Spring 2022

LITTERAE POPULI

A news magazine presented by Hokkaido University

Recent News from Hokkaido University

Litterae Populi

Litterae Populi is a bi-annual magazine with the latest news about Hokkaido University. Its name is Latin for "letters of the poplar trees."

Contents

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Cover photo taken at School of Engineering

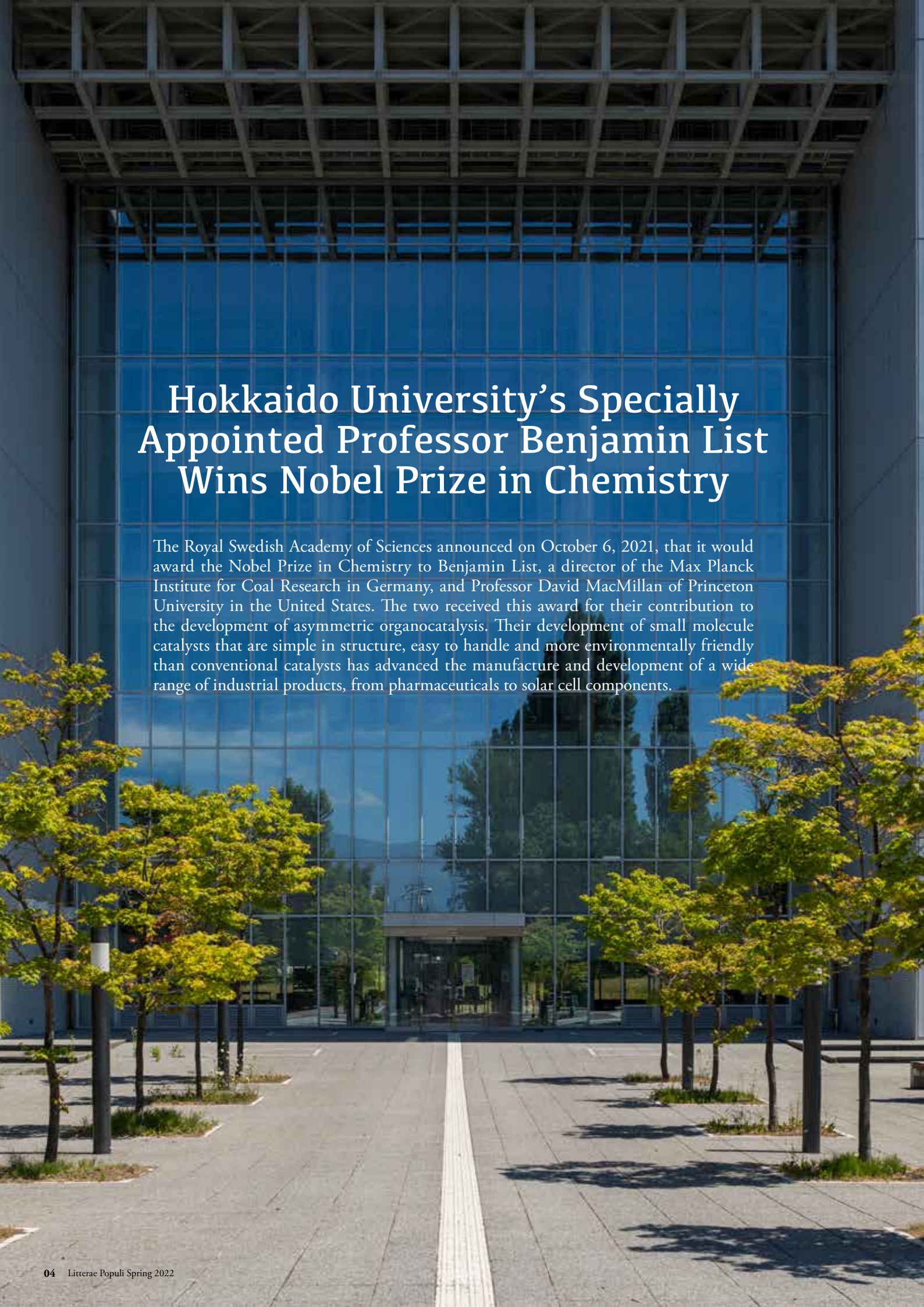
Photo of near Kita 18

Looking Ahead to the Future

In December 2021, Benjamin List, a Specially Appointed Professor of the Institute for Chemical Reaction Design and Discovery (ICReDD) at Hokkaido University, was awarded the Nobel Prize in Chemistry.

In 2010, Professor Emeritus Akira Suzuki was awarded the Nobel Prize in Chemistry, and the Graduate School of Chemical Sciences and Engineering, a graduate school specializing in chemistry, was established. The Institute for Chemical Reaction Design and Discovery was established in 2018 as part of the World Premier International Research Center Initiative (WPI) by the Ministry of Education, Culture, Sports, Science and Technology. The field of chemistry is one of Hokkaido University's core strengths.

The opening of this issue spotlights Specially Appointed Professor Benjamin List, while the special feature introduces three initiatives under the theme of "creation."



Hokkaido University's Specially Appointed Professor Benjamin List Wins Nobel Prize in Chemistry

The Royal Swedish Academy of Sciences announced on October 6, 2021, that it would award the Nobel Prize in Chemistry to Benjamin List, a director of the Max Planck Institute for Coal Research in Germany, and Professor David MacMillan of Princeton University in the United States. The two received this award for their contribution to the development of asymmetric organocatalysis. Their development of small molecule catalysts that are simple in structure, easy to handle and more environmentally friendly than conventional catalysts has advanced the manufacture and development of a wide range of industrial products, from pharmaceuticals to solar cell components.

Dr. List at the Institute for Chemical Reaction Design and Discovery (ICReDD) in Hokkaido University

In October 2018, the Institute for Chemical Reaction Design and Discovery (ICReDD) at Hokkaido University was established as a new center under the World Premier International Research Center Initiative (WPI) by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). Dr. List shares the vision of ICReDD, which aims to develop new chemical reactions efficiently by combining computational, information, and experimental sciences, and has been involved in research related to the development of novel reactions using organocatalysis as a Principal Investigator at ICReDD since its inception. ICReDD's slogan, "Revolutionize Chemical Reaction Design and Discovery," was conceived together with Dr. List. He has also served as a Specially Appointed Professor at the University since May 2020.

Although the research that led to Dr. List's Nobel Prize in Chemistry was not conducted at Hokkaido University, ICReDD—together with top-class researchers from around the world—is conducting world-leading research in the field of chemistry.

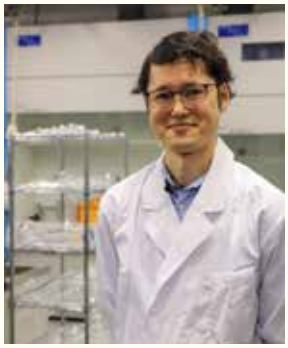
● Litterae Populi Vol. 66, Chemical reaction design and discovery (CReDD) changes society
https://www.hokudai.ac.jp/pr/webpamphlet/litterae_vol.66/html5.html#page=5

Dr. Benjamin List

Born in Germany in 1968. Received his Ph.D. (Chemistry) from Goethe University Frankfurt in 1997. Current position: Director, Max Planck Institute for Coal Research / Professor Emeritus, University of Cologne / Specially Appointed Professor, Institute for Chemical Reaction Design and Discovery (ICReDD), Hokkaido University.

