



With members of the immunology laboratory at the farewell in 2011.

such a state. Yet the bravery and the patient consideration of the Japanese people in the face of the crisis impressed me, and I value the dedication and calm with which they faced this situation as a lesson never to forget. I thank the Government of Japan and TMDU for the opportunity they provided me to study there. It has been a very memorable experience and helped me in many ways.

Letter 04

## Why I decided to go and study in Japan



Viritpon Srimaneepong  
Chulalongkorn University  
From Thailand



**SINCE I WAS** asked to write about myself for TMDU Annual News, I have been thinking a lot about what I want to tell first. Why? I had so many things I wanted to share and so many happy memories. I am Viritpon Srimaneepong from Thailand. I'm not the only Thai student to have graduated from TMDU. There are many Thai students studying there even now. I graduated from TMDU in 2006 and have been back in my home country since then. Now I work in the Department of Prosthodontics of the Faculty of Dentistry at Chulalong-

korn University in Thailand. When I got back, the most common questions that I was always asked were "Why did you decide to go to Japan to study?" and "Don't you find the Japanese language difficult?" My answer is, "Yes, the Japanese language is difficult but that's one of the reasons I wanted to go to Japan." At that time, I received a Japanese Government Scholarship to study in Japan, but the most important motivation for me was the research. I wanted to conduct research and I believe that Japan is one of the most advanced countries for dental research. Moreover, before I went to Japan I studied in Australia, so I thought that if I went to a Western country, I would experience similar language and culture. Therefore, I decided to accept the scholarship and went to study for my PhD in Japan. Some people ask me why I choose TMDU instead of another university. I think there is no need to explain how famous TM-



Work in the Department of Prosthodontics, Faculty of Dentistry, at Chulalongkorn University, Thailand.

DU is. Apart from its excellent world reputation, my school, Chulalongkorn University and TMDU have been sister universities for more than two decades. I studied in the Department of Metallurgy in the Institute of Biomaterials and Bioengineering at TMDU under the supervision of Prof. Hanawa and Prof. Yoneyama. I conducted research on Ti-6Al-7Nb alloy for dental applications. Both of my professors are very good mentors, as are the other sensei (Japanese for "instructors") in my laboratory. That was my academic experience at TMDU, but my other memories there were happy too. During my study there, I had very helpful and pleasant classmates. They were very kind to me and always helped me when I had difficulties, especially with language and daily life. This was very important as it



My family visit and trip to Kyoto together

helped me to be able to live and enjoy life in Japan. Moreover, I made a lot of



Museum of the human body at Chulalongkorn University donated by TMDU

good friends and we still keep in touch. While I studied for my PhD in Japan, I was able to experience many aspects of Japanese culture such as the tea ceremony, *ikebana* (Japanese flower arrangement) and also Chinese calligraphy. For me, these experiences are as important as what I learnt from TMDU. The four and a half years I spent in Japan were an invaluable part of my life. I wish I could turn the clock back, but I know that is impossible.

Then in April 2006, I came back to Thailand and started my work at the Department of Prosthodontics at Chulalongkorn University in Bangkok where I still work. Since I have been back, I

have still had opportunities to go back to my laboratory at TMDU to conduct my research with guidance from my sensei. Since then, I have been teaching and sharing my knowledge with students. I also have opportunities to treat Japanese patients who live in Bangkok. I sense that most Japanese patients feel more secure when they can communicate with a doctor who can speak Japanese, especially one who studied at a famous university in Japan. Until the last, I will strive to ensure that the excellent relationship and strong cooperation between my university and TMDU continues.

Thank you for taking the time to read my story.

### Letter 05

## My successes are thanks to TMDU



**Thosapol Piyapattamin**  
Naresuan University  
from Thailand



**HAVING GRADUATED FROM** Chulalongkorn University Dental School in 1990, I worked as a general practitioner in a private dental clinic for two years. After the written and interview examinations, I was granted a Japanese Government Scholarship for 1992 (Thailand) to fulfill my dream of broadening and deepening my dental knowledge and practical clinical ability in Japan. I selected TMDU Dental School because of its reputation as the oldest government-operated dental school, as well as for its research and clinical activities.

I started my student life in Japan at

Osaka University of Foreign Studies for six months, and subsequently enrolled in TMDU's First Department of Orthodontics in April 1993.

In my first year at TMDU, I was bombarded with orthodontics-related lectures, seminars, laboratory work and clinical practice. In 1994, I was allowed to enroll in the doctorate program taught by Professor Kunimichi Soma, my respected teacher and the Department's Chairperson. After the subsequent four years of both clinical and research activities, I obtained a PhD in Dental Sciences for my research work,



Working as the Dean at the Faculty of Dentistry, Naresuan University.

an investigation into the importance of orthodontic treatment for malocclusion, together with a certificate of clinical training in orthodontics.

In those days, research in Japan was far in advance of Thailand. Technological differences and the number of researchers were the main factors. The former was related to the national research budget, and the latter to those who were interested in conducting research. After graduating from TMDU in 1998, I found that the situation still remained the same, despite the attempts of the National Research Council of Thailand (NRCT) to improve the level of research. However, the situation gradually improved over the following ten years. At present, various new technologies and numerous Thai researchers can be found in both academic and non-academic institutions.

As a consequence of Thailand's need for development in education and research and my intention of becoming an



During a formal presentation of the institution's academic activities to Princess Maha Chakri Sirindhorn (center) in Bangkok 2013.



During Songkran (Thailand's New Year) Festival 2013 with dental assistant personnel at NU's Dental School.

instructor in a national university, I joined the academic staff of the Orthodontic Section in the Department of Preventive Dentistry of the Faculty of Dentistry at Naresuan University (NU) in June 1998. My responsibilities include the usual things involved in this sort of post, along with research and

administration. After the election in 2012, NU appointed me Dean. Apart from serving as an instructor for the dental students, an orthodontist for patients, and a researcher for new knowledge and its clinical applications, I play an administrative role directing the academic and non-academic staff in fulfill-

ing NU's policies on education, research, academic service to the community, and conservation of Thai cultures. Any successes in my present position are thanks to the support from my friends and the experience gained during my study in Japan, particularly at TMDU.

#### Letter 06

## TMDU was a great opportunity in my life



**Leila Daneshmehr**  
Shahid Beheshti University  
from Iran



**IN SEPTEMBER 2004**, I arrived in Japan with my husband, as a Monbusho supported PhD student at the University of Tokyo. I graduated from a top dental school in my country, and spent two years of clinical practice at a good governmental health center.

Although, I was highly motivated to pursue my education at PhD level, the very beginning of my stay in Japan was spent on learning the language. In April 2005, I was fortunate to be accepted for a PhD course in the Department of Operative Dentistry at TMDU, thanks to the very precious support and welcome of Professor Junji Tagami, the head of the department.

For this, I am and will be very grateful to him, as that step was an extremely important milestone in my life.

