

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

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

Masanobu Kitagawa
MD, PhD
Professor, Comprehensive
Pathology, TMDU
Director of Satellite Office
in Chile

Hiroyuki Uetake
MD, PhD
Professor, Specialized Surgeries,
TMDU

Takuya Okada
MD, PhD
Junior Associate Professor,
Gastrointestinal Surgery, TMDU

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

Colorectal Cancer Screening in Chile, Supported by TMDU

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

the Latin American Collaborative Research Center (LACRC) was established at CLC in 2010. Over the years, TMDU has continuously sent experts in pathology, endoscopy and research to LACRC. Since 2012, PRENEC (the Prevention Project for Neoplasia of Colon and Rectum) has implemented, using Japanese methods in immunological fecal occult blood test and colonoscopy.

The Chilean-Japanese Institute for Digestive Diseases at the Hospital San Borja Arriarán is the main location of PRENEC in Santiago. The institute also serves as a training center for endoscopy. Many Chilean doctors have taken a training course in endoscopy, acquiring the skills required for cancer screening. The institute's endoscopy unit has been redesigned for PRENEC, with extensive support from the Japanese Embassy in Chile.

LACRC Members and University Activities

LACRC has been staffed by experts in pathology, endoscopy and molecular biology at TMDU. As of 2010, LACRC has been operated by nine TMDU doctors; as pathologists, Dr. Takashi Ito (April 2010 to March 2012) and Dr. Hiroshi Kawachi (March 2012 to March 2015); as endoscopists, Dr. Hiroyuki Uetake (July to August 2010), Dr. Tetsuro Nishikage (January 2011 to January 2012), Dr. Koji Tanaka (January 2012 to April 2013), Dr. Takuya Okada (April 2013 to March 2015), Dr. Masahiro Tsubaki (October 2014 to September 2015) and Dr. Tomoyuki Odagaki (November 2014 to present); and Dr. Maki Kobayashi as molecular biologist (July 2012 to March 2015). In November 2017, Dr. Masamichi Yasuno visited Chile to supervise colorectal surgery with local surgeons.

LACRC is operated in the headquarters of TMDU by Prof. Yujiro Tanaka (Executive Director in International Health Care Partnerships), Prof. Masanobu Kitagawa (Dean of the Faculty of Medicine, Department of Comprehensive Pathol-



1 Prof. Tanaka, Prof. Kitagawa, Prof. Uetake, Dr. López (CLC) and other committee members



2 Endoscopy training with Dr. Odagaki and doctors from Latin America

3 Dr. Odagaki performing an endoscopic procedure, in a live session with doctors in Argentina

4 Dr. Ito observing the operating room of a public hospital in Chile

ogy), Prof. Uetake (Department of Specialized Surgeries) and other staff. In Chile, Dr. Odagaki is the present chief of LACRC, and he is engaged in PRENEC as an instructor of colonoscopy to the Chilean doctors. Moreover, his prominent technique such as in endoscopic resection for superficial cancer has been in great demand not only inside but outside of Chile. Dr. Odagaki has been invited to local Chilean cities, Bolivia, Argentina and Uruguay for lectures, actual demonstrations and international live sessions.

TMDU also operates the Project Semester Program, appointing medical students to institutions overseas. In 2017, two medical students from TMDU were attached to laboratories in the University of Chile where they conducted advanced research in collaboration with local doctors.

Conversation with the Imperial Family of Japan

In September, the Imperial Japanese Prince Akishinonomiya Fumihito and Princess Kiko paid an official visit to Chile, to attend the ceremony for 120th anniversary of diplomatic relations between Japan and Chile. They also visited the Hospital San Borja Arriarán to observe the collaboration with TMDU, having a conversation with Dr. Odagaki and the doctors from the hospital. The Prince and Princess took a keen interest in TMDU activities and the medical equipment there.

Public Releases of PRENEC

The colorectal cancer screening system at PRENEC has achieved magnificent results, detecting many cases of cancer. Owing to the experts from TMDU, the completion rate of the screening procedure and the detection rate of colorectal cancer have improved remarkably from before. Furthermore, most of the cancers detected in PRENEC were early intramucosal cancers without risk of metastasis, and these lesions were treated successfully by endoscopy. These results

have been reported in various medical journals and congresses by Dr. Odagaki and past doctors. More reports related to PRENEC results are in progress for future publication.