The research group at ICReDD led by Dr. List

ICReDD has nearly 20 principal investigators, each forming their own research group. The group led by Dr. List consists of three researchers and aims to create a sophisticated platform that will enable a more efficient search for optimal catalysts and chemical reactions. Nobuya Tsuji, a Specially Appointed Assistant Professor in the List group, is a researcher who earned his Ph.D. under Dr. List. He communicates with Dr. List in Germany on a daily basis via e-mail and other means, as well as through weekly online meetings to check on the progress of research. Although Nobel laureates are extremely busy after the announcement of their awards, Dr. List continues to attend weekly meetings as usual. Specially Appointed Assistant Professor Tsuji says he is thrilled to see how Dr. List values his research time at ICReDD.



Specially Appointed Assistant Professor Tsuji of ICReDD. Born in Kyoto in 1989. As Co-PI of the List group, he is engaged in daily research.

● Like! Hokudai
In-depth article on the Nobel Prize in Chemistry 2021 (1)
Asymmetric Organocatalysis: Discovering the Third Realm of Catalysis
https://costep.open-ed.hokudai.ac.jp/like_hokudai/article/23860

In-depth article on the Nobel Prize in Chemistry 2021 (2)
The Future of Nobel Prize Research at Hokkaido University
https://costep.open-ed.hokudai.ac.jp/like_hokudai/article/23848

Message from Dr. List to young researchers

This is a simple message. Follow your enthusiasm and do what you really love to do. Don't anticipate the outcome. Don't get attached to the outcome. If you realize that this work doesn't make you happy, maybe, it's a good idea to try something else that you really love. I think this will make you happier.

● Research Times
Dr. List: Thoughts and Message on Receiving the Nobel Prize in Chemistry
https://www.hokudai.ac.jp/researchtimes/2021/12/post-43.html

President Kiyohiro Houkin and others held an online meeting with Dr. List in December 2021 to congratulate him. (From left: Vice President Koichiro Ishimori, ICReDD Director Satoshi Maeda, President Houkin, Executive Director/Vice President Takao Masuda, and ICReDD Vice Director Hajime Ito).

A Place for Co-Creation with Full Diversity

Hokkaido University COI Site : innovative Food & Healthcare MASTER

The Innovative Food & Healthcare MASTER center was launched in FY2013 with the aim of realizing a healthy society. Since November 2021, it has worked with the new Life Design Co-creation Center for the Mind and Body to create a society in which everyone can live happily while further developing its past efforts. A new challenge has begun, looking ahead 10 to 20 years into the future.

A society where mothers and children can live in good health and with peace of mind. The Innovative Food & Healthcare MASTER center develops industry-academia-region collaborative activities at the Global Research Center for Food & Medical Innovation in the Hokkaido University North Campus. Adopted by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the Japan Science and Technology Agency (JST) as a Center of Innovation (COI) in FY2013, it has been established with the University of Tsukuba and Kitasato University as satellite sites, more than 10 universities and research institutes, over 30 food- and health-related companies, and local governments in Hokkaido and Iwamizawa City.

Smiles for the community

"We are striving to create a society where everyone has a smile on their face," says Visiting Professor Masanori Yoshino, project leader of the Innovative Food & Healthcare MASTER center. Its goals are to reduce the number of children born with low birth weight, to make mothers and children healthier through food and exercise, to realize a society that is friendly and enjoyable for mothers and children, and to overcome the problem of declining birth rates by reducing the burden of child rearing.

Feature: Create

emmy fes.: event 0 in December 2021 (in a hybrid format of online and in-person communication). Professor Akiko Tamakoshi of Hokkaido University speaks during a talk session under the theme of Social Needs and R&D. She serves as the research leader for the Innovative Food & Healthcare MASTER center.

Traditionally, hospitals and other medical institutions have played a central role in managing health information. If this information can be shared with households and governments, and if information on optimal diet and exercise tailored to each individual's health condition can be provided, it will help prevent disease and reduce the burden of medical treatment. Creating a system that supports local health management leads to business opportunities. Researchers from diverse fields such as health, medicine, food, hygiene, information and communication gather here to implement a system that provides society with a rich living environment.

"We see and notice new phenomena, set challenges, and create new sciences. We wanted to attract such researchers. People change, as do societies and universities. It is human resource development in a broad sense," Dr. Yoshino says. The Innovative Food & Healthcare MASTER center is expected to play a key role in connecting residents, local governments, and companies. "Natural science is not very good at reaching out to people and society. I think many of our staff members were at a loss at first about how to proceed with their research, but now they are all working freely and happily," he says.

Innovative Food & Healthcare MASTER

Logo mark for the Innovative Food & Healthcare MASTER center. The Chinese character for "life" (命) is used to symbolically express the idea of "healthy living."

Bring what you can't do

"At university, researchers tend to bring their expertise to the table and try to accomplish something. But in this attempt, residents bring what they can't do and what they are having trouble doing," he says. Dr. Yoshino's aim is to create a place where people can easily bring anything they like, and to reflect the needs of residents in industry and government. For example, in Iwamizawa City's mother-child health survey, as many as one-third of the mothers before and after delivery volunteered to help collect data on food intake, the intestinal environment, breast milk, and the needs of expectant and nursing mothers. They talked with each other about their problems and difficulties, sought solutions, and shared wisdom and ideas at birth preparation seminars. After birth, the health of the children is monitored regularly to collect data on their food intake and development. The government uses this information to consider together with companies and other organizations what can

Initiative with Iwamizawa City. The photo above shows a four- or five-month checkup in a mother-child health survey. Starting with an understanding of the environment and lifestyle during pregnancy, the lifestyle and health of newborn babies are continuously monitored until they reach school age. The photo below shows a quick health check. Measuring devices have been installed at five Tsuruha Drug stores in Iwamizawa City and other parts of Hokkaido, where local residents can get health checks free of charge. The data obtained from quick health checks has shown that age, previous bone fractures, gender, and calcium intake, in that order, affect the state of bone density.

be done to improve the health of mothers and children, and the results are utilized by the government for policy creation and by companies for business. The government's involvement has been met with a favorable response, and this initiative has been well received. Visible results have been achieved by encouraging behavioral changes, such as improving and enhancing dietary habits based on the survey results. Although there are difficulties, the enjoyment outweighs them. This initiative with Iwamizawa City was highly evaluated and led to receiving the Japan Open Innovation Prize's JSPS Chairman's Award in February 2021 and the Platinum Prize (Minister of Internal Affairs and Communications Award) in October of the same year. Based on the know-how gained in Iwamizawa City, nationwide expansion is also envisioned.

Aiming to realize a society where people can live happily in their own way

The Innovative Food & Healthcare MASTER center has made a new start together with the Life Design Center for the Mind and The Body, which was adopted in October 2021 as part of the Co-Creation Center Support Program (COI-NEXT) by the Ministry of Education, Culture, Sports, Science and Technology and the Japan Science and Technology Agency. The kick-off event "emmy fes.: event 0" was held in December 2021. "Emmy means smile," he says. This event is the result of Dr. Yoshino's desire to create a place where young people can gather with smiles on their faces, meet, talk, empathize, and experience science. The social backgrounds of the speakers at talk sessions were diverse. The speakers shared their various thoughts on topics such as childcare, medical care, industry, research and development, and youth culture, and talked about how they would take action. This project focuses on identifying problems and taking on challenges rather than the science of finding the right answer. Creating opportunities for this is another important activity.

This open-ended initiative aims to help people live joyfully in society. It is a different approach from medical care, which you turn to when your health is failing. Art, music, entertainment including movies, and gastronomy make healthy people even more energetic. He hopes to develop a creative industry in society, which makes people happy through such enjoyment.

"Our current activities involve the pregnancy and childbirth phase of life events," Dr. Yoshino says. "Although this phase relies heavily on medical expertise in most situations, the story of life doesn't end there. In COI-NEXT, an expansion of our current activities, we'd like to complete a full cycle of life by covering children's infancy, growth period, and the point where children become adults and give birth to the next generation. Lifelong 'empowerment of mind and body' is the slogan of this activity." He strongly identifies with the line "You change the world when you change your mind!" sung in the musical "Kinky Boots," and is looking for people who want to participate in activities aimed at delving into issues and changing society.