I promptly started my studentship by reading research articles, and attending department meetings and assigned lectures. This provided me with a foundation which I later realized that was necessary to enable me to work as an independent researcher. I started developing an interest in preventive dentistry and methods of preventing dental caries.

Pursing further studies in that particular direction, I received great support from my supervisor, Dr. Nikaido, who is widely known for his work on the acid base resistance zone with application of adhesives. He encouraged me to fo-

cus on coating dental surfaces with a thin layer of dental adhesive material. We planned to propose this as a method of preventing root caries. These studies opened up a new opportunity for me to become familiar with synthetic oral environments.

Using this opportunity, I applied adhesive materials on root surfaces and conducted experiments in a more realistic way. At this point, I was working with Dr. Matin and his students who developed the oral biofilm reactor in the COE lab. I would like to thank Dr. Matin too for his support.

Thanks to all of this support and hospitality, I successfully produced several publications and finally graduated in 2009. Naturally, holding a PhD from a leading university filled me with confidence.

Living as a family member in TMDU, I had another great opportunity from a social point of view as well. I made many friends from various countries, and developed an international network beyond the borders of my home country.



The Japanese cherry blossoms were beautiful.



Working as a dentist and an adjunct lecturer teaching in the School of Dentistry at Shahid Beheshti University in Tehran.

We became close friends and learned about each other's culture and society through daily contact and communication. I really enjoyed this first experience in a multinational and multicultural environment.

Later on, I moved to Philadelphia in the U.S. with my family, and thanks to the credit I obtained from TMDU, I got another opportunity to work as a post-doc at the University of Pennsylvania. My supervisor was Prof. Markus Blatz who collaborates extensively with Japanese universities and researchers. I remember how he confidently accepted me into his department because of his familiarity with Prof. Tagami, whose recommendation was a definite plus for me.

In 2012, I came back to Iran to be closer to my parents and to apply my knowledge at universities in my homeland. Recently, I started working as an adjunct lecturer in the School of Dentistry at Shahid Beheshti University in Tehran. I teach the basics of dental materials and advise graduate students.

For the rest of my life, I will be very grateful to Japan for all the support I received and the things I learned there. I very much miss the hot springs, healthy noodles, and Japanese cherry blossoms. Thank you TMDU!

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

## Great experiences in Ghana



**Rinko Hino**  
4th year student, Faculty of Medicine  
Project Semester in Ghana



**WHAT ARE YOU** doing in Ghana? How is Ghana? What are you studying in Japan? Why did you decide to enter medical school? Ghanaian researchers shower questions on me. Here in Ghana, everybody talks to us, not only at NMIMR (the Noguchi Memorial Institute for Medical Research) to which I belong, but also in town. The people here don't like silence. You can always hear something discussion, conversation, and sometimes music. Two months have passed since I came to Ghana. In this short essay, I'll talk about three things that I'd never been aware of until I left Japan.

First, language. I realized that there's nothing special about making do in more than one language. Many Ghana-

ians use English as a common language, but they also use the local language, so they have two languages. I'm researching malaria. Over three million malaria cases are reported in Ghana every year, killing over four thousand people. Our team is investigating the relationship between resistance to anti-malaria drug and polymorphism in genes. We visit hospitals to collect samples of blood infected with malaria. The medical staff communicates with each other in English as a matter of course, while they talk with most of the patients in the local language. Although one of the doctors at the hospital said that I was lucky to learn medicine in my own language because it's easier to explain something to your patients, I envied



Many people at NMIMR go to the lab in Ghanaian dress on Fridays.

them because we can't do without English in science these days.

However, it's more important to get across what I think than to be able to speak English fluently. In this country where people don't like quiet, everyone is required to have their own ideas. If I say what I want to do, people meet my requests as far as they can. When I first visited the hospital, I wanted to take a look around and see the malaria patients because I'd never seen patients with malaria in Japan. I asked the staff and they obliged right away. One pediatrician explained the symptoms, treatment and prognosis of a serious malaria patient, a one-year old boy who had been in hospital for five days. By asking, we were able to do what we wanted, even though we didn't expect it.

Waiting patiently for something or somebody is another thing that I learned in Ghana. Unlike in Japan, blackouts or water problems often occur here. Unlike Japanese, some Ghanaians are often late for appointments. Initially,



With research assistants.

when the water stopped or when someone didn't come on time, I was impatient. However, I've experienced these things so many times that it's changed how I think. If I wait for water or electricity, they'll come eventually, and if I wait for someone, they'll come eventu-

ally too.

When I go back to Japan, I'll be surprised at how different things are from Ghana and I may notice new things about Japan. I want to make use of what I've learned, including the three things I've mentioned, after I return to Japan.

Studying and living in Ghana sometimes makes me face difficulties, but all the experiences that I have here will make me more mature. I would also like to thank everybody who has supported me and given me a chance to have a great experience in Ghana.

Report 02

## Five months at Imperial College, London



**Yukiyo Narikawa**  
5<sup>th</sup> year student, Faculty of Medicine  
TMDU-Imperial Exchange Program



**WHAT CAN STUDYING** abroad mean for us? I believe the answer is whatever we want it to mean. There may be abundant chances everywhere while you are abroad, but they do not just fall into your hands; you have to search, find and grab them. I believe what drove me to do so was curiosity.

During the five months, the four of us TMDU exchange students, spent most of our time at separate labs. The laboratory I was working in was located in South Kensington Campus, where most student activity takes place. Students from various departments were working in the same building, struggling with similar research problems, each of them with different backgrounds. Even within our research group, we could make a long list of our nationalities.

In such a diverse group, I was fortunate enough to be paired with a very educational post-doc, who taught me on a day-to-day basis mainly about science, and sometimes about London life. My very dedicated supervisor also gave me lectures when I asked questions, and helped me write my paper with detailed revision advice. The research topic was to create a viral vector which would help in investigating the function of the autonomic nervous system in the pathogenesis of diabetes. Every basic procedure was almost completely new to me, including cell culture, cloning, virus production and immunocytochemistry.

At first, clueless as I was, every day

seemed challenging, but the members of the lab group helped me get through it and learn the processes one by one. Almost a year has passed since the end of the program, but the five months I spent in the world of basic research still affect me now.

Now that I have a clearer image of what goes on in laboratories, long before their findings are found in the textbooks, I can question what is said in the books, which helps deepen my understanding. I also know that tasks which seem daunting at first can be solved by learning step by step and by cooperating with others.

The precious friends I made at the lab were mainly graduate students and medical students, some of them living outside their homeland. Working with such motivated scientists, learning about their daily lives and their future



Visit to the British Museum.



Taken at the lab with lab members.

goals, stimulated me to think more freely about my future career plan. Discussions during lunch at the cafeteria about our traditions, culture, history and politics enlightened me about the views of other countries as well as about our own culture. Realizing how much I do not know about my own culture stimulated me to study more and deepen my understanding about Japan.

