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Undergraduate Medical Science Course in Tsukuba 2019 (SAKURA Exchange Program in Science)



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Undergraduate Medical Science Course in Tsukuba 2019 (SAKURA Exchange Program in Science)

Undergraduate Medical Science Course in Tsukuba 2019

Aya Fukuda, Kazuya Morikawa, Kiong Ho, Norihiro Ohbayashi,
Keiko Ookawa-Chinzei, Yukari Okita, Bryan Mathis,
Makiko Takahashi, Tomoko Katsumata, Kayoko Morishita, and Koji Hisatake

The 5th Undergraduate Medical Science Course was held in Tsukuba from February 17 to 24, 2019. We invited 18 foreign students from some of our partner universities in Indonesia, Vietnam, and Taiwan and high schools in Vietnam and Thailand.

Participants:

University of Indonesia (Medicine):	2 students
University of Indonesia (Pharmacy):	2 students
University of Medicine and Pharmacy HCMC (Medicine):	1 student
University of Medicine and Pharmacy (Pharmacy):	1 student
University of Science HCMC (Biotechnology):	1 student
University of Science (Biology):	1 student
National Taiwan University (Clinical Laboratory Sciences and Medical Biotechnology):	2 students
National Cheng Kung University (Medicine):	1 student
National Cheng Kung University (Medical Laboratory Science and Biotechnology):	1 student
High School for Gifted Students, Hanoi University of Science:	2 students
High School for the Gifted, Vietnam National University:	2 students
Demonstration school of Khon Kaen University:	2 students
University of Tsukuba (School of Medical Sciences):	11 students

This program was supported by “Japan-Asia Youth Exchange Program in Science” (SAKURA Exchange Program in Science), Japan Science and Technology Agency (JST). <http://ssp.jst.go.jp/EN/index.html>

Schedule

Schedule for SAKURA Science Program 2019			
Day 1	Feb. 17 (Sun)		Arrival
Day 2	Feb. 18 (Mon)	AM	9:00am - orientation (Igaku-Gakkei building, Room 483) (course introduction, self introduction etc.)
		PM	Laboratory Experiments
Day 3	Feb. 19 (Tue)	AM	Laboratory Experiments
		PM	Laboratory Experiments
Day 4	Feb. 20 (Wed)	AM	Laboratory Experiments
		PM	12:20 @ Matsumiguchi Tsukuba Science City Tour (JAXA at 13:30-, NIMS at 15:00-)
Day 5	Feb. 21 (Thu)	AM	Laboratory Experiments
		PM	Laboratory Experiments, Preparation for presentation.
Day 6	Feb. 22 (Fri)	AM	Preparation for presentation (laboratory or Innovation bld. 8th floor) Presentation rehearsal (Innovation bld. 8th floor)
		PM	15:00- Final Presentation (Innovation bld. 8th floor) 18:00- Farewell party (Innovation bld. Room 105)
Day 7	Feb. 23 (Sat)	AM	Japanese Culture Tour (Asakusa & Tokyo Skytree)
		PM	
Day 8	Feb. 24 (Sun)		Departure

