

1st YCU Graduate School Science Retreat Program 2014

24th February - 2nd March 2014

Yokohama City University (YCU), Graduate School of NanoBio Sciences (Yokohama, Japan) provided an intensive scientific program for Ph.D. students to present their research findings to top-level US scientists in La Jolla, CA (Sanford-Burnham Medical Research Institute (SBMRI); Division of Biological Sciences, UC San Diego (UCSD); and UCSD/ Scripps Institution of Oceanography (SIO)).

YCU supervisors

Prof. Yasunari Ogihara, Ph.D. (Plant Genomics), Dean, Graduate School of NanoBio Sciences, YCU
http://pgenome.sci.yokohama-cu.ac.jp/en_index.htm

Prof. Yasuhiro Ozeki, Ph.D. (Glycobiology), Graduate School of NanoBio Sciences, YCU (program coordinator)
<http://researchmap.jp/1124/?lang=english>

Cooperative research organizations/ scientists

Division of Biological Sciences, UCSD (La Jolla, CA)

Prof. **Susan S. Golden**, Ph.D. (Circadian Biology)

Prof. **Yunde Zhao**, Ph.D. (Plant Molecular/ Cellular Biology)

Sanford-Burnham Medical Research Institute (La Jolla, CA)

Prof. **Guy S. Salvesen**, Ph.D. (Molecular Pathology); Dean, Graduate School of Biomedical Sciences

Res. Asst. Prof. **Shu-ich Matsuzawa**, Ph.D. (Molecular Medicine); Senior Staff Scientist

Visiting Scientist **Grace Hiroko Yamazaki**, Ph.D. (Medical Immunology); Director of California Office of YCU

UCSD/ Scripps Institution of Oceanography (La Jolla, CA)

Prof. **William Fenical**, Ph.D. (Marine Biomedicine); Director, Center of Marine Biotechnology & Biomedicine (CMBB)

Prof. **William Gerwick**, Ph.D. (Marine Natural Products Drug Discovery and Biosynthesis); Skaggs School of Pharmacy and Pharmaceutical Sciences; CMBB

Prof. **Mark Hildebrand**, Ph.D. (Marine Biochemistry); Director, Marine Biology Research Division

HOKTO Kinoko Company (San Marcos, CA)

Mr. **Katsumi Sigeta**, President

Mr. **Tasuku Oomura**, Marketing Director

Tanabe Research Laboratories U.S.A., Inc. (San Diego, CA)

Dr. **Naoki Sakurai**, Ph.D., CEO and President

Dr. **Kengo Isshiki**, Ph.D., Vice-President of Administration

Research presentations by students and professors from YCU Graduate School

1) Dr. **Yasunari Ogihara**: Introduction to Graduate School of NanoBio Sciences and Kihara Institute for Biological Science

2) Dr. **Yasuhiro Ozeki**: Lectins decipher glyco-codes for cell signaling

- 3) Ms. **Hanako Kakuta** (Ph.D. program): Effect of DES on the ovary (Supervisor: Prof. Tomomi Sato)
- 4) Mr. **Takauji Yuki** (Ph.D. program): Induction of cellular senescence (Supervisor: Assoc. Prof. Michihiko Fujii)
- 5) Mr. **Yasuhiro Koide** (M.Sc. program): Glycobiology of annelida (Supervisor: Prof. Yasuhiro Ozeki)
- 6) Mr. **Akinori Asanuma**: Molecular morphology of glycoconjugates in black sponge (Supervisor: Prof. Yasuhiro Ozeki)

