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Message from the Dean

Greetings

Susumu KAJIWARA
Professor, and Dean of the School of Life Science and Technology

Three years have passed since the outbreak of the novel coronavirus disease (COVID-19) pandemic. How are you all doing? I'm Susumu Kajiwara, Dr., Dean of the School of Life Science and Technology, Tokyo Institute of Technology (Tokyo Tech). The pandemic continued to spread over the past year, and there were periods when increase in the number of infected patients peaked. According to vaccination and other measures, society as a whole gradually became resistant to the virus, then the number of infected and seriously ill patients decreased. In May of this year, COVID-19 will be transferred to Category V under the Act on the Prevention of Infectious Diseases and Medical Care for Patients with Infectious Diseases.

Last year, the School of Life Science and Technology celebrated the 30th anniversary of its predecessor, the Graduate School of Bioscience and Biotechnology, and on this occasion, the 30th anniversary commemoration ceremony, industry-university collaboration symposium, and international symposium were held. The ceremony was attended by Mr. Takashi Yanagi, Administrative Vice Minister of the Ministry of Education, Culture, Sports, Science and Technology (MEXT), and Dr. Kyosuke Nagata, President of the Japan Association of National Universities and President of the University of Tsukuba, who expressed their strong expectations for the School of Life Science and Technology and its future development. I was able to feel the importance of our school in Japan by hearing from them.

In addition, the School of Life Science and Technology has decided to start the High School Recommendation Type Entrance Examination from next year's undergraduate entrance examination in order to nurture highly skilled science and technology personnel with a variety of abilities, and to seek more diverse applicants by adding it with the existing the General Entrance Examination and the Admissions Office Entrance Examination. This is an initiative that is part of Tokyo Tech promotion of Diversity, Equity and Inclusion (DE&I).

In the 2024 academic year, Tokyo Tech will merge with Tokyo Medical and Dental

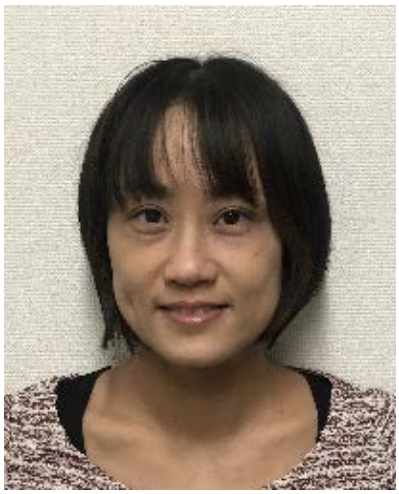
University and make a new start as "Institute of Science Tokyo." The School of Life Science and Technology will play an important role in the integration and development of various educational and research activities in the new university, which will include medicine and dentistry in addition to science and technology. Therefore, I would like to ask for your continued support and cooperation.

From New Staff

Greetings

Mako KAMIYA

Professor



My name is Mako Kamiya, and I joined the School of Life Science and Technology in April 2022. Thanks to great supports of faculty members and administration staffs in the department, I could manage to start my lab. I would like to take this opportunity to express my sincere gratitude to them.

Chemical biology that I have been engaged in is one of the multidisciplinary research field of chemistry and biology, so I believe that innovative research can be achieved through collaboration with researchers with different specialties. Since there are leading-edge researchers with wide range of scientific fields including biology, chemistry, and physics, in the School of Life Science and Technology, I would like to take full advantage of this great environment to develop new research projects through tight collaboration. Thank you very much for your kind support, and I look forward working with you in near future!

Greetings

Kiyohiko KAWAI

Professor

My name is Kiyohiko Kawai, and I have been appointed as a Professor at the School of Life Science and Technology as of January 1, 2023. I have been working at the Institute of Scientific and Industrial Research, Osaka University for 23 years and 9 months. I have now had the opportunity to engage in research and education at the School of Life Science and Technology. In my private life, I spent my childhood in Machida, Ebina, and Chuo-Rinkan, and I feel a strange connection to live in Kanagawa after 40 years.

I have been working to explain various chemical reactions and molecular motions of biomolecules based on the rate constants of individual elementary reactions using high-speed spectroscopy based on molecular creation from the viewpoint of organic synthesis. Recently, I have been focusing on blinking, which is a phenomenon unique to single molecule fluorescence observation, and have been working on the development of single molecule analysis and diagnostic methods by controlling blinking. By reducing the number of fluorescent molecules to a countable number, it is possible to access useful information that could not be obtained in the bulk state where multiple fluorescent molecules exist. There are many researchers at the School of Life Science and Technology who use fluorescent molecules for various purposes. I would be very happy if you would allow us to observe these fluorescent molecules at the single molecule level, and let us try to see what kind of brilliance they can show us. I look forward to collaborating with you.

I would like to make every effort to contribute to the development of the School of Life Science and Technology in research, education, and administration, and I would appreciate your guidance and encouragement.