Spreading Network of TMDU-PRENEC in Latin-America

PRENEC and supportive activities by TMDU are now recognized as essential aspects of Chilean health care. Increasing numbers of participants have steadily enrolled in PRENEC in six major cities: Santiago, Valparaíso, Punta Arenas, Coquimbo, Osorno and Valdivia. As the TMDU-PRENEC network is still spreading all over the country, more cities or facilities have concluded agreements to join PRENEC in the near future.

TMDU has also tried to promote the same screening system in other Latin-American countries, in association with JICA and the International Cooperation Agency of Chile (AGCI). In August 2015, the first Third Country Training Course for Colorectal Cancer Screening took place in Santiago. TMDU experts participated in the course as instructors and gave lectures to doctors from Ecuador and Colombia. In 2016 and 2017, the same training courses were held in Santiago for medical professionals from Bolivia, Paraguay and Peru. Dr. Ito and Dr. Okada from TMDU and Dr. Odagaki from LACRC gave special lectures to them. In these countries, the same screening programs as PRENEC are scheduled to start with each government.



5 Guidance concerning colonoscopy technique by Dr. Okada with doctors from Peru

Activities for Strengthening Relationships between TMDU and Thai Universities

CU-TMDU Research and Education Collaboration Center, Thailand

Yoko Kawaguchi

DDS, PhD
Professor of Oral Health
Promotion, TMDU
Director of Satellite Office in
Thailand

Appointment of Visiting Scholars

In 2017, TMDU appointed following three Thai alumni members as visiting scholars. Visiting Professor Thiravud Khuhaprema studied as an undergraduate student at Faculty of Medicine, TMDU for 6 years from 1974 to 1980. He is now a Director of Wattanosoth Hospital. He is a key person in the medical field between TMDU and Thai universities.

Visiting Associate Professor Atiphan Pimkhaokham studied for 5 years from 1997 to 2002 at the Graduate School of TMDU as a research student and a postgraduate student. At present, he is an Associate Professor, Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Chulalongkorn University (CU) and he also contributes as a coordinator to the CU-TMDU Research and Education Collaboration Center.

Visiting Assistant Professor Issareeya Ekprachayakoon studied for three years from 2011 to 2014 as a research student. She is an orthodontist working in the special clinic of the Dental Hospital at CU. She is assigned as a coordinator at the CU-TMDU Research and Education Collaboration Center like Visiting Assoc. Prof. Atiphan Pimkhaokham, and dedicates herself mainly to manage the International Joint Degree Doctoral Program in Dental Sciences between CU and TMDU thus far.

These visiting scholars all speak Japanese language well and they support the various exchange programs of students and scholars, and also collaborative research between TMDU and Thai universities.

Collaboration with Mahidol University (MU)

In November 2017, President Yasuyuki Yoshizawa made his first trip to Thailand. President Yoshizawa and the delegates made a courtesy call to President Banchong Mahaisavariya, the new President of MU to strengthen the relationship and cooperation between both institutions.

Following the first on-site meeting which was held in June in Bangkok, Prof. Yujiro Tanaka (Executive Director), Prof. Satoshi Miyake and Prof. Keiichi Akita had a second on-site meeting with the faculty members of the Faculty of Medicine, Siriraj Hospital, MU. They mutually confirmed the outline of the Joint Degree Program (JDP) in Medical Sciences (Surgery) and agreed to work jointly to launch the program in 2020. They had a ceremony for opening a new office, the "TMDU-MU Partnership Siriraj Office," which was established at Siriraj Hospital, Mahidol University.

In December, Professor Prasit, Dean of the Faculty of Medicine Siriraj Hospital, and delegates visited TMDU. Our mutual understanding was further promoted by discussing and exchanging ideas on various matters concerning the JDP.

Student Exchange Programs between TMDU and Thai Universities

There were lots of student exchange programs between TMDU and Thai universities in the fiscal year of 2017. A total of thirty-eight Thai students came to TMDU and twenty-six TMDU students visited Thailand. An active and fruitful student exchange program in many health fields was conducted as follows:

Inbound Program

From CU, two 6th year medical students came to TMDU and participated in the research program for about 1 month. Ten students of the Faculty of Allied Health Sciences in CU studied for 10 days at the School of Health Care Science, TMDU.