From Hokkaido University to the community and into the future, a smiling society will spread.

The free magazine live is published by Iwamizawa City and Hokkaido University's Innovative Food & Healthcare MASTER center. Launched with the desire to create the town with the most smiles in Japan, the magazine provides a variety of health-related information primarily aimed at the child-rearing generation.

Adopted by the Ministry of Education, Culture, Sports, Science and Technology for its FY2020 Project for Promoting Public Utilization of Advanced Research Infrastructure (the Core Facility Construction Support Program), the Hokkaido University Core Facility Initiative is now under way. Under this initiative, CoSMOS plays a central role in promoting the project. In addition to overseeing the University's technological infrastructure and research support personnel development system, it supports sustainable achievements and their application in society.

Professor Hiroshi Amitsuka, director of CoSMOS, says, "A major development was the establishment of a cooperative framework between the Global Facility Center of the Creative Research Institution and the Office for Technical Support, both of which already existed within the University."

Since the incorporation of the University, the current Global Facility Center has taken the initiative in promoting measures for equipment sharing, such as enhancement of open facilities and upgrading of contract analysis functions. At the same time, a university-wide organization and human resource development system for technical staff has been established. However, after about 15 years of incorporation, more substantial collaboration was required.

"The two pillars supporting the foundation of education and research are facilities and technical support personnel.

Feature: Create

Core Station for the Management of Open Facility & Skills (CoSMOS)

A Driving Force for Sustainable Achievements

CoSMOS promotes the shared use of facilities and equipment and integrally manages the development of research support personnel.
It aims to improve the quality of research and education and strengthen innovation creation.

Professor Hiroshi Amitsuka, director of CoSMOS (second from left), Professor Toshifumi Igarashi, who oversees human resource development operations as a vice director (second from right), Specially Appointed Assistant Professor Ryuta Sasaki as a project manager (far left), and Senior Research Manager Masaki Kato as a coordinator.

Both have developed through the two organizations, respectively, but each has also faced its own challenges. With a view to sustainable development, and based on the philosophy that both should be firmly positioned and maintained within the University's management strategy, CoSMOS was established as the parent body for collaboration," says Professor Amitsuka.

To ensure that the functions of both organizations are not compromised and that they work well together to create a synergistic effect, this station has been placed under the direct control of the Executive Vice President responsible for university management. Each program is steadily promoted through collaboration with the Research Development Section—an organization comprised of experts in research and business management—in innovation-related projects, and with the support of the administrative organization.

Facility strengthening and human resource development as the two wheels of a cart

A project to support the upgrading of existing facilities and equipment that are in high demand in education and research is also underway through open invitation at the University. This project named REBORN* is intended to promote the shared use of existing facilities and equipment on campus, and to add or update facilities and equipment, thereby improving the productivity of education and research.

"Amidst the COVID-19 pandemic, upgrading of remote and automated devices has been a major challenge," says Professor Toshifumi Igarashi, a vice director of CoSMOS.

As a growing number of shared devices can be remotely controlled, the number of users, both on and off campus, is expected to increase.

"We use a portion of the fee income to upgrade the skills of our technical support personnel," Professor Igarashi says. The University's technical support personnel have a wide range of expertise in areas including analytics, machine engineering, and field techniques. The goal is to develop such personnel and eventually establish a system that will enable them to acquire multiple skills and design their careers. As part of this effort, cross-departmental training and management seminars are also conducted to improve the skills of technical staff.

Plans are also slated to launch a system called Engineers Guide, which will allow our faculty members to search for engineers with any skill on campus. "Hokkaido University has a wide range of engineers with a variety of skills. I think that if we can enlist the help of such people, we can make a lot of progress in our research," says Professor Igarashi.

A room where contract analysis is performed. With many samples arriving daily from the University's chemistry laboratories, it is an ideal place for learning techniques.

Supporting the challenge of Hokkaido University students

Human resource development is not limited to staff. The door is open to Hokkaido University students as well.

As part of the project, Hokkaido University Tech Garage (HUTG), which provides manufacturing support for Hokkaido University students, is operated to help students propose and develop products that do not yet exist in the world. With the wisdom of the University's faculty and staff, and utilizing a variety of technical support available only at the University, HUTG supports future entrepreneurs from Hokkaido University.

"It's like a secret base where funding and space are provided for Hokkaido University students so that they can take on the challenge of creating new products they want to make. In the future, we hope that some students will use their HUTGexperience to start their own businesses," says Masaki Kato, a Senior Research Manager in charge of planning and supporting Tech Garage.

The HUTG program is offered twice a year, in the spring and summer, providing funding, work space and equipment, and hosting regular meetings to learn from entrepreneurs and other guests. Being able to network with like-minded people is also appealing.

"What is particularly important is the formation of a community base through manufacturing," says Senior Research Manager Kato. The connection between Tech Garage graduates and Hokkaido University through manufacturing allows Hokkaido University students themselves to build connections with society. To this end, it is important to continue activities over a long span of time. The continuous human resource development for the purpose of instilling a manufacturing culture within the University will be the driving force that opens the window to the future for the University.

*REBORN: An acronym for Research Equipment Boosting and Reusing Network project

Telekocha, developed by a team (i.e., three fourth-year engineering students) participating in the 2021 Summer Hokkaido University Tech Garage, won the "toio SDK for Unity Award" at the Heroes League 2021 hosted by MA, a general incorporated association. Telekocha is a telepresence system developed based on the concept that you can join together with a circle of friends even when you are apart. For more information, please check the QR code below.

CoSMOS website (article on winning the award)

URL: https://cosmos.gfc.hokudai.ac.jp/news/1194

*Hokkaido University Tech Garage is supported by the Hongo Tech Garage of the University of Tokyo and the Hokkaido University Entrepreneurship Development Fund, which is operated by the Institute for the Promotion of Business-Regional Collaboration, Hokkaido University.

HOKUDAI TECH GARAGE

Feature:
Create

An old greenhouse used as the base for Ano Greenhouse.

Ano Greenhouse

Art Project Utilizing Unparalleled Campus Resources

The vast campus, rich in nature.
Research and educational activities in a variety of fields ranging from humanities and social sciences to natural sciences.
The art project, Ano Greenhouse (lit. That Greenhouse), connects these activities and promotes various initiatives to create new value.

There is an old greenhouse on the premises of the nursery of the Sapporo Experimental Forest along Ishiyama-dori Avenue near Soen Station. In September 2020, a new art project using this greenhouse as a field was launched. The project was initiated by Hyunjung Park, a Specially Appointed Lecturer at the Communication in Science & Technology Education & Research Program (CoSTEP), Center for Open Education, Institute for the Advancement of Higher Education.

Specially Appointed Lecturer Park conducts research and education on communication in art and science, and also works extensively as a contemporary art artist. CoSTEP's Communicators in Science and Technology Education Program offers practical classes in which students consider how to understand and express science and technology through art. The art project, Ano Greenhouse, was launched after Dr. Park met Tadakazu Hayashi, a technical specialist at the Field Science Center for Northern Biosphere, who participated in the program and introduced the greenhouse to her. It was love at first sight when she saw the building and its surroundings, including the unique structure built in the 1970s, the trees around it, and the overpass leading there. "I was attracted to the building itself, with its skylights that could be opened and closed by pulleys with chains, and its R curve, which was fashionable at the time. I was also very attracted to the idea of planning how to preserve the former research field in the present," Dr. Park says.