Looking back, I realize that what helped me learn the most during the five months was curiosity. Whenever I came upon something unknown, it was curiosity that drove me to keep searching for something new. I made an effort to ask questions assertively, to have conversations with various people, and to do whatever I was interested in during the limited time. Doing this all the time opened up a new world to me, beyond anything I had anticipated. Even now, back in Japan, I do just as I did in London, and I find that just having curiosity and taking small actions can open a lot of doors. I believe studying abroad was the most valuable experience in cultivating curiosity and rediscovering new opportunities in my life back at home.

Finally, I would like to express my utmost gratitude to all the teachers and faculty who made this exchange program possible. I will continue to try to make the most of the experience and the experience will no doubt remain in my heart.

## Clinical Clerkship at Harvard Medical School



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



**BOSTON IS THE** largest city in the state of Massachusetts. It's also the state capital. Many cultural institutes are located in the city. For instance, Boston has more than 100 universities and colleges, including Harvard University and the Massachusetts Institute of Technology, the Museum of Fine Arts and the Boston Symphony Orchestra. The atmosphere of the city is calm and sophisticated. I participated in a two-month clerkship program at Harvard Medical School (HMS) in spring 2013. I stayed at a local family home for the first month, and in Vanderbilt Hall (the dormitory of HMS) for the next month.

In the TMDU-HMS program, we received special introductory training in history taking, physical examinations, and making progress notes in advance, and so we learned medical terms and clinical reasoning in English, and the customs peculiar to medical care in the United States. Thanks to this training, the clinical clerkship at the American hospitals went quite smoothly.

I rotated to Child Neurology at Children Hospital Boston (CHB) and Multidisciplinary Pain Medicine at Massachusetts General Hospital (MGH). Our training was the same as for HMS students. Every day, I arrived at the hospital around 6:30 and checked the data and notes for my patients that were written by the on-call

doctors or nurses. After I listened to my patient's overnight complaints and performed physical examinations, I made a presentation to the team about how my patients were. During my presentation, the attending, fellow and resident doctors sometimes asked me many questions and gave me homework assignments like, "Tell us about Hashimoto Encephalopathy for about five to ten minutes on tomorrow's round."

Although I had to spend a lot of time preparing these presentations, they were an effective way of obtaining a lot of knowledge. Medical students were welcome to join the discussion and were required to give their opinions. Since all the doctors naturally quoted papers or journals as supporting evidence in the discussion, I tried searching online for relevant articles. I believe that this habit will be useful in my career as a doctor even in Japan.

When I rotated to Multidisciplinary Pain Medicine, I was given an opportunity to make a 45-minute presentation. I took "Acupuncture in pain management" as my topic, and spent three weeks preparing. Many staff members listened to my presentation carefully



Acute Pain Service Team at MGH.

and gave me very helpful feedback based on evidence. This educational atmosphere stimulated me and I learned how to improve my presentations to convey my ideas to others.

While I was in Boston, the Boston Marathon bombing occurred, killing three people and injuring 264. I just happened to be watching the marathon, and saw people in panic running this way and that. After this atrocity, there were many police officers and soldiers with shotguns around the city, especially near the hospitals.

The victims were treated at nearby local hospitals, and I also saw some of these patients. Some lost their extremities, and others suffered terrible pain from mental stress. This tragedy was sad and unforgettable. However, if I had not been there, I doubt that I would have thought about it in real terms.

Through the HMS program, I experienced many precious things that I will never forget. This includes the knowledge I obtained, the constant effort I made, and the connection with the many kind and helpful people I met before, during and after the clerkship at HMS. I am sure that I can make use of these experiences in my future career.

Finally, I would like to express my deepest gratitude to all the staff members and students at HMS and TMDU concerned. In particular, I must offer my appreciation to Professor Takada, Assistant Professor Moross, and the members of Global Education and Career Development. Many thanks to my classmates who went to Boston and studied with me. Without them, I could not have had this wonderful time.



The center of Boston.



TMDU-HMS program class of 2013.

Report 04

## A challenging experience



**Takayuki Suga**  
4<sup>th</sup> year student, Faculty of Dentistry  
Research Project in Korea



**IT IS A** great pleasure for me to write an essay about studying overseas. I would like to express my sincere gratitude to everyone who supported this program. From June through September, I researched tooth development in the Oral Biology Laboratory at Yonsei University, one of the most famous universities in Korea. Tooth development is elaborately regulated by interactions between proteins. We examined the expressions of two possible candidate genes involved at each stage of tooth development.

Research in Korea involved many difficulties related to differences in customs and language problems. However, the laboratory members were very kind, and they patiently taught me how to conduct research. Thanks to them, I did well in my research and won the Dean's award for it. Besides research, the professor kindly gave me a chance to join some classes at the dental school and to visit and observe dental hospitals.

Through this experience, I learned about the differences between dental education and treatment. There are many things we should consider. For instance, the lobby of a hospital is like that of first-class hotel, which puts pa-

tients in a positive frame of mind. I think this is an important factor when somebody is suffering from illness.

It was the first time for me to live abroad for a relatively long time. However, life in Seoul was comfortable because everything was convenient, just as it is in Tokyo. During that period, I visited many famous places and sight-seeing spots. What struck me most about Korean culture was its similarity to Japanese culture.

Although I was seeing things for the first time, I felt I knew what it was. It was quite a weird feeling. It seems that Japan and Korea are brothers. These days, the relationship between the two countries has deteriorated, but I hope it will improve in the future.

Through my encounter with foreign culture, I discovered that I didn't know very much about my own culture. So after coming back to Japan, I developed an interest in and appreciation of Japanese culture. When you go abroad, you have to express your opinion from the standpoint of a Japanese person, but you can't do that if you don't know much about Japan. To be global doesn't mean speaking English well. That's something which I came to realize fully



At one of the world heritage sites in Korea. after this program.

Unfortunately I didn't have much opportunity to communicate with Korean people other than lab members. That was regrettable, because I like to make friends with foreign people. I wanted them to talk to me more. I guess the same thing can be said of the international students in TMDU—they actually said so when I asked them about it.

Please don't hesitate to talk to international students. There is no difference between us. I believe that changing your mindset and attitude to them at an individual level will make our university a better place to study for students from all over the world.

Now that we live in a global world, the experience gained from studying abroad is more important than ever before. Fortunately, TMDU offers us lots of opportunities to study abroad. You can even get scholarships for it. Why not use them?

Studying in Korea was an unforgettable and precious experience, and I would like to make the best use of it. I hope this essay will be a useful reference for students who want to participate in this kind of research program.

Report 05

## Meaningful and precious time in Jakarta



**Hiromi Kominato**  
3<sup>rd</sup> year students, Faculty of Dentistry  
FY2013 Re-inventing Japan Project



**ALMOST THREE MONTHS** have passed since I joined the dental training program at the University of Indonesia (UI) from September 3 to 11, 2013. We had been told that there were many dif-

ferences between Indonesia and Japan, but surprisingly there were even more than we imagined. Here I'm going to write what we experienced and how I felt throughout the program.