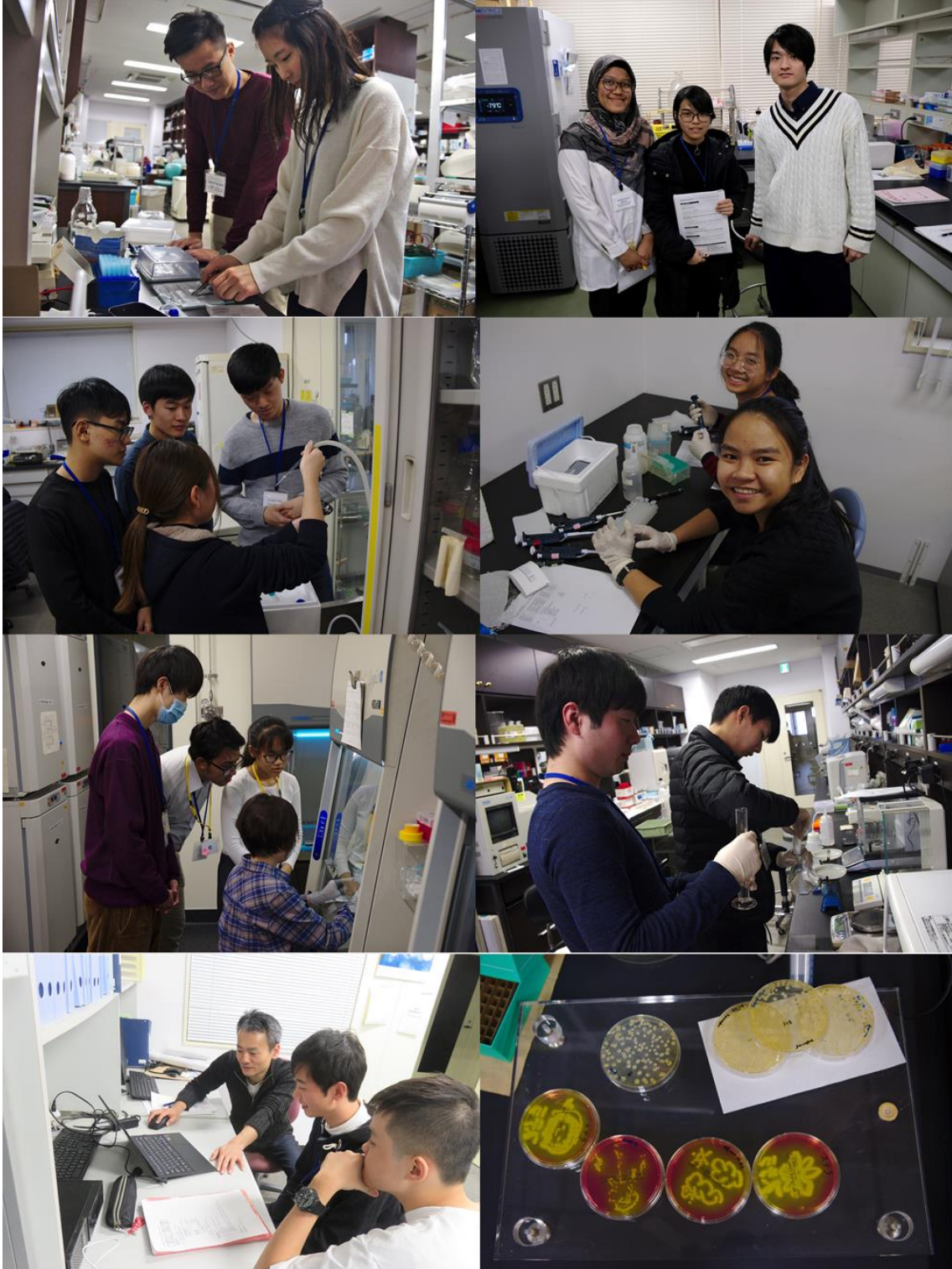
Orientation and Self-introduction



Laboratory Experiments

One Tsukuba student made a group with one or two overseas students, and each group stayed in different laboratories to have research experiences.