Greetings

Kayo NOZAWA
Associate Professor

I am Kayo Nozawa, an associate professor since April 2022. I graduated from the Tokyo Institute of Technology 14 years ago with a master's degree. Stepping out from Suzukakedai campus, I went on to obtain a PhD at the University of Tokyo and study in Germany for next five and a half years. After studying in Germany, I worked as an assistant professor at Waseda University and the University of Tokyo. I am very honored to set up a laboratory back at my alma mater.

Our laboratory aims to elucidate the atomic structure of DNA-loop using Cryo-electron microscopy and X-ray crystallography, to reveal the molecular mechanism of transcriptional initiation and epigenetic regulation thereof. So far, we established a protein co-expression system for the core Mediator of 15 subunits, which is the smallest functional unit of the Mediator, and performed X-ray crystallographic analysis. The result clarified that it is involved in the transcription initiation of Pol II on the

promoter. We are also interested in chromatin structures constituting the DNA-loop. Applying cryo-electron microscopy analysis, we have recently characterized a unique chromatin structural unit H3-H4 octasome that resembles the normal nucleosome but lacks H2A and H2B.

Overcoming some struggles last year, I was able to set up a research environment with the help of professors and administrative staff of the School of Life Science and Technology. I would like to take this opportunity to thank you. I would like to give back to the department by pursuing the "joy of discovery and creation" together with the lab staff and students. Thank you for your continued support.

Greetings

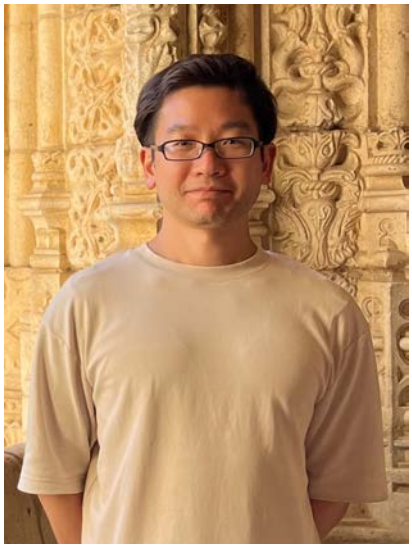
Satoshi KIDOKORO
Assistant Professor

My name is Satoshi Kidokoro, and I am honored to serve as an Assistant Professor in the Osakabe Laboratory of the School of Life Science and Technology in April 2022. I received my PhD degrees in agriculture and then worked as an Assistant Professor and Lecturer at The University of Tokyo.

I have been conducting research on signaling pathways in abiotic stress responses in plants. In particular, I analyzed transcriptional regulations of cold-inducible gene expression for acquiring cold stress tolerance and cold acclimation, and revealed key transcription factors and their regulations. In the Osakabe Laboratory, I would like to contribute to development of genome editing technology. In addition, I also try to reveal mechanism for sensing temperature stress in plants and to generate stress-tolerant plants by using the technology. Finally, I'm looking forward to working with you.

Greetings

Toru KAWANISHI
Assistant Professor



I am very honored to be a member of Tokyo Institute of Technology and start working as an assistant professor in Mikiko Tanaka Lab at School of Science and Technology. I started my career as a postdoctoral researcher at RIKEN Center for Biosystems Dynamics Research after receiving my Ph.D. at the University of Tokyo, and then I moved to Boston to work with Sean

Megason Lab at Harvard Medical School for three years. After coming back to Japan, I worked as a project assistant professor at the University of Tokyo until September in 2022.

My research field is developmental biology, where I have been mainly studying the functions of collective behaviors of cells in morphogenesis such as muscle formation and body axis elongation, which takes place in embryonic development, using zebrafish and Japanese medaka. Since the embryos of these small vertebrate species develop outside their mothers and are entirely transparent, we can explore thoroughly the dynamic behaviors of cells and biomolecules that are genetically tagged with fluorescent proteins by employing live imaging techniques. Through my studies I hope to elucidate the principles on interactions between different levels in the hierarchy of biological systems, especially on the relationship between the dynamics occurring at the microscopic scale of cells and morphogenetic phenomena observed at the tissue scale.

I am excited to begin my new position at Tokyo Institute of Technology and am looking forward to working with you. I would also appreciate your support to promote our missions together in this university.

Greetings

Takanobu YASUDA
Assistant Professor

My name is Takanobu Yasuda, and I have been appointed as an Assistant Professor in the Ueda-Kitaguchi Laboratory of the Institute of Chemical and Life Sciences, Institute for the Creation of Science and Technology, as of April 2022.

I entered the Ueda-Kitaguchi Laboratory as a master course student in 2017 and received my PhD degree in March 2022. I am very happy and proud to be able to work with the professors who helped me during my student days.

My research field is protein/peptide engineering. Especially, I have been focusing on the development of a new biosensors based on the antibody, which is academically interesting and useful technologies for society. Tokyo Tech has a strong network of researchers in Japan and abroad, and I am looking forward to stimulating research and encounters with researchers that will lead me to further expand my world and deepen my research.

Finally, as a member of the Tokyo Tech staff, I will continue my efforts to contribute to the research and educational activities. I look forward to your guidance and encouragement.