With Dr. Bambang Irawan, Dean of the University of Indonesia.

There were two parts to the program, comprising a morning and evening session. Basically in the morning, we par-

ticipated in classes and hospital tours at UI. We also attended a conference in Depok. After school, we enjoyed sight-seeing and had dinner with the students of UI.

At the UI, we attended the PBL class with third year students. Before we went to Indonesia, we were told that the theme would be public health, but in fact the theme was orthodontics. It was difficult for me to understand what was discussed because we hadn't learned orthodontics yet. However, I was very impressed by how well the students of UI speak English. In addition during the class, everyone voiced their opinions. I realized we Japanese students are less enthusiastic about learning and presenting our opinions. Consequently I felt that there is a big gap between the English ability of Indonesian and Japanese dental students.

We also took part in hospital tours. There were several differences between

public and private hospitals in Indonesia. The affiliated hospital that we saw was quite old. We had to use stairs all the time and I saw that some of the taps and ceilings were broken. I was surprised to see patients administering self-oral vacuum during treatment. Interestingly the clinical year starts in fourth grade at UI, so they can definitely treat more patients than us. On the other hand, the private clinic was more sophisticated, clean and relaxing like the ones in Japan. The units were separated and there were two assistants per dentist. There were some specialists at the private clinic, as they treat patients as a team. However, only rich people can afford the fees at private clinics.

What shocked me the most was the size of the gap between the rich and the poor in Indonesia. I saw children who couldn't go to school selling newspapers at the cafeteria, whereas some children were playing with iPhones in the



We performed a dance with Japanese pop music, and UI students showed us traditional songs and dance.

comfortable waiting room of the private dental clinic. These were sad scenes indeed.

After we came back to Japan, I began to think that we need more opportunities for undergraduate exchange programs so that students can learn about the current state of dental care in many different countries. Experiencing this kind of dental training program would motivate us to be better dentists in the future.

Through this training program, I learned a lot of things which broadened my mind and improved my English skill. More than that, I made friends with many dental students in the same year in Indonesia.

During our stay in Jakarta, the students of UI accompanied us everywhere and we had a nice time with them. I can't express how much I appreciate what they've done for us. Even though we stayed in Jakarta for only one week, spending time with them was very meaningful and precious.



We attended the PBL class with third year dental students.

## Report 06

# Our overseas study tour in Taiwan



**Shizuka Yamamoto**  
2nd year student, Faculty of Dentistry  
Visiting Program for Taipei Medical University



**ELEVEN SECOND YEAR** students of the Oral Health Engineering Course visited Taipei for five days from November 25, 2013, for the student exchange program of the dental technology course offered jointly by TMDU and Taipei Medical University (TMU).

Through this overseas study tour, we gained a lot of knowledge about Taiwanese culture and dental health, and of course enjoyed the foreign culture and atmosphere.

At the School of Dental Technology at TMU, we made PowerPoint presenta-



I met wonderful teachers and students over dinner.

tions introducing Japanese culture, life at TMDU and Japanese dental technicians. TMU students also gave presentations about famous souvenirs, food and sightseeing spots in Taiwan. After

TMDU teachers and students after our presentations.



With Prof. Chung-kwei Lin, Chairman of the School of Dental Technology, in the College of Oral Medicine at Taipei Medical University.

the presentations, TMU students took us on a tour of TMU campus and into town near TMU, and the faculty held a dinner party for us. In addition, some TMU students took us to the Raohe Street night market where we had an enjoyable time. While it was difficult for me to communicate in English with the Taiwanese students because of my poor English, I soon realized that we could communicate with gestures, illustrations and Chinese writing. Having the motivation and attitude to communicate actively is the most important thing.

During our stay in Taipei, we visited several dental laboratories and dental clinics, as well as TMU Hospital. We heard that Taiwanese dental laboratories have rapidly been introducing CAD/CAM systems over the last few years. I was surprised that they use spirit lamps

instead of Bunsen burners to melt wax to avoid high temperatures. I was most impressed by the words of Mr. Kashima who is known as the first Japanese dental technician licensed in Taiwan. He said, "You should always imagine the patient when you make prosthetic appliances, because a dental technician is not only a technician but also a medical worker." His words made me think over and over about the profession of dental technician. A dental technician has much fewer opportunities to meet the patient directly compared with dentists or dental hygienists. However, the dental technician should always be conscious of being part of a medical team, as a professional who manufactures prosthetic appliances which support the patient's health and improve their quality of life.

This study tour in Taiwan was a pre-

vious experience for me. It brought home to me that communicative competency in English, as well as advanced techniques, are essential for becoming a global dental technician. The strong communication ability of the TMU students motivated me to learn more English and specialized subjects.

I am going to apply this experience of studying abroad in my future studies and I would like to become an internationally-minded dental technician with a broad view.

Finally, I would like to express my gratitude from the bottom of heart to the teachers and students of TMU, to the Taiwanese dental technicians who kindly welcomed and took care of us, and to our teachers for giving us the valuable opportunity to experience overseas study.

Report 07

## A stay in Seoul



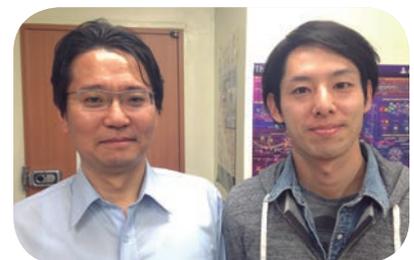
**Kenji Kawara**  
4th year student, Faculty of Medicine  
Project Semester in Korea



**MY PROJECT SEMESTER** began around March. At that time, in all honesty, I had a feeling of powerlessness, although there were no clear reasons for it. "I have to do something" I thought, and decided to study in a foreign country during project semester. After the selection had finished, it turned out that I could go to Seoul National University alone.

However, instead of feeling uneasy, I was excited because I believed that being alone in a foreign country would be good training for me. Some people say that living in a foreign country is nothing special—you just happen to be abroad. But anyhow, I was still eager to place myself in an unusual environment, so I decided to go to Seoul.

Now three months have already passed



Prof. Won-Woo Lee (left) is a really energetic man.

since I touched down at the airport in Seoul. When I think of the past three months, I can say it was nice. On the very first day I arrived in Seoul, I met with the professor and the other lab members. I casually asked him about the daily schedule, and he told me that the members always stayed until around



Prof. Won-Woo Lee and seven other people work at the laboratory.

21:00 or 22:00, studying or carrying out their experiments. At that point, I wondered if I might have chosen the wrong laboratory. For the next couple of weeks, I had to keep reading lots of papers and protocols until around 21:00 in order to prepare for experiments. It was a really hard time for me. However after a few more weeks, I suddenly remembered that I had come here with the purpose of training myself.