	Laboratory	PI	Name and affiliation of participants		
1	Department of Immunology	Akira Sibuya Kazuko Shibuya	Takumi Kishimoto University of Tsukuba	Yu-Chien TSAO National Cheng Kung University (Taiwan)	Tran Quang Dan High school for the Gifted (HCMC, Vietnam)
2	Infection biology (bacteriology)	Kazuya Morikawa	Maaya Sasaki University of Tsukuba	Stella Vania University of Indonesia, Pharmacy (Indonesia)	NGUYỄN THỊ PHÚC NHÂN University of Medicine and Pharmacy (UMP) (Vietnam)
3	Molecular Cell Biology	Yasuyuki Suda Kenji Irie	Minori Isaka University of Tsukuba	Septia Nurmala University of Indonesia, Pharmacy (Indonesia)	Trần Đình Quang HUS High School for Gifted Students (Hanoi, Vietnam)
4	Experimental Pathology	Mitsuyasu Kato	Yuudai Higuchi University of Tsukuba	Andintia Aisyah Santoso University of Indonesia, Medicine (Indonesia)	THỊNH THANH BÌNH HUS High School for Gifted Students (Hanoi, Vietnam)
5	Laboratory of Animal Science	Fumihiro Sugiyama	Takuya Noguchi University of Tsukuba	Xiao-Rong SHEN National Cheng Kung University (Taiwan)	
6	Yanagisawa/Funato Lab	Masashi Yanagisawa	Hiromu Tanaka University of Tsukuba	Mohammad Amin Rais Perfernandi Ilham University of Indonesia, Medicine (Indonesia)	Lam Thao Nhu High school for the Gifted (HCMC, Vietnam)
7	Medical Genetics	Emiko Noguchi	Tomofumi Misato University of Tsukuba	TSENG, CHI-YANG National Taiwan University (Taiwan)	
8	Laboratory of Gene Regulation	Koji Hisatake	Ayano Watanabe University of Tsukuba	VO HO MY PHUC University of Science HCMC (Vietnam)	Naphawarin Suphathira Demonstration school of Khon Kaen University (Thailand)
9	Department of Physiological Chemistry	Norihiko Ohbayashi Yuji Funakoshi	Shunya Sadaki University of Tsukuba	NGUYỄN ĐÌNH HƯNG BÌNH University of Science HCMC (Vietnam)	
10	Internal Medicine (Endocrinology and Metabolism)	Yoshimi Nakagawa	Haruka Mori University of Tsukuba	QUACH THIEU MINH University of Medicine and Pharmacy (UMP) (Vietnam)	
11	Laboratory of Regenerative Medicine and Stem Cell Biology	Osamu Ohneda	Ami Kaneko University of Tsukuba	LIU, GE-JYUN National Taiwan University (Taiwan)	Kanokkorn Thangsombat Demonstration school of Khon Kaen University (Thailand)



Tsukuba Science Tour

This program provided us an opportunity to introduce some of the research institutes in Tsukuba city, such as JAXA (Japan Aerospace Exploration Agency) and NIMS (National Institute of Materials Science).

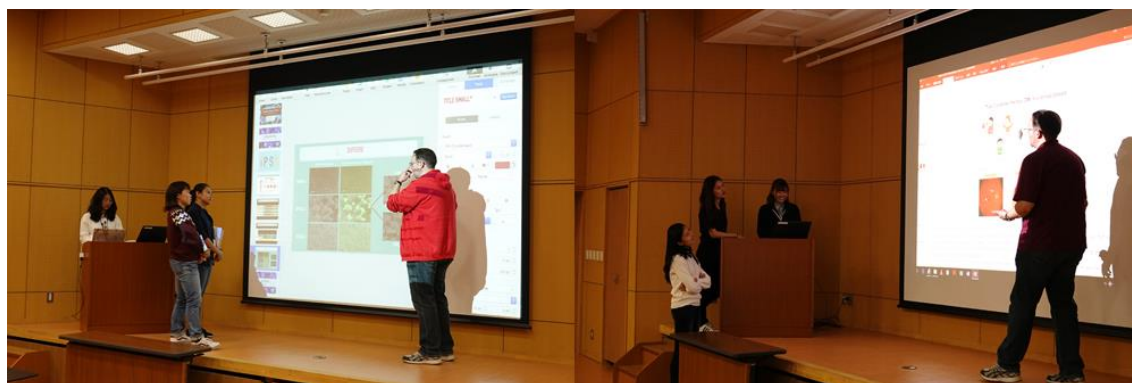


Presentation

All participants presented the results of experiments which they have done in each laboratory.