Memories of That Bridge

Ano Greenhouse's goal is the exchange of people's

The overpass connecting to the Sapporo campus. Nearly 50 years after its construction, it was removed in October 2021 because it no longer complied with current structural standards.

experiences and knowledge beyond the boundaries between the university and the community, science and art, and other areas through activities such as the creation of artworks centered on the greenhouse and its surrounding environment. Various projects are conducted with a focus on bio-art, using plants and other natural and scientific subjects.

One of the projects, "Farewell, That Bridge," is about an overpass spanning Ishiyama-dori Avenue. This overpass was built to connect the campus and the experimental forest, which were divided by Ishiyama-dori Avenue when it was constructed to host the 1972 Sapporo Winter Olympics, and was used by those conducting field research in the forest and residents of the adjacent staff quarters. It is a concrete bridge where a single car can pass, and where people and vehicles were seen passing on the busy Ishiyama-dori Avenue. Dr. Park says she will never forget the feeling of crossing the bridge. The scenery changed as you entered the bridge from behind the School of Agriculture and around each of the several curves. In some spots, you could see cars passing by on Ishiyama-dori Avenue below, and in others, you passed through dense trees. After the last sharp turn with various views, you would arrive at the greenhouse. She was attracted to this unusual space where one could have a little adventure in a landscape that is known only to a few people on campus. With the removal of the bridge due to aging, this project is seeking memories of the bridge and preserving them for posterity.

Exchange of people, space, and knowledge centered on art

As many as 320 trees were cut down for construction and road maintenance associated with the removal of the overpass. In Ano Greenhouse, various initiatives are being undertaken to make effective use of the logged timber. One such initiative is a collaborative project with Tree in Sapporo, Chair in Hokkaido, an exhibition event of the Sapporo Association of Woodworkers (SAW), a group of woodworkers and designers in Hokkaido. Twelve original chairs were completed using ginkgo wood, which is not usually used for such purposes. In addition to the creation and exhibition of the chairs, the project also included a dialogue between the creators and researchers mainly from the University. Sharing ideas about wood and chairs from different perspectives brought about new insights. "I don't want this dialogue to be a conclusion, but rather a beginning of something new," says Dr. Park, who coordinated the dialogue. She looks forward to the unexpected developments that are sure to arise from such interactions.

The logged wood is also used as a material for wood smoking. Together with RITARU COFFEE, a cafe in Sapporo, she developed a smoked coffee called Anotoki (lit. That Time) using the wood to smoke the beans. "I'd like to continue to consider not only the effective use of logged wood but also ways to deal with nature on campus and how to make the best use of it," says Dr. Park with enthusiasm.

Although there were some difficulties in the process of implementing the project at the University, which was unfamiliar with contemporary art practices, the project has moved forward with the cooperation of the Field Science Center for Northern Biosphere, which manages the greenhouse, and other related departments and organizations. Dr. Park has come to be known as "Ms. Park of Ano Greenhouse" among contemporary art professionals in the Sapporo area.

Ano Greenhouse has installed art at the University and is creating new value for the University's resources. Further activities are expected in the future.

Above: Breath of Moss, an exhibition event held in the greenhouse in December 2021 to consider the place of plants. A collaboration between ceramic artist Ikuno Abe and Specially Appointed Lecturer Park. The exhibition features moss from the University's Tomakomai Experimental Forest and sound-making pottery in the shape of stones.

Below: Smoked coffee "Anotoki," available for sale to the public from February 2022 and at the University's Information Center, "Elm Forest."


2021年 12月08

Interview with the president

Guest

MAYUMI Akihiko

Chairman of the Board, Hokkaido Electric Power Company

Hokkaido Electric Power Company (HEPCO) follows the three management philosophy of Respect for Humanity, Contributions to Local Communities, and Efficient Management, as well as the corporate slogan, Light up Your Future. Since its establishment in 1951, the company has inherited the wisdom and ideas of its predecessors and continues to support life and industry in Hokkaido as a leader in energy supply, with electricity at its core.
President Kiyohiro Houkin, who is reforming the University with the aim of making it unparalleled, spoke with Akihiko Mayumi, the chairperson of the board of HEPCO and an alumnus of the University, about his life and corporate philosophy, as well as the future of Hokkaido.

Confronting Challenges and Creating New Value through the All-Hokkaido Approach

With the desire to work for Hokkaido

Houkin: First, please tell us about your background and how you came to enter Hokkaido University.

Mayumi: I was born in Asahikawa, Hokkaido, in 1954, and lived in Asahikawa City until I graduated from high school. As a child, I was rambunctious and loved playing outside more than studying. I joined the Boy Scouts, went camping, and enjoyed other outdoor activities. In my junior high school days, I played soft tennis in summer and skied with the ski club in winter.

When I took the university entrance exam, I set my sights on medical school because my brother had gone to Sapporo Medical University, and I wanted to become a doctor myself and do something for Hokkaido. Unfortunately, however, I was not successful. After that, I decided to stay in Hokkaido as an engineer and do something, so I went on to study electrical engineering at the School of Engineering.

Houkin: You are the same age as me. What was your family like?

Mayumi: My father was born in Himeji City, Hyogo Prefecture, and moved to Asahikawa City relying on his uncle to run his own lumber business. My mother was passionate about my education, so from the time I was an elementary school student, I took lessons in calligraphy, piano, abacus, and more in addition to attending cram school. I was the middle child of three male siblings. My older brother studied hard to become a doctor, my younger brother was spoiled because he was the youngest, and I guess I wound up somewhere in between the two.

Houkin: Why did you decide to work for Hokkaido Electric Power Company when you had a variety of options?

Mayumi: Even after entering university, my desire to do what I could for Hokkaido did not waver. There are many companies related to electrical engineering, but they are limited when it comes to working in Hokkaido, so my first choice was to work for Hokkaido Electric Power Company. At that time, there were 63 students in the electrical engineering department. There was a quota for professor recommendations, and only one undergraduate student could be recommended for admission to HEPCO, and I ended up being that student. When I later asked the professor in charge of employment why, he told me, "Because you were well-suited for HEPCO." Each company had its own culture, and the professor may have assigned students that matched the culture of the company.

Houkin: I strongly sense your desire to contribute to the local community and see that it remains to this day. Are there any people in your life who have influenced you?

I strongly sense your desire to contribute to the local community and see that it remains to this day.
– Dr. Houkin

Mayumi: Professor Jun Hasegawa, my mentor when I was a student. He also supervised my thesis. In addition to Professor Hasegawa, people from his laboratory have helped with various studies and evaluations for HEPCO, and I have maintained a good relationship with them even after joining the company.

Immediately after I joined the company, I spent a year and a half working in the field constructing and maintaining power lines. Sometimes I had to climb a 70-meter steel tower to do the work. Professor Hasegawa advised me on various problems at that time as well. Professor Hasegawa is also currently an outside auditor of HEPCO. I see him in person every month at a board meeting where he shares various opinions, so I feel like I am attending one of his lectures once a month.

From engineer to manager

Houkin: What kind of work have you been doing since then?

Mayumi: I worked at a construction site doing major power line work in Sapporo and worked at the Head Office on the power transmission network. I also went to England for six months for overseas training. At the time, the British power company was state-owned, but was to be privatized the following year. The employees seemed to be confused about what would happen when privatization took place, so it was instructive to hear numerous on-site stories.

Even after entering university, my desire to do what I could for Hokkaido did not waver.
– Mr. Mayumi

I then became a recruiter in the personnel and labor relations department, secretary to the president, site manager, and then head of engineering in charge of the electrical system at the Head Office. At that time, I spent much of my time negotiating with the Ministry of Economy, Trade and Industry during the phase of introducing a feed-in tariff system for renewable energy. It was hard work, but it was also a great experience for me because I was able to communicate with the national government in many different ways.