Then I felt ashamed of my concern that I might have ended up in a Spartan lab. Fortunately, this awareness seemed to occur with good timing. My period of preparation had finished and I could finally start my experiments. In other

words, I could do something beyond just sitting on a chair. Since then, I've been feeling the benefits of the initial period of study as I apply the ideas and principles I learned in real experiments.

There are seven people working under Prof. Won-Woo Lee at the Immune Cytomics Lab in the Department of Microbiology and Immunology at Seoul National University College of Medicine, a post doctor, a doctorate student, two Master's course students, and three internship students including me. Prof. Won-Woo Lee is still in his forties and is a really energetic man. He's always busy managing the lab, but he offers us kind support at the same time. My task

is to consider how to inhibit the inflammatory function of monocytes in rheumatoid arthritis through metabolic reprogramming, but at the moment, I'm far from reaching a conclusion.

Now let me explain a little about my daily life in Seoul. I live in a dormitory in Seoul National University Hospital. People at the university can generally speak English, but, surprisingly, most ordinary people in the city cannot at all. Therefore, I learned several sentences for surviving in Korea, such as "I can't understand Korean," "Where is-," "Can I have-". One of the interesting things is that I can now say "I can't understand Korean" really fluently. Imagine someone who says in fluent English that they can't speak English. When I say that in Korean, people are often surprised and say I speak Korean very well.

As I said above, life in Seoul is very interesting. I can dedicate myself to studying and experiments. Everything happening around me is totally new, and I feel happy to be a pioneer in a new country. On the other hand, I'm still not sure whether I'm getting a training or not. It might depend heavily on my own effort.

## Report 08

# Time flies



**Kumiko Hayashi**  
4th year student, Faculty of Medicine  
Project Semester in Australia



**TIME FLIES, AND** it has been almost three months since I came to Australia for my project semester as part of the fourth year medical school curriculum. I am currently undertaking research in the Diabetes/Transplantation Immunology Laboratory at the John Curtin School of Medical Research (JCSMR) of the Australian National University from October 2013 to February 2014, under the supervision of Dr. Charmaine Simeonovic and Cathy Gillespie.

It is thanks to the kind support of JCSMR, Prof. Yoshinobu Eishi of TMDU,

and others that I could have this precious opportunity. In this short essay, I will write about my research and my life in Australia.

I still remember well the mixed feelings I had when I first arrived in Canberra at the beginning of October 2013. Of course I was really excited to start my project, but I was very worried about living in a foreign country and staying away from my family for the first time in my life. However, it didn't take long for me to get used to it, because I made a good friend at the lab



With my supervisor, Dr. Charmaine J Simeonovic.

soon after I arrived. She helped me with a lot of things whenever I lost my way.

When we talk about the projects at the lab, I am always impressed with her diligence, knowledge and ability as a researcher. Also, my supervisor Charmaine and all the lab members treated me very well like an old friend, which made me feel like I had been living in Canberra for a long time. In the past few months, I have got to know a lot of nice people in school, and I have really



The lab had a Christmas lunch.

appreciated their friendship during my stay. I want to keep in touch with them after I return to Japan.

I have done experiments at school from morning till evening, and tried to join in many activities after work. My research project is to localize heparan sulfate (HS) in normal mouse insulin-producing islet beta cells. Previously our laboratory reported the finding that HS is essential for the survival of islet beta cells. In addition, our laboratory established that the onset of autoimmune Type 1 Diabetes is associated with the loss of islet HS. By localizing HS at subcellular levels, my project will help advance our understanding of the novel role of HS in islet biology.

To examine the subcellular localization of HS, the main technique I have been using is electron microscopy. I previously used a normal optical microscope in the histology class in my third year, but an electron microscope is to-

tally different from an optical microscope, and it takes much more time, effort and patience just to prepare the samples, stain the specimens, and take digital photographs.

My studies have been difficult because I have had to optimize the conditions for staining and this delayed the final experiments. My work here requires a lot of patience, but I think it is challenging at the same time, and I hope I can find the optimal conditions in the last month after all my hard work. Despite all the difficulties, I am most grateful to the tremendous support from Charmaine, Cathy and the other lab members.

Almost every day I have a short discussion with Charmaine about the progress of my project, and I greatly appreciate her intellectual input and constructive feedback. I have always been impressed with her great ideas and I enjoy the stimulating conversation



The Post Graduate Students Ball, an Australian bonenkai.

with her as it encourages me to approach my research from a new perspective.

After work in the lab, I took part in a lot of activities. For example, I went to the Australian flower festival Floriade, the Nara candle festival, a Halloween party, a laboratory picnic, and a friend's birthday party. I had more activities planned before I return to Japan, and I knew that I can enjoy the rest of my time in Canberra a lot.

I have had a really good time, and I am very satisfied with it. I can't believe that I was so worried about studying abroad before leaving Japan. I want to say to younger students that the things we fear are often not so hard to deal with after all. I'm sure studying abroad gives us much more rewarding and precious experiences rather than difficulties. Why don't you try bracing yourself and putting yourself in a new world whenever you can?

Report 09

## Studying at Seinajoki University of Applied Sciences in Finland



**A. Yoshikawa, C. Hayashi**  
3<sup>rd</sup> year students, Faculty of Medicine  
Study program in Finland



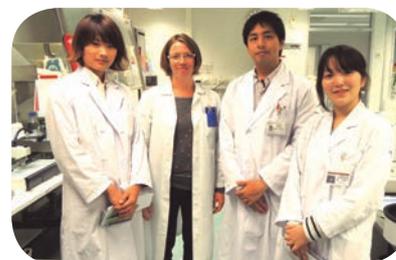
**Written by Ayane Yoshikawa**

3<sup>rd</sup> year student, Nursing Science

I went to Seinajoki University of Applied Sciences for three weeks with my classmate, Kyoko Kawakami. The weather was very beautiful, providing a

contrast between the blue sky and white buildings. In Finland, I studied nursing, visited hospitals, learned about the culture from my host family, and took part in lots of other activities.

As a nursing student, I joined the nurs-



From left; Nakamura, Ikoma and Hayashi at the Pathology Laboratory in Central Hospital.

ing lessons and discussed the question "What kind of person do you want to work with as a nurse?" with the other students. I think most of the opinions would be the same in Japan.



Studying at the Central Hospital.

For example, they would say, a worker who is skillful, able to adapt to different situations, and reliable. It was interesting that one of the Finnish students wrote her name on the paper, meaning to say that she's the type of person everyone would want to work with. A Japanese student would never do that. I also went to see how medical technologists work at the hospital. I was not able to understand much about their work, but working as a member of medical team was a valuable experience.

The interior of the hospital was very colorful and comfortable. There were spaces to relax in every ward. There were rocking chairs and pictures on the walls, so people enjoyed being there. Finnish people value individual space, but they love to talk to each other in this space.