Sakura Science Program: Timetable for Final Presentation (Feb 22, 2019, Health Med Sci Innovation Lab, 8th floor Auditorium)

09:00	preparation for presentation / rehearsal					Health Med Sci Innovation Lab, Rm. 105
12:00	(break)					
13:00	preparation for presentation / rehearsal					
Time	Chair	Students			Lab	Supervisor
15:00	Opening Remarks					
15:05	Haruka Mori Quech Thieu Minh	Yu-Chien Tsao (TW)	Tran Quang Dan (VN)	Takumi Kishimoto (JP)	Immunology 免疫学	Akira Shibuya, Kazuko Shibuya 篠谷 彰、篠谷和子
15:15		Stella Vanla (ID)	Nguyen Thi Phuc Nhan (VN)	Maeye Sasaki (JP)	Infection Biology-Bacteriology 感染生物学 (細菌学)	Kazuya Morikawa 森川一也
15:25		Septia Nurmale (ID)	Tran Dinh Quang (VN)	Minoru Isaka (JP)	Molecular Cell Biology 分子細胞生物学	Yasuyuki Suda, Kanji Irie 須田泰之、入江寛晃
15:35		Andintia Alishah Santoso (ID)	Thinh Thanh Binh (VN)	Yusuf Higuchi (JP)	Experimental Pathology 実験病理学	Mitsuyasu Kato 加藤光保
15:45	Break					
16:00	Takumi Kishimoto Yu-Chien Tsao	Xiao Rong Shen (TW)	----	Takuya Noguchi (JP)	Laboratory Animal Sciences 実験動物学	Fumihito Sugiyama 杉山文博
16:10		Mohammad Amin Ria Perfermandi Ilham (ID)	Lam Thao Nhu (VN)	Hiromu Tanaka (JP)	Sleep Medicine 睡眠医学	Masashi Yanagisawa 柳沢正史
16:20		Chi-Yang Tseng (TW)	----	Tomofumi Misato (JP)	Medical Genetics 遺伝医学	Eniko Noguchi 野口恩希子
16:30		Vo Ho My Phuc (VN)	Naphawarin Suphathira (TH)	Ayano Watanabe (JP)	Gene Regulation 遺伝子制御学	Koji Hatake 久武幸司
16:30	Break					
16:45	Hiromu Tanaka Mohammad Amin Ria Perfermandi Ilham	Nguyen Dinh Hung Binh (VN)	----	Shunya Sadaki (JP)	Physiological Chemistry 生理化学	Noriohiko Ohbayashi, Yuji Funakoshi 大林典幸、船越祐司
16:55		Quech Thieu Minh (VN)	----	Haruka Mori (JP)	Endocrinology & Metabolism 代謝内分泌内科	Yoshitoki Nakagawa 中川 豊
17:05		Ge-Jyun Liu (TW)	Kanokorn Thangsombat (TH)	Ani Kaneko (JP)	Regenerative Medicine 再生医療	Osamu Ohneda 大園田 敬
17:15	Closing Remarks					





Farewell Party



Japanese Culture Tour

Before overseas students leave Japan, we enjoyed Japanese culture in Tokyo. We went to Asakusa and Tokyo Skytree.



Letters from participants

By Septina Nurmala, University of Indonesia, Pharmacy

Sakura exchange programme was the most astonishing moment ever occurred to me. I've never joined any exchange programme before, and this programme provided such a quintessential experience of undergoing a research in foreign countries. During my stay in Japan, I was utterly impressed by a lot of things, from Japanese congeniality to the advances of their knowledge and technologies.

Despite the cold weather upon arrival, I was greeted with the warmest welcome by my Japanese partner, Minori Isaka. She is such a smart, cute and an extremely reliable girl. I am very grateful to get the chance to know and befriend her! She was very patient and optimistic all the time. We talked and shared a lot of our interests. We even had an ice cream together in the middle of a freezing temperature on the very first day! As someone with a lot of food restrictions, I didn't need to worry because Minori was such a professional food looker to make sure I ate only halal foods but still been able to taste the Japanese touch in every dish. I'm certain I would be so lost and in so much trouble without her presence and guidance. Thank you, Minori!