During the period when nuclear power plants were shut down after the Great East Japan Earthquake, the supply and demand of electricity was extremely tight, and for several years we were under considerable strain to ensure a stable supply during the winter months. Also, when I was president, a blackout (large-scale power outage) occurred due to the Hokkaido Eastern Iburi Earthquake. The blackout was caused by a combination of various conditions, and I apologize once again for any inconvenience this may have caused for Hokkaido residents.

Houkin: The energy industry is the very foundation of our lives. Japan has stated that it aims to achieve carbon neutrality by 2050. In recent years, global warming countermeasures have been looming as a reality, and the sense of speed is overwhelming. HEPCO celebrated its 70th anniversary in 2021 and has formulated a vision for 2030. How do you plan to tackle the practices that are unique to Hokkaido?

Mayumi: The HEPCO Group Management Vision 2030 is positioned as a roadmap for moving forward as a comprehensive energy company while responding to trends such as liberalized competition in electricity and carbon neutrality, and starting a gas business.

Consideration for the formation of a sustainable world is both a corporate and human responsibility. Since Japan is a country that must import various types of energy from overseas to meet its energy needs, securing energy is also a major issue in terms of national security. It is important to address issues such as stable supply and the burden on the public while gaining public understanding.

The Hokkaido Government is also promoting the Zero Carbon Hokkaido initiative, and we intend to cooperate as much as we can. Hokkaido is blessed with natural energy sources such as livestock manure and woody biomass as well as wind and solar power, so it is expected to form a zero-carbon system that is unique to Hokkaido. Since CO2 emissions from households in Hokkaido are much higher than in other regions due to winter heating use, we also recommend that efforts be made to have households think broadly about what measures they can take to reduce CO2 emissions at home first.

In Japan, which relies on foreign countries for the majority of its energy, securing and balancing energy is also a major issue. In addition to nuclear power, oil, coal, LNG, and renewable energy, it is also necessary to work on ammonia co-firing to replace coal and hydrogen-fueled power generation.

Toward the future of Hokkaido

Houkin: Since you also have the important responsibility of chairing the Hokkaido Economic Federation, please tell us about your thoughts on the future of the Hokkaido economy.

Mayumi: The fundamental problem in Hokkaido is a declining and aging population. Furthermore, in the wake of the COVID-19 pandemic, the financial damage to companies has been very severe. On the other hand, Hokkaido has a lot of potential. As Japan's food base and energy base, we need to take full advantage of these resources to solve various problems. The Hokkaido Economic Federation has published its 2050 Hokkaido Vision, setting milestones for 2030 with six goals and 47 initiatives, and has been going around explaining them in various areas. In the future, we need to work with local governments and companies to build on our successes.

Houkin: I feel that Hokkaido is strongly dependent on the national government. From now on, Hokkaido needs to make decisions independently and autonomously.

Mayumi: Reflecting on the past, there was a time when people said, "Hokkaido has no 'head.'" Hokkaido relied on the national budget for Hokkaido development, and even when it attracted large companies, the brainwork such as research and development was carried out in Honshu, the mainland of Japan, and Hokkaido lacked the ability to create its own industries. As a result, the primary industry is the mainstay of the region, with the manufacturing industry accounting for only about half the share of the mainland.

In the future, rather than leaving it to the central government, each region and company must come up with their own particular industrial vision and put it into practice. The investment should not just end with the construction of public buildings. It should make profits, lead to reinvestment, and create jobs. In other words, it will not lead to the revitalization of Hokkaido unless we create a system

I am advocating a winning culture to create an upbeat and positive atmosphere.
– Dr. Houkin

HOUKIN Kiyohiro

President, Hokkaido University

Born in Hokkaido in 1954. Graduated from Hokkaido University School of Medicine. Doctor (medicine) (HokkaidoUniversity). Worked for Hokkaido University Hospital and other facilities since 1979. After working as a visiting researcher at the University of California, Davis, became an assistant professor at the Hokkaido University Graduate School of Medicine in 2000, professor of Sapporo Medical University School of Medicine in 2001 and professor of the Hokkaido University Graduate School of Medicine in 2010. After becoming the director of Hokkaido University Hospital/vice executive of Hokkaido University in 2013 and the director of Hokkaido University Hospital/vice president of Hokkaido University in 2017, assumed the present position in October 2020.

that enables money to circulate inside the region.

Houkin: Universities also need to become more independent. In this sense, I felt that the vision announced by the Hokkaido Economic Federation conveys a very strong message. I hope that the vision will be widely read by the people of Hokkaido and those in industry. Finally, could you leave us with a message for the students, faculty and staff of the University?

Mayumi: It's an old story, but in 1972 the Wakkanai region experienced heavy snow damage, and a transmission tower collapsed due to snow accretion. It was a big problem at the time, and with the cooperation of the Institute of Low Temperature Science at Hokkaido University, we developed a ring that was difficult for snow to adhere to. This has drastically reduced the number of snow damage accidents, and I am truly grateful to the people who worked at the Institute of Low Temperature Science at that time. This technology is still being used by electric power companies nationwide.

When I speak to young people, I introduce an aphorism of Honda founder Soichiro Honda. "Youth is the courage to face challenges and the wisdom to create new value outside the box." Another is the equation of "work performance = approach × ability × passion." This approach involves positivity and cheerfulness. This balance is extremely important, and I urge all students to be aware of it. One last thing is "glorious discontent." This refers to complaining in a constructive and positive manner. It is important to say out loud, "This is how I would do it," and move on.

Houkin: I was once told by a previous professor that Hokkaido people are very nice, but quiet. I believe this is also true for Hokkaido University, so I am advocating a winning culture to create an upbeat and positive atmosphere.

We need to turn the winning of major projects and awards into something that faculty, staff, and students feel they deserve because they are part of Hokkaido University. Thank you very much for your time today.

The equation of "work performance = approach × ability × passion." This approach involves positivity and cheerfulness.
– Mr. Mayumi

MAYUMI Akihiko

Chairman of the Board, Hokkaido Electric Power Company

Born in Hokkaido in 1954. Graduated from the Department of Engineering at Hokkaido University and joined Hokkaido Electric Power Co., Inc. in 1979. Served as general manager of the Asahikawa Branch Electric Power Department, manager of the Iwamizawa Branch, director, and general manager of the Engineering Department. Appointed executive managing director in 2012 and president in 2014. Assumed his present position in June 2019.

Refining: Biochemistry

Elucidation of the innate immune system as a basis for the development of novel therapies

KAMADA Rui

Associate Professor, Faculty of Science

A Doctor of Science, Rui Kamada specializes in biochemistry, peptide chemistry, bio-related chemistry, cell biology, and functional biochemistry. Kamada completed a doctoral program in chemistry at the Graduate School of Science, Hokkaido University. After working as a research fellow at the Graduate School of Engineering, Kyoto University and a visiting fellow at the National Institutes of Health (NIH) in the United States, she became an assistant professor at the Faculty of Science, Hokkaido University in 2014. She assumed the current position in 2020 under the Ambitious Tenure Track System, which was established by the University to foster future research leaders. Kamada is researcher of great promise for the future.

Pursuing a love of research to become a researcher

Immunity refers to the mechanism that protects the bodies of living organisms from pathogens including bacteria and viruses, eliminates cancer cells and dead cells that develop in the body. There are two types of immunity: innate immunity and adaptive immunity. Innate immunity, first defense of immune system, reacts rapidly and nonspecifically upon encountering a pathogen. On the other hand, adaptive immune response is slower to develop but is specific and results in classical immunological memory.