I also had a chance to stay with a host family for one weekend. The food was very different from Japan. There were many kinds of bread and cheese, all of which came in huge sizes. I realized that in Japan we are fortunate to have so many different types of food compared to Finland.



Lecture from Ms. Helli Kitiñoja at SeAMK.

Staying in Finland was very exciting. Time moves very comfortably and the people were very nice. Someday, I want to go back there. Finally, I would like to thank everybody who supported me during my study visit to Finland.

**Written by Chikako Hayashi**

**3<sup>rd</sup> year student, Medical Technology**

From August 8 to September 15, 2013, we participated in the program at Seinajoki University of Applied Sciences (SeAMK) in Finland. I studied with other two students of medical technology, Hayato Ikoma and Ayaka Nakamura. The purpose of my visit was to learn about the Finnish health care system and culture.

Through this program, we studied a lot of things and it was a wonderful experience for me. During the program, we visited a food laboratory and clinical laboratories.

First we learned about research concerning lactobacillus at a food laboratory. It's a microbe which is found in food. We also went to the Seinajoki Central Hospital. We visited the laboratories of five different departments—Chemistry,

Physiological, Microbiology, Pathology and Neurophysiology.

The systems and methods used are not very different from Japan, but I did discover one major difference. Compared with Japan, there are many women working in hospitals and laboratories in Finland. This is because Finnish citizens pay higher taxes to support substantial social welfare. Improving social welfare supports many women and makes it easy for them to work.

We also stayed with Finnish families at the weekend. Through this homestay, I experienced Finnish culture and daily life. Furthermore I had an opportunity to show my hosts some aspects of Japanese culture. I learned many things of the differences between two countries, which I found very interesting. Both Finnish and Japanese culture have their merits.

Finally, thanks to the support I received from everyone, I was able to enjoy many good experiences. I enjoyed the program even though I had never been abroad before. I would like to express my gratitude to everybody for their support.



We studied about lactobacillus at a food laboratory.



Homestay with a family.

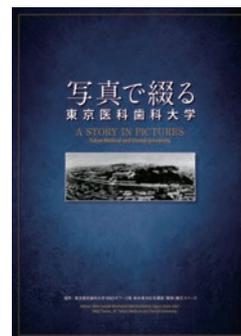
# A Place *of* Learning

**THE TOKYO NATIONAL** School of Dentistry was founded on October 12, 1928, in Nishiki-cho, Kanda in the Hitotsubashi area, under the aegis of the Ministry of Education Dental Hospital. In 1930, it moved to Yushima, changing its name to the Tokyo National School of Dentistry No. 1 Hospital. New construction has continued ever since the university was founded, but it concluded with the completion of the multi-story car park in December 2013 in the last year of President Ohyama's tenure.



**Tokyo National School of Dentistry No.1 Hospital**

This photo depicts the Tokyo National School of Dentistry No.1 Hospital, in Yushima, circa 1930. In 1928 the Tokyo National School of Dentistry was established, as affiliated with the Ministry of Education Dental Hospital, and was located in Hitotsubashi (Nishiki-cho, Kanda ward).



The photographic collection "A Story in Pictures, TMDU" can be downloaded at: <http://www.tmd.ac.jp/outline/introduction/tenji/index.html>

**Main Building, Tokyo Medical and Dental University (now Building No.2)**

This photo was taken from Hijiribashi Bridge in 1935 and shows the old section of Building No. 2, which was then the main building of Tokyo Medical and Dental University.



**New Dental Wing, Dental Hospital**

In 1982, construction of the new wing of the Dental Hospital was completed, and it is seen in the photo above as the tall building in the center.



**New Medical Wing (A wing), Medical Hospital**

The Medical Hospital, on the left side of the photograph above, saw completion of its A wing (shown) in 1991, and its B wing in 1996.



**M&D Tower, Anchoring a Panoramic View of Tokyo Medical and Dental University**

Construction of the 26-story M&D Tower, the second building devoted to Medical and Dental Sciences at TMDU, was completed in 2009.



**The Rooftop Garden Relaxation Area**

The multi-story parking on the Yushima Campus was completed in December 2013. There is a garden on the rooftop for relaxation, with the university's symbol at the center in a floral arrangement.

## Pneumatically Driven Laparoscope Holder Controlled by Head Movement

**THE NUMBER OF** laparoscopic surgeries and their applications have increased in recent years. In conventional laparoscopic surgery, a scopist has to hold the laparoscope and change its angle under the verbal instruction of the operating surgeon. The scopist needs a deep understanding of the surgical procedure and must have excellent dexterity. Camera shake may occur due to the fatigue of the scopist, which may cause the surgeon to get nauseous, especially in 3D vision. Therefore, a laparoscope holder is an important and effective advancement for laparoscopic surgery.

Laparoscope holders have been studied for many years, and some are commercially available. However, the operation methods such as voice control or switches in current laparoscopic holders are inferior in that they are not intuitive.

We have developed a laparoscope holder system, instead of a scopist holding the laparoscope, a robotic arm holds the camera, and the arm is positioned by the operator's head movements, as shown in Fig. 1. Robotic holders that have been previously developed use electrical motors for actuation. However, in this system, pneumatic actuators are used instead.

This is because pneumatic actuators have many safety advantages such as low heat generation, compressibility, the ability to control the maximum force by regulating the supply pressure, ease of releasing the acting force by discharging the compressed air in the actuator, and the ability to realize an arm that is both compact and lightweight (0.9Kg).

The robotic arm is controlled by the head movement measured using two gyroscopes attached to the operator's head and back. As shown in Fig. 1, the view angles of the laparoscope for up and down, left and right, and rotation synchronously follow the head rotations. The camera's zoom in and out synchronously follow the anteroposterior motions of the operator's head. We use gyroscopes in the proposed system.

The rotation speed during head movements is directly detected by the 3-axis gyroscope attached to the operator's head. The zoom in and out can be measured from the translation velocity of the head movement. The velocity can be theoretically obtained by integrating the data measured by an acceleration sensor attached to the operator's head.

However, it is difficult to obtain an accurate velocity from the acceleration



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Dr. Eng. Professor,  
Institute of Biomaterials  
and Bioengineering,  
TMDU

sensor due to the errors caused by gravity compensation, drift of the zero point, and sensor noise. Therefore, we focused on the anteroposterior body movements of the operator. We estimated the translation movement of the head from the anteroposterior body movement based on a gyroscope attached to the operator's back. The estimated value is used as a control signal for the zooming movement of the robot.

The image of the laparoscope can be displayed to a monitor or on a head mount display (HMD). When the HMD is used as the monitor, the image is always kept in front of the operator's eyes, even when the operator turns his/her head. Therefore, using an HMD can provide highly intuitive operation and can avoid the need to consider the monitor layout. We confirmed the tracking accuracy of the system through experiments. Moreover, the effectiveness of the system was demonstrated through clinical trials as shown in Fig. 2. We are planning to commercialize the system in autumn this year.