Moving on to the laboratory topic, I was put in a laboratory of molecular cell biology with Professor Kenji Irie and Dr. Yasuyuki Suda as my supervisors. I was completely awed when I first came inside the laboratory. Professor Irie's lab is the most advanced laboratory I have ever visited. Being able to conduct an experiment at his lab was an honor



to me. At the lab, my teammates and I were ought to perform four different experiments related to the yeast's morphology, genotype and phenotype. To say I honed only basic laboratory skill was such an understatement. I learnt a lot more than that, including the technique of using fluorescence microscope to observe the yeast's cell morphology and making a duplicate of cell culture. However, the most ecstatic activity in the lab was when I got to dissect a tetrad using a microscope-resembled tool. Seeing Dr. Suda demonstrated

the technique of dissection flawlessly shrank my confidence a little bit, but the technique was really brand new to me that my fear was covered by my thrill. Professor Irie did more than mentor us for the lab activities. He explained the material of the course thoroughly with a lot of patience. Difficult concept became understandable if it was explained by him. This photo here on this page is one of the physical proofs of how kind he is.

During the lab, I also met the seniors working their experiments. They were all very welcome and they were willing to help their juniors. Two hours before the presentation, senior Arvin helped us to construct and concretize the aim of my group's experiment. That way, I didn't feel left out. I'm forever grateful to have those people supporting me during the programme.

I could say this hundreds of times but that will never be enough: Japan is a fascinating country full of moral values! Been living in a city where traffic jams are common thing, I was speechless seeing the traffic in Tsukuba city. It was contrast to mine! Blending in the traffic situation and their meticulously ordered building landscapes is what makes Japan as Japan and all their captivating atmosphere. They uphold such simple habits such as punctuality and politeness toward other people. They embody the definition of hard-working persons, particularly the Sakura programme committee. They ensured that everyone of us joining this programme got the most wonderful experience during our stay.

I would like to express my sincere gratitude towards all the members of Sakura programme for providing me such a priceless experience.

Totsiens, Tsukuba!

By Nguyen Thi Phuc Nhan, University of Medicine and Pharmacy, Pharmacy

Three months and eight days gave me a memorable journey to Japan. From the day I received the invitation till the day I came back to Vietnam, I always thought that I was dreaming! Since the workshop in Vietnam last summer in 2018, I always hoped that someday I could see my lovely Japanese friends and great professors once again. Therefore, this chance is a precious opportunity that makes my dream come true. It was what I always dreamt about!

One thing I always feel thankful is working in the Infection biology laboratory, which is the laboratory I always wish to join. Professor Morikawa is different from the other Professors I have ever met. He is funny and friendly. Although he is busy, he still spent time giving us advice, suggestions as well as further explanations for research themes, which were *Staphylococcus aureus* and



Agr gene. I truly appreciate all the help you gave to us!

Furthermore, Vishal is not only a good advisor but also a good teacher for me. He gave us a brief overview of what the job involved, taught us a lot of techniques to work with bacteria as well as shared the opportunities for higher programs after graduation. After all, I would like to thank Professor Morikawa, Vishal, Sensei and Senpai for everything in this laboratory.

My partners, Stella Vania (Indonesia) and Maaya Sasaki (Japan), are all great friends. We had the time together for working, sharing and hanging out. We taught each other about our own cultures and language. We challenged ourselves to try Japanese food, at least one new dish every single day! I tried Sushi (no wasabi), Marukame Udon, Ramen, Takoyaki, Okonomiyaki, Sukiyaki, Sakura mochi, Starbucks sakura-flavored drinks,... I have to say that “I really, truly, completely love Japanese food!”. I also have the opportunities to know many new friends from other countries such as Indonesia, Taiwan, Thailand and Japan. Almost people were very friendly. I also greatly enjoyed he

Shinonome Hotel with a tiny single-room. We could easily come to Tsukuba Station, Shopping Mall, etc. from the hotel. Throughout this experience, I had a great chance to explore more about the Japanese Lifestyle, which always interests me since I was a teenager!