Program Schedule at San Diego and La Jolla, 24th Feb - 1st Mar 2014

	24 th (Mon) Feb	25 th (Tue) Feb	26 th (Wed) Feb	27 th (Thu) Feb	28 th (Fri) Feb	1 st (Sat) Mar
Time	18:45-	9:00-11:00	9:00-12:00	9:00-12:00	10:00-	14:00-
Location	Narita International Airport	Sanford-Burnham Medical Research Institute (La Jolla)	Tokho Kinoko Company (San Marcos)	Scripps Institution of Oceanography (La Jolla)	Free time	LAX
Events	Flight (Tokyo to Los Angeles)	Meeting with Prof. Guy Salvesen ; Research presentations (1) by students & professors of YCU Graduate School of NanoBio Sciences	Meeting with Marketing Manager Mr. Tasuku Omura	Meeting with Profs. Mark Hildebrand, William Gerwick & William Fenical ; Research presentations (3) by YCU graduate students		Flight (Los Angeles to Tokyo)
Time	-11:50	11:00-12:00	11:10-12:10	12:00-13:00		-19:30
Location	Los Angeles International Airport (LAX)	SBMRI cafeteria	Downtown La Jolla	UCSD/ SIO cafeteria		Tokyo (NT)
Events	Arrival and transfer (YES ESL Inc.)	Lunch	Lunch and transfer	Lunch and transfer		Arrival
Time	13:30-14:50	13:30-15:30	13:00-14:00	14:40-16:00	18:00-20:00	
Location	SBMRI (La Jolla)	Sanford-Burnham Medical Research Institute (La Jolla)	Division of Biological Sciences, UCSD (La Jolla)	Tanabe Research Laboratories USA, Inc. (San Diego)	Downtown San Diego	
Events	Opening meeting with Dr. Hiroko Yamazaki (SBMRI Visiting Researcher & YCU Adjunct	Lectures by Research Ass't Prof. Shu-ichi Matsuzawa and Dr. Chiho Kawakami (YCU Postdoc Research Fellow)	Meeting with Profs. Susan S. Golden & Yunde Zhao Research presentations (2) by YCU graduate students & professors	Meeting with President & CEO Dr. Naoki Sakurai & Vice President Dr. Kengo Isshiki	Wrap-up	

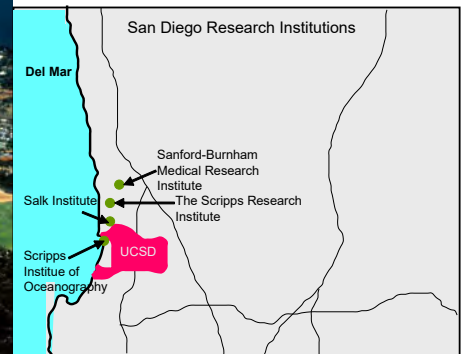
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First day: 24th Feb (Mon) 2014

【Arrival at San Diego/ La Jolla, CA】

YCU graduate students and professors arrived at San Diego via Los Angeles International Airport (LAX) after an 8-hour flight from Narita Airport, Tokyo. We had a meeting to overview the 5-day program with Dr. Grace Hiroko Yamazaki (Director of YCU California office at SBMRI, and Adjunct Prof. at YCU) in the conference room.

http://www-user.yokohama-cu.ac.jp/~pharmac/en_03member00.html



Yokohama, one of the largest international port cities in Japan, is a sister city of San Diego, CA. La Jolla, located within the northern city limits of San Diego, is famous for the presence of many outstanding research institutions, including UC San Diego, Sanford-Burnham Medical Research Institute, Scripps Institution of Oceanography, and Salk Institute.



We were refreshed after our long flight by delicious Mexican food in the state authorized historic district (Old

Town) of San Diego.

Second day: 25th Feb (Tue) 2014

【Presentation at Sanford-Burnham Medical Research Institute 】

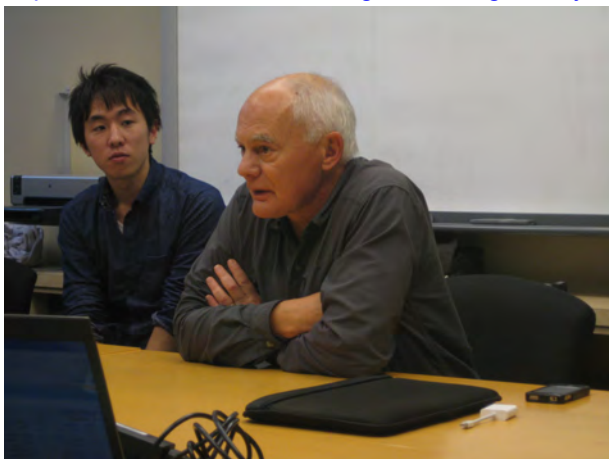
Sanford-Burnham Medical Research Institute (SBMRI), La Jolla, CA, which has had a Memorandum of Understanding (MoU) with YCU since 2012, is one of the world's leading cancer research institutes, and famous for the discovery of the cell adhesive protein, fibronectin.