Greetings

Sing Ying Wong
Assistant Professor

This is Sing Ying Wong, who was appointed as an assistant professor in Hayashi lab, School of Life Science and Technology, since June 2022. I completed my master's degree in University of Malaya, Malaysia, my home country, and continued my PhD in Tokyo Tech.

I specialize in proteomics, where the proteome of a biological sample is separated in two dimensions and analyzed comprehensively. The technique we employed is called "two-dimensional gel electrophoresis". This is a proteomic technique that has been around for a long time – but with some modifications, we have successfully improved the resolution and reproducibility of the image data.

My research activity mainly involves the facilitation of proteomics research for practical implementation in various fields, including healthcare, diseases, food, agriculture, and pharmacology. With the utilization of high-throughput 2-DE technology, large amount of data images reflecting proteome could be obtained, allowing for the intervention of artificial intelligence. Proof of concept was attained in a study of sepsis, where accurate classification of sepsis individuals was achieved. Future efforts would also focus on expanding AI-based proteomics in various fields and translating research into practical applications.

From Transferred Staff

Greetings

Kohei SATO
Assistant Professor

I moved to Kwansei Gakuin University in April 2023. I was appointed as an assistant professor in the Kinbara Laboratory in April 2018. The research environment at the School of Life Science and Technology is excellent, and I have spent very fruitful and stimulating days there. I would like to take this opportunity to express my sincere gratitude to all the professors

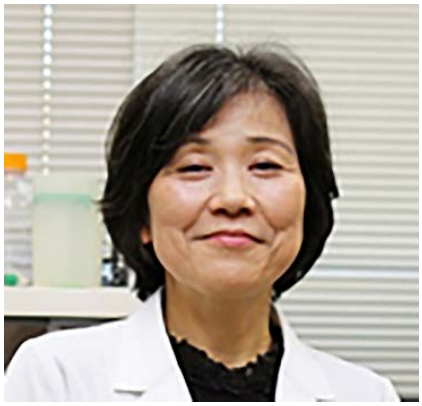
and staff in the administrative office for their generous support.

At Kwansei Gakuin University, I will be running my own laboratory as an independent associate professor. Although I have mixed feelings of anticipation and some anxiety, I will devote myself to teaching and research to the best of my ability. I look forward to your continued guidance and encouragement in the future.

From Retired Staff

~ A path to open up by challenging “new” ~

Shinae KONDOH
Professor



In 2010, I joined the Graduate School of Life Science and Technology, Tokyo Tech, and have had many valuable experiences over the past 13 years. Until then, I had experience participating in medical-engineering collaborative research, but I had been engaged in basic medical research at the Graduate School of Medicine for nearly 30 years. When I first arrived, I was excited to see what I could do at Tokyo Tech, the pinnacle of engineering, but to be honest, I was more worried. At the time, I was the first female professor on the Suzukakedai Campus, and I think there was a lot of anxiety and resistance on the part of the people who accepted me. In the midst of a series of "new" experiences, I was awarded the 2013 Tokyo Tech Education Award, and my hopes for education began to grow; I obtained a large amount of research funds to create clinical drug, dreaming a clinical drug discovery. On the other hand, there were times when I was frustrated, and distressed: they were days of excitement and fear, like riding a roller coaster. As I approached retirement age, I was unexpectedly given the opportunity to be involved in the administration of Tokyo Tech as the "dean" of the school. This was also a “new” challenge, and I had a lot of anxiety when I set out without sufficient experience or structure. Oddly enough, the start of the "dean" coincided with the start of the Covid-19 crisis, and there were only "new" events that could not be handled by the things that had been inherited so far. However, I was always helped by the dedication and proactive activities of the school committee members, including the vice deans, and the office staffs. In addition, thanks to the patient cooperation of faculty, staff, and students, I was able to overcome the difficulties. Once again, I would like to express my gratitude to all of you.

Based on the ten years of experience as a postdoctoral researcher who continued research while being told that "female researchers were not needed ", I did not hesitate to take on the challenge of “women-only open recruitment”,

which was criticized as being unfair, and have appointed 5 female professors and associate professors during my dean term. All of them performed wonderfully, showing the entire university a model of “women-only open recruitment” and creating a flow for increasing the number of female faculty members at our Tokyo Tech. Universities are now accelerating their efforts to realize a diversity and inclusion (D&I) society. The current situation of D&I is tough, but an environment where anyone can challenge with hope is the key to further development of universities. Thank you for giving me the opportunity to continue to challenge "new", I was able to open up some new paths. Hopefully, the new road will develop into a road that carries a greater flow.

Last year, we celebrated the 30th anniversary of the School of Life Science and Technology. In the future, we must work on integration with Tokyo Medical and Dental University, reform of entrance examinations, and innovations to realize D&I. You may be asked to deal with great pain. I hope that you will take these big waves of change as a “chance” to make a breakthrough, and take on the “new” challenge without hesitation. I have great expectations that you will contribute to the development of new life science fields and show us a world that has not yet been seen. I would like to continue to send cheers to all of you.