Besides, we also had outside activities to go to JAXA and NISM. I still remembered the moment I stood in the observation room and watched JAXA staffs, admiring the view. People totally focused their attention on their job, no time for rest. With NISM, I really appreciated the researchers from NISM. They produced a lot of new materials for science and modern life. The last day in Japan, with Tokyo trip, was a day I could not forget. That was the first time I travelled to Tokyo, Asakusa, Nakamise, Tokyo Skytree, Aquarium, Planetarium and Tsukuba express Train. Everything was amazing! It was just only one day but we did a lot of things and knew many interesting Japanese cultures there. I bought some Omamori and prayed for a better future in Sensoji Temple. However, when Akiko Sensei asked me “Where do you prefer, Tokyo or Tsukuba?”, I answered that I preferred Tsukuba, where I felt peaceful with the world!

So this is the everything I did in SAKURA Science Program. The people I met, the friendship I made and the places I saw in Japan 2019 were unforgettable for me. Last but not least, if you have a chance to come to Japan like what I had, just catch it and make sure you work hard and play hard through SAKURA Science Program. YOLO!

By Chi-Yang Tseng, National Taiwan University

Remember the first day I came to Tsukuba was a little tired since this is my first time going abroad. I was nervous for the introduction on the next day due to my not fluent English. However, when started talking with English, it seemed to be more ease because even though I could not speak fluently, everyone was still patient to the words I said and tried to communicate with me. That made me more confident and ready for the follow experiments.

My laboratory is Medical Genetic. Our professor, Emiko Noguchi, is very friendly and kind to me. After a short introduction of the experiments, we started from DNA extraction to different molecular methods such as PCR, TaqMan Assay, and Sanger sequencing to detect human polymorphism on different genes. Since I have learned these knowledges in NTU courses and had laboratory experience before, it was more easily to understand and operator the experiments for me. Sometimes when my partner, Tomofumi Misato did not known very well, I could help him to catch the points. Moreover, when I tried to explain my meaning to Tomofumi, my speaking English improved as well. Now I would not be afraid to communicate stranger with English any more. I am appreciated to Tomofumi very much.

On fourth day was the tours of JAXA and NIMS. In JAXA, we visited the “KIBO” Flight Control Room and Astronaut Training Facility. We saw realtime operation of “KIBO”, the Japanese Experiment Module on the International Space Station, and know about astronauts’ selection, training, and healthcare. For NIMS, we listened to four different biomaterial field speeches. All of them were interesting to me. The most interesting part was after speaker’s speech end, we could ask questions to the speaker, and I have learned a lot from these speeches and came out with some ideas about my career planning.

The last day in Japan we went to Tokyo and visited Asakusa and Tokyo Skytree. We prayed for good luck in Sensoji Temple and bought a lot of Japanese snacks like にんぎょうやき and ようかん. After lunch, we went to Tokyo Skytree. It was a lot of people lining up for buying tickets to the top. We finally got the tickets and took the elevator up to 350-meter-high and got a panoramic view of the whole city. The building became all small and intensive. It was a special experience for me.

I am grateful that I have this chance to exchange to University of Tsukuba. Not only make lots of friends but also open my mind to the world. I realize that it is not hard to communicate with foreigners as I thought. I hope one day I can come to Tsukuba and see your people again.

Sincerely,

Chi-Yang Tseng

From Department of Clinical Laboratory Sciences and Medical Biotechnology, National Taiwan University



By Lam Thao Nhu, High School for the Gifted, Vietnam National University

When my teacher first announced the Sakura program, I didn't have even a slightest hope that I would make it into the trip. I have thought that as a young high school first-grader, I stand no chance against all the older and wiser students of high school. But the idea of having a short trip to study at a country with high reputation for pharmacy is so tempting that I eventually decided to try applying for it.