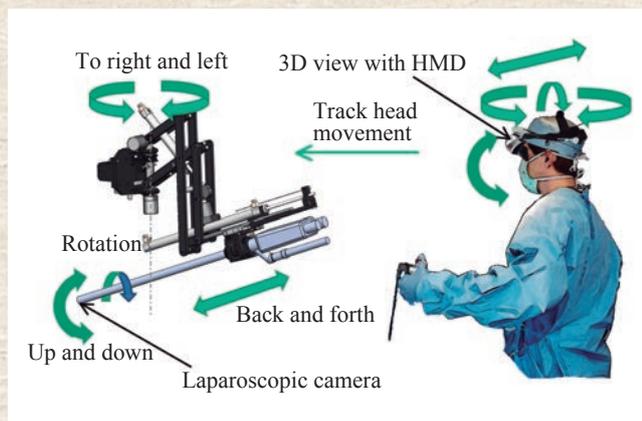


Fig. 1: Concept of the developed system

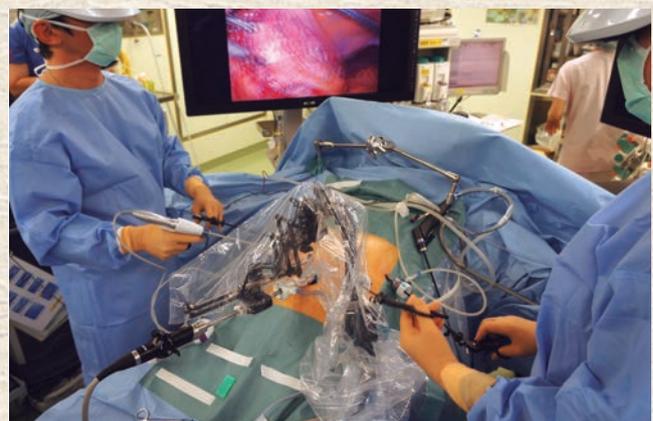


Fig. 2: Clinical trial

## Discovery of a Novel Source of Dendritic Cells, the Control Tower of the Immune System

**A MAJOR REASON** people can stay healthy is the protection afforded by the body's immune system. This defense system is essential for performing a social life, and living out one's life. In the immune system, dendritic cells (DCs), distributed throughout the body as the most powerful antigen-presenting cells, activate immune cells upon viral infection, and maintain immune tolerance to self-antigen under steady-state conditions thereby preventing autoimmune diseases. DCs consist of two major sub-populations, i.e., conventional DCs (cDCs), which have excellent antigen-presenting capacity, and plasmacytoid DCs (pDCs), which have prominent type I interferon (IFN)-productivity.

The pDCs' activation and type I IFN production are critical for the initiation of anti-viral immune responses, whereas pDCs' activation in the absence of infection causes autoimmune diseases, such as systemic lupus erythematosus (SLE) and psoriasis vulgaris. Thus, the identification of DC progenitors that give rise strictly to cDCs or pDCs, but not to other hematopoietic cells (Fig. 1), could be important in medical applications for treating viral infections and autoimmune diseases.

Our research group, led by Dr. Nobuyuki Onai, has recently discovered

the DC progenitors, a novel source of dendritic cells (DCs). In 2007, in collaboration with a research group in Switzerland, we identified progenitor cells committed to the DC lineage for the first time. However, these progenitors gave rise to many more cDCs than pDCs, implying that there must be another unidentified type of DC progenitor that serves as a major source of pDCs. Under the background, we focused on finding progenitor cells that serve as a major source of pDCs and that were closely related to the previously identified ones. After a long search, we successfully identified a DC progenitor with prominent pDC differentiation potential. Importantly, each of these DC progenitors can give rise to 500~1,000 DCs. The number of pDCs generated from each of the new DC progenitor cells is several times higher than that from the previously reported DC progenitor, and the new DC progenitor highly expresses E2-2, a basic helix-loop-helix transcription factor essential for pDC development and survival. Since both the previous and newly identified DC progenitors strictly give rise to DCs, and the former expresses M-CSF receptor (MCSFR) whereas the latter does not, we designate them by the term, M-CSFR<sup>+</sup> com-



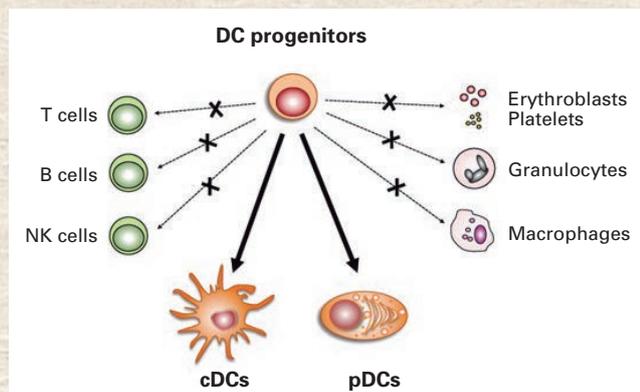
**Toshiaki Ohteki**  
PhD Professor,  
Biodefense Research,  
Medical Research  
Institute, TMDU

mon DC progenitors (CDPs) and M-CSFR<sup>-</sup> CDPs, respectively (Fig. 2). What then is the relationship between the previous and this distinct DC progenitors? We propose that the former might produce the latter by stimulating with M-CSF or thrombopoietin (TPO). In addition, we further found that the CDPs appear to be directly derived from lymphoid-primed multi-potent progenitors (LMPPs), the end stage of MPP.

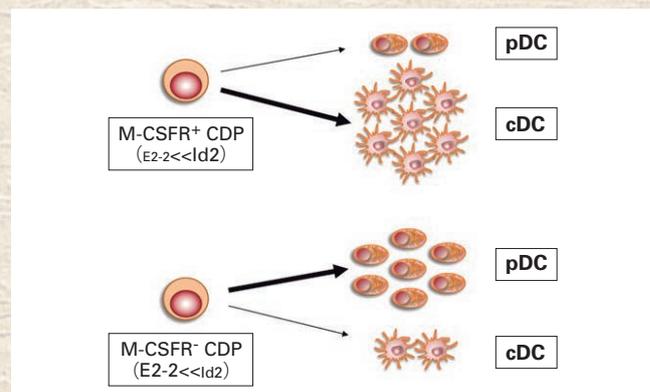
As DCs have recently received much attention as a potential target for vaccine development against infectious diseases and cancer, our findings, the identification of DC progenitors that produce 500-1,000 DCs and no other hematopoietic cells, may provide insight into DC differentiation pathways and may also be valuable in the development of therapeutic applications for infectious diseases, cancers, and autoimmune diseases.

References

1. Onai, N. et al., A clonogenic progenitor with prominent plasmacytoid dendritic cell developmental potential. *Immunity* 38, 943-57 (2013)
2. Shortman, K., and Sathe Priyanka. Another heritage for plasmacytoid dendritic cells. *Immunity* 38, 845-46 (2013)



**Fig. 1: Definition of DC progenitors**  
DC progenitors give rise strictly to cDCs or pDCs, but not to other hematopoietic cells.