Events

Open Campus Online 2022 for high school and prospective students

Akira KATO
Associate Professor

The online orientation for high school and prospective students was held on Sunday, April 17th, 2022. In addition, the Open Campus Online 2022 was held on Tuesday, August 10th, 2022. The open campus event at Tokyo Tech has been recognized as an annual summer event at Ookayama campus, but for the last three years these events have been held online to prevent the spread of the coronavirus infection. (As of January 2022, more than 70% of the domestic population had received two doses of the vaccine in Japan, but it was difficult to hold face-to-face open campus because of the 6th, 7th, and 8th waves of the SARS-CoV-2 pandemic in February, August, and December, respectively.) It was unfortunate that we could not provide the opportunity for high school and prospective students to visit Tokyo Tech. However, the online event has merits such as the participation of students far from Tokyo and easy discussion using the chat system. Therefore, a lot of students joined these two open campus events.

The online orientation in April was held targeting high school seniors, prospective students, and their parents/guardians. Tokyo Tech's six schools provided information about each school. From our school, Dean Susumu Kajiwara and Professor Naohiko Koshikawa

gave an introduction focusing on education and research at the School of Life Science and Technology, and answered many questions from participants.

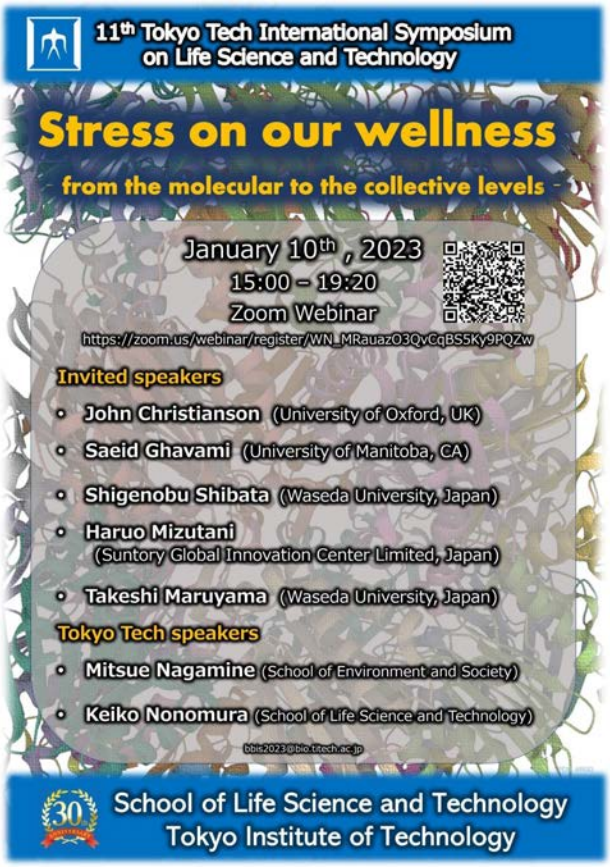
The online open campus in August had 53 programs containing 6 programs from the School of Life Science and Technology. The event included programs from all the six schools, Diversity and Inclusion Section, Student Support Division, International Student Exchange Division, Library Division, and KODAISAI Executive Committee, and was diverse and fulfilling. Our school provided "Orientation for the School of Life Science and Technology," "Interactive Web lecture," "Academic lecture," "Introduction of research in the School of Life Science and Technology," "Round-table discussion by the current students," and "Consultation for female students." I believe that all participants had a fun day through these events. Over 500 students joined to the orientation for the School of Life Science and Technology. Dean Susumu Kajiwara, Professor Takehiko Ito, and Professor Naohiko Koshikawa introduced the unique educational curriculums and the attractiveness of cutting-edge life researches in our school. The participants were actively asking many questions, suggesting that many students have much interests to our school. Professor Satoshi Murakami provided an interactive Web lecture entitled "Watching the Mechanism of Drug Resistance," and Associate Professor (Lecturer) Toru Kondo provided an academic lecture entitled "Photophysical Phenomena Occurring in Biological Nanospaces." In total, over 300 participants were given easy-to-understand and detailed explanations of the research in these lectures. "Introduction of research in the School of Life Science and Technology" were held twice in total to avoid overlap with other events. A total of 290 people participated in the roundtable discussions led by Associate Professor Takuji Yamada and seven other faculty members, and talked about interesting points of various research in our school. Since there are many female applicants to our school, the " Consultation for female students" has become a regular event. 30+ female students participated, and Professor Mikiko Tanaka and a current female graduate student kindly answered to their various questions and anxiety. In the "Round-table discussion by the current students," questions about campus life such as lectures and club activities were kindly answered by current undergraduate and graduate students and Professor Kohji Seio.

From the surveys of the participants, we know that each program was well received and that this event is extremely valuable opportunities for high school and prospective students who are interested in applying to Tokyo Tech. On the other hand, many participants also

expressed a desire to visit the campus if given the opportunity. In 2023, face-to-face programs in Open Campus are greatly anticipated. All members of our school will continuously work together for the open campus under the next leader, Associate Professor Shun-ichiro Ogura.