Four dental undergraduate students from Chiang Mai University, and two dental undergraduate students from MU came to TMDU and attended the short-term dental study program at the dental hospital of TMDU. From CU, six Master course students studied at the Dept. of Gerodontology and Oral Rehabilitation. In Thailand, the aging problem needs special attention to insure dental care for elderly persons. They observed the visiting dental service at home and also in aged care facilities.

In November 2017, two Master course students of CU and four 6th year undergraduate students of Srinakharinwirot University (SWU) participated in the TMDU International Dental Program (IDP) with Indonesian and Vietnamese dental students. The purpose of this IDP is to bring together students from Asia to enhance the international exchange and introduce the TMDU graduate school and research through various activities; campus tours, laboratory visits, discussion sessions, and poster presentations on the TMDU Research Day. TMDU dental students also attended the program

and strengthened mutual relationships and understanding.

Eight students of CU studied for two months at the Institute of Biomaterials and Bioengineering

Outbound Program

Two 4th year medical students studied at CU for 6 months in a Project Semester research curriculum. Three 3rd year students from the School of Health Care Sciences attended a short term study program in the summer vacation period. Five 5th year dental students visited CU and participated in the Research Day program.

Two 6th year medical students visited MU for 1 to 2 months and participated in the clinical practice course. Five 3rd year students from the School of Oral Health Care Sciences visited MU and attended a short term oral hygiene training course. Dr. Pornpot Fuantharntip, a TMDU alumni JDAT member, supported and arranged this new program.

Nine 3rd year dental students visited Srinakharinwirot University (SWU) and attended the short term dental training course. They joined an English class along with SWU undergraduate students and presented Japanese dentistry and Japanese culture to them. They also enjoyed the cultural exchange program with SWU students.

We expect these exchange programs will expand health network in Asia.



③ Prof. Moriyama, President Yoshizawa, Visiting Assistant Professor Issareeya Ekprachayakoon (front left to right) Three JDP students (back)
④ President Yoshizawa (TMDU) and President Banchong (MU), and delegates from TMDU at MU
⑤ Opening ceremony of the "TMDU- MU Partnership Siriraj Office"

① President Yoshizawa gives a certificate to Visiting Professor Thiravud Khuhaprema
② Visiting Associate Professor Atiphan Pimkhaokham



Research Partnership between TMDU and the Noguchi Memorial Institute for Medical Research, University of Ghana

Ghana-Tokyo Medical and Dental University Research Collaboration Center

Shiroh Iwanaga
PhD

Professor, Environmental
Parasitology, TMDU
Leader of TMDU-AMED/JGRID
project in Ghana

Overview of the International Research Collaboration

The international research collaboration project between TMDU and the Noguchi Memorial Institute for Medical Research (NMIMR) in Ghana started in 2008 as part of the Program for Founding Research Centers for Emerging and Re-emerging Infectious Diseases, supported by the Japanese Ministry of Education, Culture, Sports and Technology (MEXT). This project was replaced by the Japanese Initiative for Global Network on Infectious Diseases (J-GRID) program with a minor modification in the scheme. The first and second terms of the J-GRID program, which were supported by MEXT, were finished at the end of the Japanese fiscal year (FY) 2014 and the third term of the project restarted from FY2015 with the support of the Japan Agency for Medical Research and Development (AMED). Dr. Mitsu-ko Ohashi, the project associated professor of TMDU, was dispatched to Ghana as the team leader in 2015 and has managed the Ghana-TMDU Research Collaboration Center. In addition, Dr. Takaya Hayashi, the project lecturer of TMDU, joined the project from FY2017 and started to work together with her in Ghana. Currently, 11 Japanese and 10 Ghanaian researchers participate in the project and cooperate in several research areas. The main focus of the AMED/J-