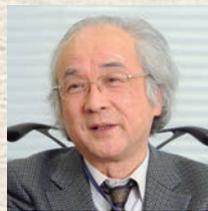
**Fig. 2: M-CSFR<sup>+</sup> CDP and M-CSFR<sup>-</sup> CDP**  
M-CSFR<sup>+</sup> CDPs give rise to many more cDCs than pDCs, whereas M-CSFR<sup>-</sup> CDPs give rise to many more pDCs than cDCs.

## Rapid Attachment of Artificial Materials to Bone Surface

**WE HAVE DEVELOPED** the novel technology for rapid biological attachment of artificial devices to the surface of bone substances. Presently, biocompatible materials as titanium and hydroxyapatite enables surgeons to attach devices implanted to bones through osseointegration (direct attachment of materials to bone tissue) and are utilized in many clinical applications including artificial joints and artificial tooth roots.

In the use of such materials, however, significant invasions to bones are required at device implantation since the bone forming cells derived from bone marrow are necessary for generation of bone tissue on the materials. In the cases of placement of devices to the bone surface, the scenario is quite different. Prior to the placement, surgeons have to peel off the membranes covering the bone surface. During this maneuver, the bone forming cells are severely damaged and no such cells could be recruited around the devices; hence realization of biological attachment to bone surface is a very difficult task.

Albeit the difficulty in osseointegration technology onto the bone surface, it will enable us to realize quite number of innovations in clinical devices. One of the great possibilities lies in the field of orthodontics. Actually, various kinds of devices have been created in the orthodontic treatment, with the use of



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PhD  
Professor, Medical and Dental Device Technology Incubation Center, Institute of Biomaterials and Bioengineering, TMDU

such devices orthodontist applied particular mechanical load to the tooth and generate the desired tooth movement. If such devices are fixed to the bone, their efficacy will increase significantly. Recent progress in dental implants already demonstrated such possibility, however, such implants inevitably accompanied with considerable invasion. Hence we investigated the technology for rapid attachment of artificial materials to bone surface.

We had to improve the surface characteristics to realize the direct attachment of materials to bone. Either titanium or hydroxyapatite, conventionally utilized materials for osseointegration, would induce fibrous soft tissue around the materials due to the absence of bone forming cells. We therefore adopted a brand new nanocomposite material, hydroxyapatite/collagen (HAp/Col) which was developed by researchers of National Institute of Materials Science (NIMS) and TMDU. This composite has a unique function of bioabsorbability; commonly known bioabsorbable materials are spontaneously degraded in the in vivo milieu and resorbed whereas

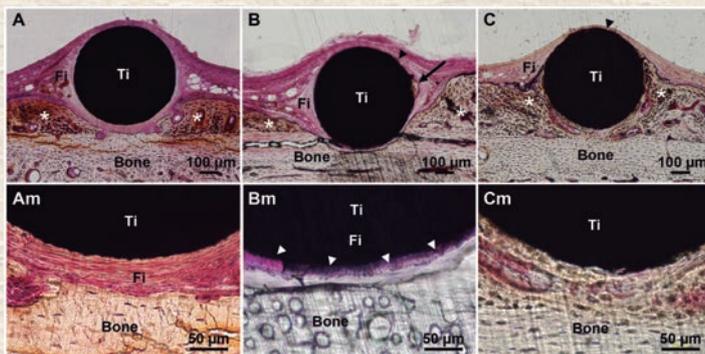


**Keiji Moriyama**  
DDS, PhD  
Professor, Maxillofacial Orthognathics, Graduate School of Medical and Dental Sciences TMDU

HAp/Col is ingested through phagocytic processing of cells. The enhanced activity of bone forming cells around HAp/Col had been proved in clinical trials and now the HAp/Col sponges are commercially available as the bone filling materials. These two characteristics, phagocytic processability and activation ability for bone forming cells are favorably employed for our intended usage of materials.

The technology developed in this study was the dip coating of HAp/Col to the surface of titanium. The efficacy of the technology was confirmed in the animal model in which coated titanium rods were placed under the periosteal membrane of rat's calvaria. The controls for comparison were bare titanium rods and conventional HAp coated rods. Dr Masayuki Kikuchi of NIMS, the inventor of HAp/Col, donated us the materials with kind expertise, and the experiments were performed by PhD candidate Masayoshi Uezono. Typical microscopic observation is shown in the figure. Bare titanium rod (A) and HAp coated titanium rod (B) was totally capsulated by soft fibrous tissues and no attachment to bone was realized. On the other hand, the HAp/Col coated rod (C) attached to bone.

Thus developed HAp/Col coating technology would be applied to various fields of dentistry and surgery. We are now promoting the joint investigation with a dental device company for the experiment with large animals, and expecting the device will be in clinical use in near future.



**Fig. 1:** Bare titanium rod (A) and HAp coated titanium rod (B) was capsulated by soft fibrous tissues whereas HAp/Col coated titanium rod (C) attached directly to bone tissue.



## EDITORIAL SUMMARY

**WE ARE PLEASED** to send you Vol. 6 of TMDU Annual News, with highlights of TMDU's international activities and campus events for the 2013 academic year. In **Message from the President**, Takashi Ohyama, the tenth President of TMDU, looks back over the history of the past six years, discussing the goals and plans he pursued during his Presidency. In **Interview with the New 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 holds first place in Asia in terms of citation rates per paper, and eighth place in Japan in university ranking. It was also selected as a leading research university in Japan, as reported by **the Program for Promoting the Enhancement of Research Universities**.

In addition, we have three reports from each of our **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. Yoshinobu Eishi; and the Chulalongkorn University-TMDU Research and Collaboration Center in Thailand, reported by Prof. Yoko Kawaguchi. In addition, we have two reports from the TMDU **International Exchange Center**. First, Prof. Kazuo Takakuda and Prof. Kevin Cleary report on the 5th TMDU International Summer Program (ISP2013), which attracted 25 students who are keen to study at TMDU. Prof. Ikuko Morio and Junior Assoc. Prof. Yuji Fukui report on the Workshop on Dental Education, where representatives from 15 dental schools in Southeast Asia discussed dental curricula and related issues with each other and TMDU faculty and staff.

This issue also features nine growing **Reports on Study Abroad Programs** from TMDU students and six 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 three **Press Releases**, in which Prof. Kenji Kawashima, Prof. Toshiaki Ohteki, and Prof. Kazuo Takakuda and Prof. Keiji Moriyama reported on recent research successes.

**THE EDITORIAL OFFICE** expresses many thanks to those who took special time in preparing articles for this issue. If you have any suggestions and 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 its open windows to the world.*

*This window represents TMDU as a global base for its speedy exchange of information.*

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