The 11th Bioscience and Biotechnology International Symposium

Kanami ORIHARA
Associate Professor
Masayasu MIE
Associate Professor
Toshinori FUJIE
Associate Professor



The 11th Tokyo Tech International Symposium on Bioscience and Biotechnology took place on January 10, 2023. The theme of the symposium was stress, which is related to various life science phenomena and affects our health in many ways. We received talks by professors with a variety of different perspectives, three from overseas (including one Japanese) and four from Japan.

Dr. Haruo Mizutani of Suntory Global Innovation Center Ltd. introduced new wellness indicators in the evidence important in health maintenance and circadian rhythm (body clock). Professor Shigenobu Shibata of the School of Science and Engineering, Waseda University, explained the effects of stress on the circadian rhythm (body clock) and subsequent health disorders, and gave advice on how to keep our body healthy that fights stress from the chrononutritional perspective. Associate Professor Tsuyoshi Maruyama of Waseda University School of Advanced Study explained about the surveillance system in the epithelial barrier and measures to eliminate precancerous cells at an early stage. Associate Professor Saeid Ghavami of the University of Manitoba Faculty of Medicine explained about autophagy induced by cellular stress and introduced his careful research to elucidate the mechanism of regulating autophagy and cholesterol metabolism in glioblastoma. We asked Professor John Christianson of the University of Oxford to provide a lecture on this symposium since he acquired his MSc from the laboratory of Professor Emeritus Masuo Aizawa at the School of Bioscience and Biotechnology. He introduced us how to suppress cancer activity by controlling endoplasmic reticulum stress. From

Tokyo Tech, Associate Professor Mitsue Nagamine of the Tokyo Tech Academy of Leadership/Institute for Liberal Arts introduced the effects of unconscious thoughts, preferences, and habits (mindness) on the stress response in humans. From the School of Life Science and technology, we asked Associate Professor Keiko Nonomura to give a lecture. She explained about the PIEZO1/2 channel, the mechanism by which cells sense temperature and contact, for which discovery the Nobel Prize in Physiology or Medicine in 2021 was awarded. She also introduced us about the effects of mechanical stress on the organism,

Regardless of our late announcement of the registering site due to the uncertain situation about COVID19 and whether we should hold the symposium on campus or online until the last minutes, thank you all for your support, as many as 159 people, excluding panelists and staff, attended the symposium. We also hold an online social event after the event, which Professor John Christianson told us that he enjoyed talking with Tokyo Tech members for the first time in a while.

The preparation and organization of this 11th symposium did not happen without the greatest support from Associate Professor Masakazu Mie and Associate Professor Toshinori Fujie. As we prepared for both the on-site and online sessions, Associate Professor Mie was very knowledgeable about the webcasting system and kindly took the lead in the process. I would like to take this opportunity to thank both professors as well as professors in the working group who gave us a lot of advice on have this event take place.

Under the leadership of the next chief and deputy(ies), we will continue to work together with the working group members to make the 12th meeting a great success.

School of Life Science and Technology 30th Anniversary Ceremony

Toshiaki KAMACHI
Professor

The School of Bioscience and Biotechnology was established in 1990 as Japan's first department for education and research in bioscience and biotechnology, followed by the establishment of the Graduate School of Bioscience and Biotechnology in 1992. To mark the 30th anniversary of the Graduate School of Bioscience and Biotechnology (current School of Life Science and Technology), a commemorative ceremony, commemorative lectures and a reception were held on 10 November at Suzukakedai Campus' Suzukake Hall.

The ceremony was attended by Mr Takashi Yanagi, Administrative Vice Minister of the Ministry of Education, Culture, Sports, Science and Technology; Mr Kyosuke Nagata, President of the Association of National Universities and President of the University of Tsukuba; Mr Masuo Aizawa, former President of the Tokyo Institute of Technology and former member of the Council for Science and Technology; Mr Ryo Mizojiri, Chairman of the Life Science and Engineering Alumni Association; Mr Hisao

Taki, Chairman of Gurunavi Corporation; Mr Kei Takeda, Executive Director of Takeda Chemical Industry Co. Ltd, Mr Naofumi Tsujino, Executive Director of the Kuramae Industrial Association, Mr Osamu Watanabe, Director and Vice-President of the Tokyo Institute of Technology, Mr Isao Taniguchi, President of the National Institution of Technology, and Mr Fumio Honbou, Special Assistant to the President of the Kuramae Industrial Association, were present as guests of honour. More than 110 people attended the ceremony, including President Kazuya Masu, former deans of the School of Bioscience and Biotechnology, Yasuo Oshima and Motoki Hoshi, former deans of the Graduate School of Bioscience and Biotechnology, Ichiro Okura, Shigehisa Hirose and Mitsuo Sekine, emeritus professors, former and current faculty members of the School of Bioscience and Biotechnology, and other guests.