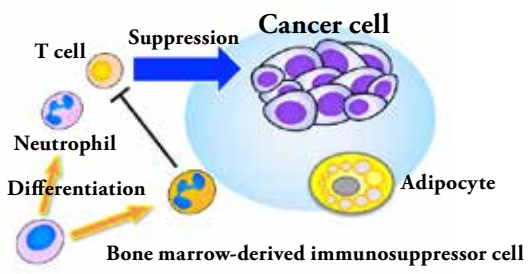
Adaptive immunity stores the genetic information of a pathogen that has invaded body tissue once and produced

antibodies in the tissue, thereby preventing recurrence of the disease when the same pathogen invades the body again. Such a mechanism is called immune memory and has been considered to exist only in the case of adaptive immunity. Recently, however, it has been confirmed that immune memory is retained even in innate immunity. Dr. Rui Kamada of the Faculty of Science is conducting research to clarify how the various cells involved in innate immunity are produced and function.

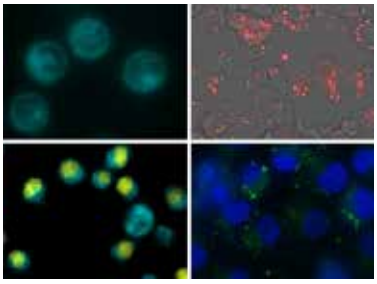
"When I was a child, my parents would take me to science and other museums, so I became interested in science. Even in high school, I liked science subjects and chose chemistry and physics. I found chemistry to be particularly interesting," Dr. Kamada says. After graduating from Iwamizawa Higashi High School (Iwamizawa City, Hokkaido), she entered the Department of Chemistry, School of Science, Hokkaido University in 2002, where she encountered biochemistry, her current field of specialization. "During the course of my studies in the Department of Chemistry, I also became interested in organic chemistry, and I was a bit confused about which field to go into, but when being assigned to a laboratory in my junior year, I decided to go into biochemistry. I didn't take biology in high school, but I wanted to do research on the life sciences from a chemistry perspective," she says. As she pursued her undergraduate and graduate studies, she wondered what she could do to continue the research she loves and chose the path of a researcher. After working at Kyoto University's Graduate School of Engineering and at the National Institutes of Health in the United States, she was appointed in 2014 as an assistant professor at the Faculty of Science of Hokkaido University, where she spent her student days. She has been conducting research on innate immunity in humans and other living organisms ever since.

Unraveling the mechanism of immune cells

Innate immunity is the mechanism by which immune cells take up and process pathogens to protect body tissue from pathogens. Immune cells that protect the body include neutrophils and other granulocytes, macrophages, T cells and B cells, and other cells with different functions. Out of these, Dr. focuses on neutrophils and has continued engaging in her research. "One hematopoietic stem cell differentiates to become immune cells with a variety of functions. Among them, I have analyzed how neutrophils, immune cells that have not received much attention, are differentiated and regulated. As a result, it has become clear that various types of neutrophils are produced in the cells, including cells that not only eliminate pathogens but also suppress the immune system. However, the mechanism by which the neutrophils that suppress the immune system are produced is not clear. I am identifying the factors and studying how cells go from a undifferentiated state to neutrophils and how they change into slightly specialized cells that suppress immunity, focusing on the proteins



Focusing on cells responsible for innate immunity, such as neutrophils, she is conducting research on immune cells and cancer cells.



Immune cells and cancer cells that Associate Professor Kamada studies day and night.

that regulate them," Dr. Kamada says. In the course of her research on cells involved in innate immunity, she has also revealed the existence of immune memory in innate immunity and elucidated that interferon (a type of protein produced in the body when pathogens invade body tissue) is responsible for the mechanism behind innate immune memory.

"Focusing on phosphatases (enzymes) that catalyze chemical reactions called dephosphorylation among proteins that play various roles in immune cells, I'd like to clarify neutrophils, which play an initial role in innate immunity; bone marrow-derived immunosuppressor cells, which are barriers to cancer immunotherapy; and the functional control of adipocytes, which is deeply associated with cancer immunity. I hope this research will lead to the development of new treatments for immune disorders and new immunotherapies for cancer," Dr. Kamada says. She will continue to take on the challenge of conducting research to elucidate the innate immune system.

Relaxation

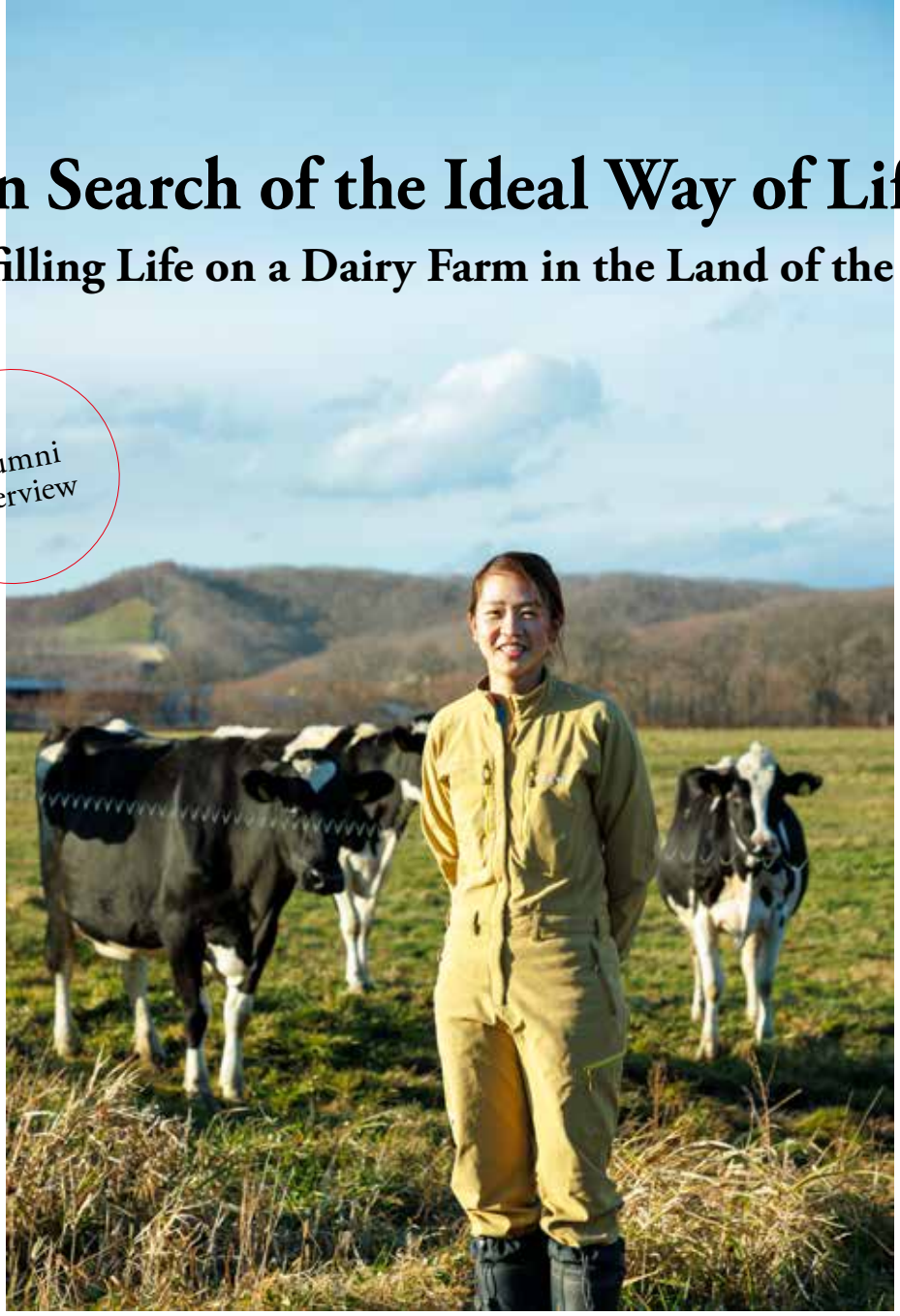
Engaging in winter sports—to refresh!