<http://www.sanfordburnham.org/ourmission/locations/lajolla/Pages/home.aspx>

http://en.wikipedia.org/wiki/Sanford-Burnham_Medical_Research_Institute

, Prof. Guy Salvesen, the Dean of the Graduate School of Biomedical Sciences (his research specialty is apoptotic mechanisms of cancer cells) explained to us the mission of SBMRI, and made useful comments on each of our presentations.

<http://www.sanfordburnham.org/talent/Pages/GuySalvesen.aspx>



Prof. Salvesen explained the mission and policy of SBMRI.

The SBMRI logo shows the essential "five C's".



Two SBMRI deans discussed our cooperative program based on the MoU.

Dr. Shu-ichi Matsuzawa (Senior Staff Scientist) is Research Ass't Prof. at SBMRI and Adjunct Prof. at YCU. Dr. Matsuzawa shared an important message: more young Japanese scientists should challenge themselves by taking advantage of study opportunities in the US to improve their future careers and aim at a Principal Investigator position.

<http://www.sanfordburnham.org/talent/Pages/Shu-IchiMatsuzawa.aspx>

Dr. Chiho Kawakami works at SBMRI under the program "Young Researchers Training Program for Promoting Innovation" (2012-2016) and as a YCU postdoctoral fellow under the MEXT Japan/JST program. She talked about her motivation to succeed in postdoctoral research and subsequent steps in career advancement. Our YCU student participants were strongly impressed by her message.

<http://www.jst.go.jp/shincho/koubo/career.html>

<http://www.yokohama-cu.ac.jp/drcareer/outline/internship.html>



Dr. Shu-ichi Matsuzawa (right) and participants.

Dr. Chiho Kawakami (YCU postdoc research fellow) talked about the lifestyle of postdoctoral researchers in the US.

【Campus tour】

SBMRI has many types of cooperative research laboratories, including cutting-edge equipment with specially trained operators. The centralized laboratory system improves SBMRI's competitiveness, as they are able to facilitate rapid and high-quality results according to specific requests by researchers.



High-throughput screening using a robotic arm for targeted drug discovery.

We saw amazingly large pine cones on campus, fitting for the institution's address on "North Torrey Pines Road".

Third day: 26th Feb (Wed) 2014

【Visit to Hokto Kinoko Company, San Marcos CA】

Hokto Kinoko is a famous food company in Japan, founded in 1964 by Mr. Masayuki Mizuno. Mr. Tasuku Oomura, the Marketing Director, emphasized to us that there have been several "business seed" ideas in the brief history of the company. They shifted their focus from plastic chemistry and succeeded in the mushroom business. The YCU grad students learned a lot from Mr. Oomura's philosophy of flexibility and discussion of the systematically managed factory systems using both automation and manual procedures to produce high quality foods.

<http://www.hokto-kinoko.com/>



Mushrooms contain many healthful ingredients and are a popular food item in the US.

【Presentation at UC San Diego】

<http://ucsd.edu/>

UC San Diego is a top-level life science university in the US. YCU has had a MoU agreement with UCSD since 1987, through the sister city connection between Yokohama and San Diego. Prof. Yasunari Ogihara (Dean of the YCU Graduate School) made a courtesy call on the UCSD Dean, Prof. William J McGinnis, and it was agreed to continue the graduate school relationship in the future.

http://biology.ucsd.edu/news/article_062113.html

Prof. Susan S Golden, Director of the Center for Circadian Biology, presented a interesting talk on the molecular basis of time keeping.

<http://biology.ucsd.edu/faculty/sgolden.html>

Prof. Yunde Zhao described advanced studies novel gene discovery for hormones that regulate plant growth. We were impressed by the variety of departments and research directions within UCSD's Division of Biological Sciences.

<http://biology.ucsd.edu/faculty/zhao.html>



Prof. Susan S. Golden (Director, Center for Circadian Biology) and Prof. Yunde Zhao are faculty members within the Division of Biological Sciences.