In the commemorative lecture, Professor Emeritus Yoshinori Osumi, winner of the 2016 Nobel Prize in Physiology or Medicine and Director of the University's Cell Regulation Engineering Research Centre, gave a lecture entitled 'With high hopes for the future of the Institute of Bioscience and Biotechnology'. In addition, Mr Hiroaki Yajima, General Manager of Kirin Central Research Institute, R&D Division, Kirin Holdings Company, Limited, a graduate of the School of Bioscience and Biotechnology in its early days, gave a lecture on "Social Implementation of Bioscience Research Results".

The reception was followed by congratulatory speeches from Professor Emeritus Mitsuo Sekine, former Dean of the Graduate School of Bioscience and Biotechnology, and Mr Ryo Mizojiri, Chairman of the Bioscience and Biotechnology Alumni Association and Takeda Pharmaceutical Company, and a toast by Professor Hisakazu Mihara, Vice-President and former Dean of the Faculty of Bioscience and Biotechnology. Although the round-table meeting was held in the midst of thorough measures to prevent the spread of the new coronavirus infection, it was an important opportunity for the exchange of information and opinions to discuss the future direction of the development of the School of Bioscience and Biotechnology.

School of Life Science and Technology 30th Anniversary LiHub Symposium

Shoen KUME
Professor

School of Life Science and Technology 30th Anniversary LiHub Symposium was held on Dec 20 (Tue) at the Ookayama campus.

In the 1st session from guest speakers, Yoshiaki Tsukamoto, the Executive Director of the Japan Bioindustry Association (JBA), introduced the activities in the JBA, in which Tokyo Tech is also a member and has participated in promoting industry-academia-government collaboration in the field of biotechnology. He also introduced the events and activities of JBA in promoting the Greater Tokyo Biocommunity. Prof. Saya Hideyuki, the Representative Director of the Metropolitan Academic Research Consortium (MARC), introduced the activities of MARC, what MARC aims for, and its system. MARC is promoting Translational research to clinical practice and Medical-engineering collaboration. Tokyo Tech is also a member and works to promote the projects in MARC. Toshihide Matoba, the Operating officer of Shimadzu Corp., introduced how Shimadzu initially started by inventing novel machines. He also referred to Koichi Tanaka, one of the Nobel prize winners, in the success story of the invention of precision machinery. He also talked about collaboration with universities, including Tokyo Tech. Masamichi Koike, Fellow, R&D division at Kyowa Kirin Co., Ltd., spoke about the open innovation with universities to promote antibody-drug development. Toshinori Agatsuma, the Operating officer of the R&D division at Daiichi Sankyo Co. Ltd., talked about the development of a novel DNA topoisomerase I inhibitor (DXd) based ADC (antibody-Drug Conjugate), which is also a novel drug that received the Bioindustry Prize from JBA.

The 2nd session started with the introduction of the concept of LiHub by Associate Professor Yasunori Aizawa and then the group leaders introduced the new 6 LiHub groups launched in 2022.

The 3rd session was the introduction of research activities in the School of Life Science and Technology. Professor Yuriko Osakabe talked about the development and application of genome editing. Professor Mako Kamiya introduced the development of a chemical probe in bioimaging. Associate Professor Toshinobu talked about the development of ultra-thin wearable devices for future therapeutics.

We had discussions with the participants. The symposium provided a chance to learn and discuss cutting-edge research and new technology and promote the interaction between academia and industry.

Awards

27th SJWS Award

Ayuko HOSHINO
Associate Professor

The Society of Japanese Women Scientists (SJWS) was founded in 1958. The purpose of this organization is to deepen friendship among

women scientists, to exchange knowledge in various research fields, to improve the status of women scientists, and to contribute to world peace. This award was established in 1995 with the aim of fostering women scientists. Associate Professor Ayuko Hoshino won the 27th SJWS Award.

Bioindustry Research Award 2022

Ayuko HOSHINO
Associate Professor

Japan Bioindustry Association is an organization that comprehensively promotes R&D and industrial development in the bioindustry field through collaboration among "industry, academia, and government". The Bioindustry Research Award was established in 2017 to recognize promising young researchers and their achievements in application-oriented research related to bioscience and biotechnology. Associate Professor Ayuko Hoshino won the 6th Bioindustry Research Award.

The Asian Scientist 100 (2022)

Mikiko TANAKA
Professor

Asian Scientist 100 is selected by Asian Scientist Magazine from scientists who have made outstanding achievements in STEM fields or won national or international awards in 2021. Professor Mikiko Tanaka was selected as one of the Asian Scientist 100.

Accelerator Award from the National Academy of Medicine

Ayuko HOSHINO
Associate Professor

The Healthy Longevity Global Grand Challenge (HLGC), sponsored by the National Academy of Medicine, invites outstanding ideas from around the world in a wide range of genres that will contribute to the health and longevity of people in order to solve the problems of aging societies around the world. The research project of Associate Professor Ayuko Hoshino, Decoding age-dependent trajectory of exosomal protein in healthy aging and Alzheimer's pathology, was selected as the Accelerator Award of HLGC.