GRID project is to promote innovative research collaboration with counterpart researchers for developing new diagnostic methods, finding the lead compounds for new drugs, and identifying the candidates for new vaccines. Furthermore, the AMED has made the request for information sharing with the National Institute of Infectious Diseases (NIID). Under this concept, our AMED/J-GRID project conducts the following four research initiatives; 1) the surveillance of dengue/chikungunya viruses prevalent in Ghana, 2) the genetic analysis of the rota virus, which is the causative agent of acute diarrhea, 3) the identification of carbapenem resistance bacteria, and 4) the development of new antiparasitic drugs from Ghanaian medical plants. To conduct the research more efficiently, we invited Japanese experts from NIID, Kitasato University and Nagasaki International University, and built the “all Japan collaboration team”. So far, we detected antibodies against dengue and the chikungunya viruses, indicating the infections with those viruses in Ghana. In addition, we showed that the genotypes of the rota virus changed after the introduction of its vaccine. The identified genotypes are different from the vaccine strain, suggesting that the efficacy of vaccine may decrease in future. The carbapenem resistance bacteria was firstly found in Ghana and the resistance gene was then identified. The drug resistance gene will be a useful



③ Session in 90th anniversary symposium of Dr. Hideyo Noguchi's arrival in Ghana.
④ Group photograph after 90th anniversary symposium.

molecular marker for the surveillance of this emerged resistance. The new chemical compound, which killed *Trypanosoma brucei*, the protozoan parasite, was identified from the Ghanaian plant, *Morinda lucida*. To develop the anti-trypanosomal drug, we now evaluate their activity using an animal model. To achieve the final goals, all Japanese-Ghanaian teams pursue further researches.

The Importance of the Collaboration between TMDU and NMIMR, University Ghana, in the Development of Human Resources

The collaboration between TMDU and NMIMR plays an important role in not only research, but also development of human resources in Japan and Ghana. TMDU implements an education program for medical students who want to gain experience with overseas medical institutions. Under this program, undergraduate students stay to carry out their research project out for a few months in NMIMR: one student visited NMIMR in 2017. It is a good chance for them to better understand the health problems which developing countries like Ghana face. On the other hand, TMDU accepted young and talented researchers as PhD. students under a scholarship program supported by MEXT. In the last 6 years, 11 PhD. students from NMIMR have studied in the doctoral course of TMDU. Taking the importance of the education of young Japanese and Ghanaian students and researchers into consideration, TMDU expanded more intensive exchange activities not only with NMIMR, but also with the University of Ghana. President Y. Yoshizawa, of TMDU, and Vice-Chancellor E. O. Owusu, of the University of Ghana signed a MOU for University-level exchange and a new student-exchange scheme was started. This University agreement between TMDU and the University of Ghana including NMIMR will strengthen the partnership between

them. Thus, the Ghana-TMDU Research Collaboration Center is expected to act as not only a research center, but also as an academic exchange center between Japan and Ghana.

90th Anniversary Symposium of Dr. Hideyo Noguchi's Arrival in Ghana

Dr. Hideyo Noguchi arrived at Ghana in 1927 and tried to identify the causal pathogen of Yellow fever. To honor his achievement and commemorate the friendship between Japan and Ghana, NMIMR held the 90th anniversary symposium of his arrival in Ghana. Dr. Ohashi and TMDU cooperated in the management of the symposium together with the Japanese embassy. More than 400 people participated in the symposium which was both fruitful and successful. From Japan, not only university and government agencies such as the Japanese embassy, AMED and JICA, but also the public interest foundation corporation of the Dr. Hideyo Noguchi museum participated in this symposium, and invited speakers talked about the historical and current contributions of Japan to Ghana in the medical science field. The Director of NMIMR, Professor Kwabena Mante Bosompem in his opening remarked on the research perspective. In his words, “the NMIMR since its establishment has been pursuing a threefold mandate : to conduct research into communicable and non-communicable diseases; build capacity for the next generation of scientists and provides specialized diagnosis and intervention tools in support of public health in Ghana.” Professor Emeritus Nobuo Ohta and I talked about the historical contribution and the achievements of our AMED/J-GRID project, respectively. TMDU is highly expected to contribute to the advance and development of NMIMR through the medical research. Therefore, the Ghana-TMDU Research Collaboration Center will be more important than ever.



The Director of NMIMR, Professor Kwabena Mante Bosompem

① Annual Meeting of AMED/JGRID project at Tokyo.

② TMDU medical students and the staff of Ghana-TMDU Research Collaboration Center