"Being from Hokkaido, I like winter sports, so I enjoy skiing in winter to refresh myself," Dr. Kamada says. "I probably get more sunburns in winter because I don't like the heat and don't go outside that much in summer." In addition to winter sports, she sometimes enjoys watching movies or baseball games for a change of pace.

In Search of the Ideal Way of Life

A Fulfilling Life on a Dairy Farm in the Land of the North

Alumni Interview



YABUUCHI Naomi

Asano Farm Dairy Farmer

| School of Agriculture – Graduate School of Agriculture Graduate |

Naomi Yabuuchi moved to Kushiro City and has been engaged in dairy farming, growing and selling vegetables, and forming a group called "Becotto" with other female farmers of the same generation to communicate the appeal of farming through photo exhibitions and social media. She talked about how she got to where she is today, the life she now lives, and memories from her school days.

—What motivated you to apply to Hokkaido University?

When I went to my grandfather's house, who was a farmer, I often played in the fields of rice paddies and sorts . There, I became interested in agriculture and began to think about going on to the School of Agriculture. I had a good image of Hokkaido, having visited there on a family trip, and I thought that Hokkaido University would be the right choice for studying agriculture.

I was interested in plants, so I joined the Laboratory of Crop Physiology of the Department of Agrobiology and Bioresources at the School of Agriculture, and I studied basic crop research, specifically the suppression of Japanese radish bolting, a phenomenon in which its stems elongate and flowers bloom, through my undergraduate and graduate (master's) school years.

—What did you focus on in your extracurricular activities?

I belonged to a club called Agees, where members experience farming through helping farmers, and we visited farmers on weekends and during extended vacations. At that time, I could sense a distance between agricultural science and actual agriculture practice. Some farmers accepted me with interest, wondering what agriculture students at Hokkaido University

were learning.

Since most of the farmers in Hokkaido are full-time farmers, I was surprised by and interested in the fact that they make their living solely by farming in this vast land. I still keep in touch with some farmers who grow tomatoes and soybeans for miso.

Now that I am hosting students as a farmer, I have started to think about what I can do for students and what I can tell them. It's interesting how my perspective has changed.

—What prompted your move to Kushiro?

After completing graduate school, I worked for an agricultural material sales company in Mie Prefecture, and while working there in sales, I began to think that I wanted to work in agriculture myself. At that time, my senior at Agees and current partner asked me if I'd like to work with him on a dairy farm. I was also missing Hokkaido.

—How is your work going now?

Our ranch is trying to streamline its management and may have shorter working hours than other ranches. I usually work from about 5:00 a.m. to 8:00 a.m. and from 4:30 p.m. to 6:30 p.m. I think I only work about five hours if there are no deliveries or problems. During the day, I work in the fields in summer and I do whatever I like in winter. I also like growing vegetables, so I don't mind the work involved. We grow a variety of vegetables, mainly cherry tomatoes, as well as cucumbers, eggplants, peppers, corn, pumpkins, spinach, and radishes, although the growing season is short.

On Sundays, we directly sell the vegetables we grow at a nearby onsen facility. Direct sales are a great experience where I get paid for my crops.

—What are the interesting and difficult aspects of your current job?

I enjoy everything about my life as a farmer. I produce food, I have milk and vegetables, and I can fish. I also have a hunting license, so I can hunt deer. I can raise goats. I can pick walnuts and Siberian onion. I have always longed to be self-sufficient, and I am now leading a life that is close to it. It's fun to live a more "analog" life.

I don't feel inconvenienced. As long as an optical fiber connection for the Internet is in place, I can live a comfortable life. Speaking of hardships, it is difficult when cows give birth in succession. Sometimes we have to take care of sick calves or calves that can't stand up. When a cow escaped from the barn, we had a tough time bringing it back.

Towels designed by Becotto. They are also sold at roadside stations in Kushiro City.

—Tell us about Becotto.

There were about five women of the same age in the youth club of the Akan Agricultural Cooperative, and we started talking about having a women's party, which got the ball rolling. It's hard to make friends when you marry into a farming family. We talk about work, share our problems, and hold study sessions on cattle feeding. Empathy is important for women. When deciding on a name for the group, we all tossed around ideas and settled on Becotto.

Partly because of my love for photography, I started to show how the members are wearing colorful T-shirts and having fun together at photo exhibitions and on social media sites. We are working with the idea that if we enjoy dairy farming ourselves and take pictures of us doing so to show others, more people will become interested in dairy farming.

—Do you feel that your experience at Hokkaido University has been useful?

In the end, it's all about personal connections. I really like Hokkaido University students because they are rather relaxed but also very capable. It's a great asset.

Also, if I have a problem out in the fields, I can study and solve it. I think my problem-solving abilities were cultivated through the process of writing and presenting my undergraduate and master's theses.

—Finally, could you please offer a few encouraging words to Hokkaido University students.

I hope students will value people, listen to others, and simply expand and practice what they are interested in. Learning is deepened not only by input but also by output.

PROFILE

Born in Hyogo Prefecture in 1987, Naomi Yabuuchi graduated from the School of Agriculture at Hokkaido University in 2011. She completed the master's program at the University's Graduate School of Agriculture in 2013, and joined an agricultural material sales company in Mie Prefecture. Sheoved to Kushiro in Hokkaido in 2015 and started working as a dairy farmer at Asano Farm. She set up Becotto, a group of female dairy farmers in the Akan and Kushiro areas, to promote the appeal of dairy farming and agriculture on social media and other media.

A bridge between Hokkaido University and the world

This issue features contributions from Dr. Dzung Viet Le, who is active as a Hokkaido University ambassador in Vietnam, and Dr. Charles S. Vairappan, who is active as a Hokkaido University ambassador in Malaysia.

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Dr. Dzung Viet Le

Vice Rector for International Research Affairs and Quality Management, Can Tho University

When I received an email from So Kawanobe, Director of Institute for International Collaboration of Hokkaido University informing that I had been nominated as an HU Ambassador, at first I was surprised and was a little nervous. It is perhaps due to people's strong impression on the word "Ambassador", because of the great honor and responsibility that many are looking forward to. I was very lucky to have studied at Hokkaido University and to have lived in the cozy and friendly environment of Sapporo City. Even before having become an HU Ambassador I always did everything I could for the good name of Hokkaido University and for the cooperation with Can Tho University (CTU), and Vietnam as well to which I have been attached all my life.

The years at Hokkaido University have left me with many good and warm memories. The professors were always interested in helping me to study and research in the best way. Others in the Faculty of Agriculture, International Student Center, and friends in Sapporo were always keeping warm by saying, "Sapporo samui kedo demo minna kokoro atatakai desu!!" (Sapporo might be cold, but everyone has warm hearts!!)

Agriculture is a well-known and long-standing field of Hokkaido University. I was fortunate to study here not only for specialized knowledge on rice genetics but also to learn how to live and work. Thanks to that, my personality has been formed as it is today.

Since completing my studies and returning to Vietnam, I always think about Hokkaido University, Sapporo City, Hokkaido, and Japan. Whenever I read an article or watch a TV program about Japan, my soul seems to settle down. From then on, I tell myself that I would do my best to bring the two countries together for deeper understanding. Besides my main job at CTU, I also have other responsibilities as the President of the Vietnam - Japan Friendship Association of Can Tho City and Vice President of the Vietnam - Japan Alumni Association (VAJA) over the past 15 years.

Since assuming the position of CTU's Vice President in charge of the international cooperation, my connection role is even stronger. The number of delegations from Japan to CTU increased markedly hundreds of visitors every year. In response, I also send many delegations to Hokkaido University and Japan every year aiming to find out a chance for further mutual collaborations.