Students' Achievement

Graduate School Students Won Ohsumi Journal Award

The excellent students whose research papers were published in high-impact journals have been commended by "Yoshinori Ohsumi Memorial Fund" established in 2017. In 2022, seven graduate school students won Ohsumi Journal Award.

The 17th Award (2022/7/21)
Mr. Hajime Fujita
(D1 Fujie Lab)
"Paper-Based Wearable Ammonia Gas Sensor Using Organic–Inorganic Composite PEDOT:PSS with Iron(III) Compounds"

Advanced Materials Technologies

The 18th Award (2022/9/15)

Mr. Jun Kawaguchi

(D2 Wachi Lab)

"A secondary metabolic enzyme functioned as an evolutionary seed of a primary metabolic enzyme"

Molecular Biology and Evolution

The 19th Award (2022/9/29)

Mr. Wang Jun

(D2 Maruyama Lab)

"Cationic copolymer-augmented DNA hybridization chain reaction"

ACS Applied Materials & Interfaces

Ms. Dai Yancen

(D3 Ueda Lab)

"Intra Q-body: an antibody-based fluorogenic probe for intracellular proteins that allows live cell imaging and sorting"

Chemical Science

Ms. Jing Gong
(D3 Takinoue Lab)
"Computational DNA Droplets Recognizing miRNA Sequence Inputs Based on Liquid-Liquid Phase Separation"
Advanced Functional Materials

The 20th Awards (2023/2/1)
Mr. Guo Haochen
(D3 Nishiyama Lab)
"Polymeric ligands comprising sulfur-containing amino acids for targeting tumor-associated amino acid transporters"
Biomaterials

The 21th Award (2023/2/27)
Ms. Ayako Yamakawa
(D1 Taguchi Lab)
"A method to enrich polypeptidyl-tRNAs to capture snapshots of translation in the cell"
Nucleic Acids Research

Graduate School Students Won Chorafas Award

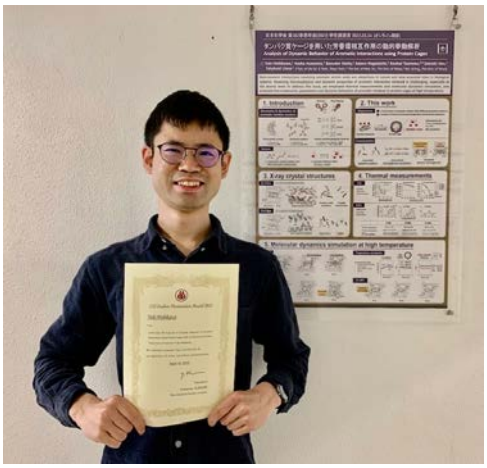
The excellent students in the fields of biotechnology and related sciences have been commended by "Dimitris N. Chorafas Foundation" since 1992. In 2022, two graduate school students won Chorafas Award.

Dr. Haruna NAKAMURA
(2022.03 completed Nikaido Lab)
"Genomic substrates which have facilitated the outstanding species diversity of Lake Victoria cichlids"

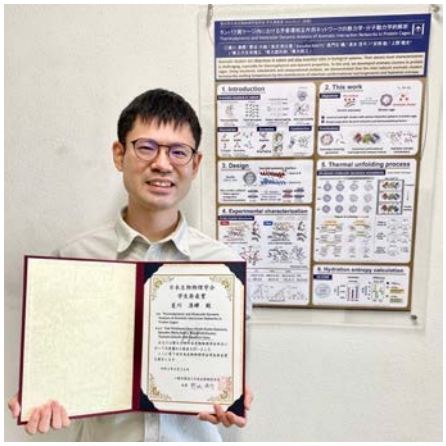
Dr. Yasunobu ASAWA
(2022.03 completed Nakamura-Okada Lab)
“Expansion of drug targets by carborane-based molecular design”

Presentation Awards in Symposium

Mr. Yuki Hishikawa
(D3 Ueno Lab)
CSJ Student Presentation Award at the 102nd Chemical Society of Japan Annual Meeting
“Analysis of Dynamic Behavior of Aromatic Interactions using Protein Cages”



Mr. Yuki Hishikawa
(D3 Ueno Lab)
BSJ Student Presentation Award at the annual meetings of the Biophysical Society Japan in 2022
“Thermodynamic and Molecular Dynamic Analysis of Aromatic Interaction Networks in Protein Cages”



Mr. Koki Date
(M1 Ueno Lab)
Poster Presentation Award at the 12th CSJ Chemistry Festa in 2022
“Intracellular formation mechanism of pH-responsive piston protein assembly”

Mr. Tomoyuki Araki
(M2 Nakamura-Okada Lab)
Poster Presentation Award at the 12th CSJ Chemistry Festa in 2022
“Development of boron agents targeting the amino acid transporter ASCT2”