Had never thought I would really make it into the program, I was overjoyed when I knew I did it. I packed my things, prepared as much as I could for the program and get on the plane in a dream-like state. But when I finally landed on Japan and see many much older participants, most of them was university students, I was truly nervous. "How can I talk and be friend with them?" "What if the others think that I'm too young, too immature and inexperienced that they look down on me?" "Will I have a successful program with all these superior people?", those was what I have constantly worried about on the first day. But things turned out to be exactly opposite. Even when most of the participants were older than me, they were very nice. Both my Japanese partner, Hiromu Tanaka - kun and my Indonesia partner M.A.R.Perfernand I. are extremely friendly and helpful. We had so much fun spending the days together.

I and my partners was assigned to work in the International Institute for Integrative Sleep Medicine, also known as the IIIS department. At that newly built building with beautiful decoration and plenty high-technology equipments, we conducted the experiment on mice to measure the EEG and EMG signals in order to test the effect of YNT-Y2, an orexin receptor antagonist. Helping me on the task was Doctor Masashi Yanagisawa, Yoko sensei and Yukiko-san. Doctor Masashi Yanagisawa was my professor, he was very professional and had deep knowledge in his field. Despite his busy schedule, Professor Yanagisawa spent time helping us with our presentation and our understanding in the subject we worked on. My advisor was Yoko sensei, she assisted us in our experiment with a caring and understanding manner. Sometimes when I didn't fully understand the study, she didn't explain everything again for me. I also received the help of Yukiko-san, a master student at the lab of Professor Yanagisawa who had helped me communicate with my partner and advisor easier. I really appreciate their help, without it, our project wouldn't have ended well like it had been.

But the program didn't include just studying, I also had the chance to explore the wonderful culture of Japan. After a long day working hard, I enjoyed discovering Japan

cuisine with my partner and sometimes other students from other country as well. By hose evening spent together, we enhanced our friendship to make the trip an even more valuable experiences. I had the opportunity to visit Asakusa and the Tokyo Skytree on my last day of the trip, along with my new friends under the monitor of professors. I got to see the big temple at Asakusa, many small vendors sole pretty souvenirs featured Japan culture and the way Japanese normally act. It was a very joyful day for me.

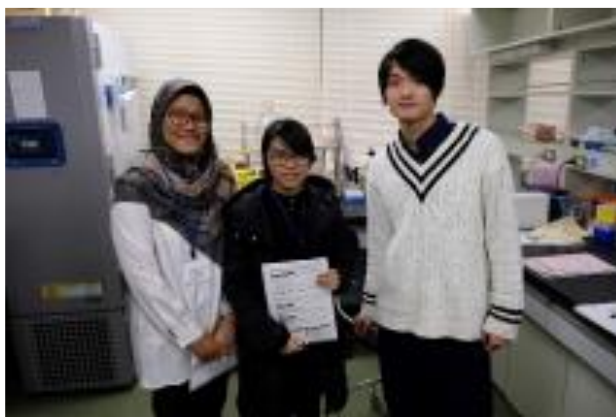
I had learnt so many things from the trip. By performing the experiment on the mice, I recognised the lack of knowledge and real experience that I will need if I decide to pursue an education in biology and pharmacy. It motivated me to push myself harder, to study and research more, to gain as much information in my majored as possible, to reach my goal for the future. After the program, I also have fully understood that the difference between cultures are very big. I knew that each country has its own culture, social behavior and norms which are not always the same, but I have never thought it is varied that much. For example, I think that Japan people are much more polite, hard working and discipline than Vietnamese, while Vietnamese are more dynamic and sociable. Notice the different help me improve myself into my better version with nicer personality. I also gained a kind of confidence and independence that can not get elsewhere. For the first time in my life, I earned and used a valuable thing completely by myself without the help of family. The idea of making something myself was very satisfying and brought me pride. In conclusion, I want to thank Professor Yanagisawa, my advisor Yoko sensei, Yukiko-san, my dear Japanese partner Hiromu-kun, Professor Aya Fukuda who organized this wonderful program and miss Makiko Takahashi who have greatly helped me with preparing for the trip. I am very grateful for all of your dedicated help for me and every single participant of the Sakura Program to have such beautiful time and unforgettable experiences.