In their second opportunity to speak before an audience, the YCU presenters grew more confident in their talk and discussion. It was interesting to see the similarities and differences between UCSD and SBMRI in our visits with their graduate students and researchers.



Hanako and Yuki improved their presentation skills and encouraged the audience to focus on their topics.

We greatly enjoyed the striking, characteristic architecture throughout the UCSD campus.



UCSD Geisel Library



UCSD Student Center

Fourth day: 27th Feb (Thu) 2014

【Presentation at UCSD/ Scripps Institution of Oceanography】

Scripps Institution of Oceanography (SIO) is a leading research center of marine sciences, similarly to JAMSTEC (an adjunct graduate school of YCU).

Following our visit, YCU established an MoU with SIO effective August 2014.

<https://scripps.ucsd.edu/>

<http://www.jamstec.go.jp/e/>

There was some rain, which is unusual for February in San Diego. We heard that around the time of our arrival, transportation of samples from various investigative ships at the Scripps Memorial Pier to the campus was made difficult by the waves, wind, and rain.

Prof. Mark Hildebrand (Director, Division of Marine Biology) and Ms. Wendy Hunter Barker (Director of Institutional Initiatives) talked to us about biofuel by diatoms and the functions of SIO, respectively.

<https://scripps.ucsd.edu/profiles/mhildebrand>

<https://scripps.ucsd.edu/mbrd/>

<https://www.linkedin.com/pub/wendy-hunter-barker/24/676/596>



The Seaside Forum conference room at SIO has a gorgeous ocean view!

Above left photo: Dr. Hildebrand (left) and Ms. Baker (right).

Above right photo: Mr. Yasu Koide (YCU) summarizes his studies of deep sea biochemistry.



The Center of Marine Biotechnology & Biomedicine (CMBB) is an unique interdisciplinary platform within SIO for connecting studies of marine organisms with medical studies. We were very interested to learn about so many useful secondary metabolites in marine microbes that have contributed to drug discovery based on their superior pharmacological activities. CMBB collaborates with both the UCSD schools of medicine and pharmaceutical sciences on such studies.

Prof. William Gerwick (above, left) also has a position at the Skaggs School of Pharmacy & Pharmaceutical Sciences, focusing on "Omics" study of metabolite biosynthetic processes in algae. Prof. William Fenical (above, right), the Director of CMBB, told us how treasures from marine creatures are translated into human medicine.

<http://cmbb.ucsd.edu/>

<https://scripps.ucsd.edu/profiles/wgerwick>

<https://scripps.ucsd.edu/profiles/wfenical>



It was very stormy when we first arrived at SIO, but the weather became very nice as we were departing.

【Visit to Tanabe Research Laboratories U.S.A., Inc. (TRL)】

Our last scientific expedition was to this Japanese-affiliated company in San Diego, whose focus is research and development in the fields of cancer and immunology. Many of our students are interested in future jobs in pharmaceutical research, and they were excited at the opportunity for stimulating, candid discussions with Dr. Naoki Sakurai, the CEO of TRL.

Dr. Sakurai emphasized that the Japanese pharmaceutical industry should employ more Ph.D.s in its research divisions, to facilitate collaboration with researchers in overseas companies.



Above: with Dr. Naoki Sakurai (CEO) and Dr. Kengo Isshiki (VP of Administration). TRL's buildings were designed by Arthur Kornberg Jr. (Kornberg Associates Architects).

<http://www.trlusa.com/>

<http://www.kornberg.com/Tanabe.html>

Fifth day: 28th Feb (Fri) 2014

【Free day & wrap-up】

Unfortunately, we had more rain on our free day!

Our students, after our intensive 4-day program schedule, enjoyed sightseeing at Birch Aquarium, Petco Park (the home stadium of the San Diego Padres), and downtown San Diego.

That evening, we talked informally about our impressions of the US research institutions we had visited, and how this and similar future programs could be helpful for the careers of YCU grad students.

Our program schedule was completed after a delicious dinner.



Sixth (final) day: 1st Mar (Sat) 2014

【See you again, San Diego!】

We returned from San Diego to LAX and departed the US at 2 PM.

When we arrived at Narita at 7 PM, 2nd Mar (Sun), the cold (5 °C) temperature reminded us that we were back in Japan -- no longer in "sunny" southern California!