Mr. Kai Nishimura
(D1 Nakamura-Okada Lab)
Poster Presentation Award at the 12th CSJ Chemistry Festa in 2022
“Development of small molecule boron modifiers based on non-covalent albumin ligands for neutron capture therapy”

Ms. Kei Sugiura
(D1 Hoshino Lab)
MBSJ Science Pitch Award at the 45th Molecular Biology Society of Japan Annual Meeting
“Elucidation of pathomechanisms of autism spectrum disorder and identification of diagnostic markers using human plasma exosome”

Other Awards

Tokyo Tech Award for Student Leadership

Ms. Hinako Iwashige (B3)

Tokyo Institute of Technology awards students with leadership qualities such as intelligence, creativity, humanity, and vitality, with the aim of fostering international leadership among students. Ms. Iwashige won the award for her leadership of the iGEM Tokyo Tech team and their participation in iGEM, an international synthetic biology competition held in Paris

2022 iGEM Competition

The iGEM (International Genetically Engineered Machine) competition is an international contest in which multidisciplinary student teams design, build, and test projects using cutting-edge synthetic biology, an approach used in designing new biological systems. Each team presents their results to a panel of judges. In 2022, Team Tokyo Tech has won the silver medal at the 2022 iGEM competition held in Paris. Team Tokyo Tech consisted of 27 bachelor-program students — twenty-one from the School of Life Science and Technology, three from the School of Computing, and one each from the School of Science, School of Engineering, and School of Materials and Chemical Technology.

From International Student

Fahmi Ihza Alghiffary

During the last year of my bachelor's studies back in Indonesia, I started to think deeper about what I wanted to do moving forward into my future. At that time, Associate Professor Shunichiro Ogura visited my previous campus and introduced graduate programs held by the School of Life Science and Technology, Tokyo Institute of Technology. I saw how the school had so many different research opportunities in the field of life science with facilities that enable advanced and thorough research. Convinced by his talk and some self-research on the institute, I decided on my way to pursue a graduate degree at Tokyo Institute of Technology to develop myself further in the field. It has now been two and a half years since I joined the institute, and I am now in the first year of my doctoral studies. The International

Graduate Program A which I am pursuing, is a really useful tool for those who strive to achieve academic excellence, since they will be immersed in advanced level research even starting from their master's studies. The Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT) scholarship is also another big help for students who obtain the desire to study, which in addition reflects on how much Japan as a country promotes education and research. I will forever be truly indebted to the Japanese Government and its people for the generous support throughout my studies in Japan.

In my affiliation with the institute, I am conducting research at Matsuda Laboratory under the supervision of Associate Professor Tomoko Matsuda. Matsuda Laboratory focuses on themes which promote environmentally friendlier approaches for chemical synthesis, e.g., the utilisation of enzymes. Amongst the several topics our laboratory has to offer, I am focusing on the implementation of carbon dioxide as a solvent for enzymatic reactions. The advantages of the implementation of carbon dioxide in chemoenzymatic synthesis include less usage of organic solvents, assistance in dissolving organic compounds, and ease of separation after use. Research done by members of Matsuda Laboratory has shown that the usage of carbon dioxide in *Candida antarctica* Lipase B-catalysed reactions promotes higher yields and even promotes a wider substrate scope for the enzyme. There are still many things to learn about the phenomenon and also the potential of it in the field of green chemistry. Hopefully, the research we conduct in our laboratory can have a great impact in promoting a more sustainable way of chemical synthesis and to reduce the burden on our beloved earth.

My supervisor, Associate Professor Tomoko Matsuda, has always made the students' well-being the first priority. The laboratory members are also welcoming foreign students, which helped me in the process of getting settled into the new environment. Those two points I think are really important for a student coming from a totally different background to fit in and learn. Aside from the School of Life Science and Technology, the institute also provides so much support for students' well-being, which I have relied on so much. All in all, my experience in the institute has led to tremendous growth in my life as a student, a researcher, and a member of the community. I hope I can grow even more and be more responsible and proactive in my field and achieve a concrete contribution to the institute. My supervisor, my dearest lab members, the friends I made in the institute, and the staff of Tokyo Tech as a whole, have my utmost gratitude. I hope Tokyo Institute of Technology can continue to be at the forefront of technological advancement in Japan and the world.

Editor's Note

Face-to-face classes have resumed in the second half of this academic year, and the university is gradually regaining its vitality. The

School of Life Science and Technology celebrated its 30th anniversary in this year. The 30th anniversary ceremony and the 30th anniversary LiHub symposium were held in November and December, reminding us that there are high expectations for the future activities of our school. In addition, the topic that Tokyo Tech will merge with Tokyo Medical and Dental University gave big impact on many faculty members. I believe that the faculty members will be able to overcome this challenge by cooperating with each other.

I would like to express my deepest gratitude to those who have contributed to this newsletter this year. We are honored to be able to introduce their activities and the activities of our school in this issue. We will continue to report on the activities of the School of Life Science and Technology in future issues of this newsletter, and we look forward to your continued support and cooperation in the future.

(Hiroshi TSUTSUMI, editor-in-chief)