By Yuudai Higuchi, University of Tsukuba, Medical Science

This program gave me a new sight. This was first time for me to talk with people from abroad in English. Before SAKURA program, I thought that I can speak and listen English enough to have conversation. But, I couldn't do as I thought. It took much time to understand what conversation partners say and I asked them so many times to repeat that. When I wanted to tell them what I thought, I couldn't convey that to them completely. This situation made me tired.

In terms of experiments and presentation, I could do well cooperating with my partners. I had two partners. One was a medical student from Indonesia, the other was a high school student majoring in mathematics from Vietnam. They were unfamiliar with experiments.

In the experiment using very little liquid with micropipette, their data had a lot of errors. So, I advised them and showed how to do it. After that, their technics became better step by step and they could get good data in the last experiment. When we made slides for our presentation, we worried about how we show the data



to make the meaning understandable easily. Then, they came up with great ideas I didn't have. In addition, they chose words can attract the audience. Because of them ideas, our presentation became better. I was greatly helped. Conversation in English was very difficult for me. But, to talk with people from abroad was interesting. I found that some common things in Japan become uncommon in Indonesia and Vietnam. And I surprised a religious and culture greatly affects way of thinking. I never notice these things without having conversation with them. Talking with other country people has significant value. So, I realized importance of English that we can convey our thinking and feeling each other by using. In this program, I noticed my English is very poor. So, I decided to study English hard and I am able to talk with people from abroad fluently. I believe that English gave me other sights. This program which taught me it was valuable experience.

By Kanokkorn Thangsombat (Nam), High school The Demonstration School of Khon Kaen University

SAKURA SCIENCE PROGRAM REPORT TSUKUBA – 17/02/2019 to 24/02/2019

At first, when I knew that I was chosen to participate in SAKURA SCIENCE PROGRAM, Tsukuba. I was very excited because Tsukuba University is a leading university in field especially in terms of medical innovation and technology. Moreover Tsukuba University is also acknowledge and prepared for international university students to study in. Nevertheless I'm a little bit worried because almost all of the students in this program from university but me and my partner study in grade 11. The nervousness decreased when I met with other participate and Japanese students because everyone is very friendly.

I learnt a lot of exciting experiments from our lab professor and assistant professor. My topic of laboratory is Regenerative Medicine and Stem Cell Biology. We start with experimental about therapeutic strategy of type2 diabetes by stem cell. And one thing that I felt very impressed with my assistant professor was



their heed about teaching and my emotion. The weather in Japan was very cold for me but I still felt warm inside by the take care from my lab professor and assistant professor. We are spending most of our time in laboratory, I also learnt Japan culture from Japanese students about lifestyle of Japanese. It was my luck to have a hard-working with kind partner. Because two students in my laboratory were from university but I'm from high school but everyone very kind to me and always answer all question when I didn't understand. And they helped me making final presentation in last day in laboratory.

But most importantly, I gain a big science processing skill. Because we are spending most of our time to do experiment together in laboratory according our topic, so we study about how to use stem cell to treat diabetes type2. Our lab professor and assistant professor convey all the knowledge and experience to us. By a high school class in my school learned only in the sector of scientific theories. And do the experiment, only basic subject in each story. But when I came here I have used the skills and sensitive laboratory

instruments combined with knowledge. I can find that science is a powerful force that helped to propel the world and can save the lives of many people.

When I was in Tsukuba University, time flew very fast. I'm delighted to make your acquaintance. And it was great to have memorable time with everyone in SAKURA SCIENCE PROGRAM. Throughout the 9 days that I have been at Tsukuba University, it may a short time, but the experience that we have gained from this program is a lot of skills about laboratory experiment, Japan language or even the culture of Japanese people. Finally, I hope to return to Japan as a student at Tsukuba University.

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