In 1993 I was the only Vietnamese international student studying at Hokkaido University , but when my whole family returned to visit the University in 2018, I was very pleased to hear that the number of Vietnamese students studying at Hokkaido University was quickly increasing. CTU alone also has a marked increase in the number of students studying at Hokkaido University in recent years.

The coronavirus pandemic is disturbing the whole world. Like other parts of the world, CTU has moved its teaching, meeting, etc. activities to online platforms. It was also quite difficult at first because of the sudden change of teaching and working ways. Online has made it possible for people who are geographically distant to become side-by-side on a screen. In fact, within the framework of the JICA-CTU project of which Hokkaido University is one of nine partner universities, Hokkaido University professors are now teaching online master's students studying at CTU majoring in agriculture, fisheries, and environment.

For all current students and alumni of Hokkaido University, I hope you will study and contribute your best for the sake of Hokkaido University.

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1. 2. Can Tho University Main Building and Central Library.
3. Can Tho City by night.
4. With my supervisor, Prof. Yoshio Sano (Graduation, 1999).

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Dr. Charles S. Vairappan

Professor of Natural Products Chemistry, Institute for Tropical Biology and Conservation, Universiti Malaysia Sabah

I was excited when Prof. Tatsufumi Okino (Faculty of Environmental Earth Science) suggested me to be HU Ambassador, as I saw it as an opportunity to contribute to Hokkaido University. It would also provide a platform for me to be a bridge between my country and Hokkaido University.

I am very impressed with the overall "Frontier Spirit" demonstrated in endeavors and initiatives taken by researchers in Hokkaido University to be engaged with their counterparts in other Asian countries, especially Malaysia. Now, we are planning for a "Global Career Design", where students in both Hokkaido University and Universiti Malaysia Sabah will be able to share experiences and learn from their counterpart in other countries. This is a very important approach for today's generation that is facing a crisis in learning and sharing experiences due to the pandemic. The whole approach to teaching and learning has changed from face to face to virtual. Hence, new ideas that could tap into aspects of "virtual and online platform" aided teaching are important and much needed.

A trilateral Webinar between Hokkaido University, Universiti Malaysia Sabah, and Kagoshima University was just concluded on the 18th Nov 2021. A total of three researchers from each of these institutions, shared their research findings and it was joined by many post-graduate students and researchers from Malaysia and Japan. We initiated this meeting to keep each other informed of our respective group's research progress and to explore new scope of research to complement each other.

I should say that the most striking features are the obvious differences between my home institution and Hokkaido University. The climate is totally different, Kota Kinabalu, where I live and teach, has a striking difference in climate from Sapporo. Sapporo has four distinct seasons whereas Kota Kinabalu has only sunny and rainy seasons. Also, the most unique feature is the difference in biodiversity. Most of my research collaborations with researchers in Hokkaido University involve different aspects of tropical biodiversity in Borneo. Kota Kinabalu is in the Sulu Sulawesi Coral Triangle region; the marine ecosystem is rich with beautiful coral reefs, and these sustains a wide diversity of marine life. In the terrestrial ecosystem, we have tropical rainforest that is known as the hotspot for unique plants and animals. We have animals like the proboscis monkey and Bornean elephant that are unique to Borneo.

I have enjoyed my student years at Hokkaido University, and even more the experiences that I have had by collaborating with researchers from Hokkaido University. The aspirations and research directions projected by researchers in Hokkaido University are very refreshing and inspiring. We have been able to do interesting research projects and educate many students both from Hokkaido University and Universiti Malaysia Sabah. I would like to encourage readers and our students to understand the core values in the education and research culture of Hokkaido University, "Frontier Spirit." This is an important value to live by and it has inspired many to be motivated and aspire for the best in one's abilities.

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1. Marine coral reef ecosystem in Borneo: Source of biodiversity and potential treasure for biomedical discoveries.
2. Tropical forest ecosystem in Borneo where Mount Kinabalu is the highest mountain in this region at 4095 m.
3. Borneo elephants inhabiting Borneo Island.
4. Proboscis monkeys inhabiting Borneo Island.

Hokkaido University Archives

140 years of Challenge

SCENE-16

1886-1976

Establishment of Graduate School


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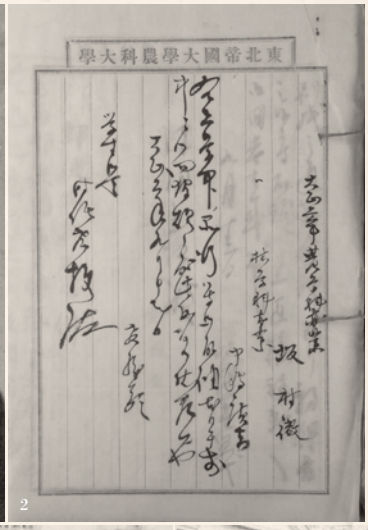
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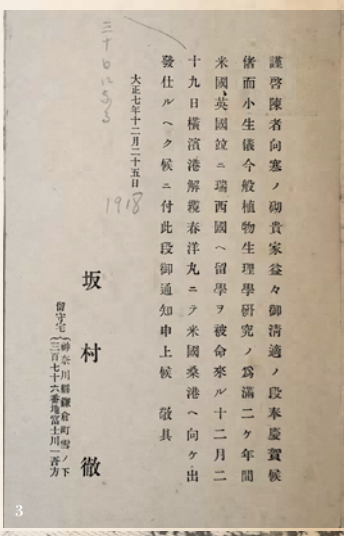
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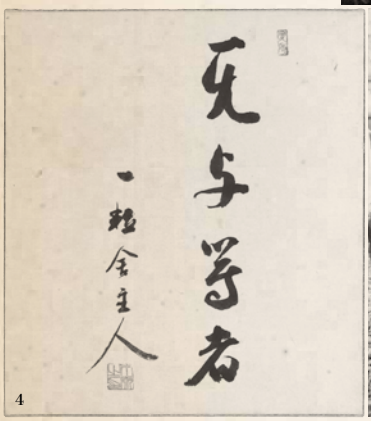
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Sapporo Agricultural College's research student system

Japan's graduate schools began with the establishment of Imperial University (later Tokyo Imperial University) in 1886. The first nineteen graduate students included eight in law, four in literature, three in science, and four in engineering. In the same year, Sapporo Agricultural College, which was not a university and therefore could not have a graduate school, officially started a research student system in which students could continue their studies after graduation from the regular course. The Sapporo Agricultural College Official Regulations enacted in December 1886 stipulated that research students selected from among graduates with excellent academic ability and outstanding talent would receive school funds and study various matters related to academics during a period of enrollment of one to three years, and that in some cases they would assist classes. After the governing agency of Sapporo Agricultural College was changed from the Hokkaido Government to the Ministry of Education, the Sapporo Agricultural College School Regulations enacted in September 1896 stipulated that research students would be graduates of the regular course who wish to further pursue a subject they have already studied and who pay their own tuition and engage in research for a period of up to two years of enrollment.

Lives of research students

Shonen Matsumura (1872–1960), who graduated from the Sapporo Agricultural College regular course in July 1895, recalled that he wanted to continue his research on insects, so he volunteered to remain at the school as a research student. As a research student, he received a monthly stipend of 12.50 yen and was assigned to give lectures on entomology through the course for teaching agricultural technology at the Agricultural College. A year later, Matsumura became an assistant professor at Sapporo Agricultural College, earning a monthly salary of 30 yen.

Tetsuo Miyagi (1877–1934), who graduated from the regular course in July 1906, also became a research student. At that time, as a result of the Russo-Japanese War, Japan possessed southern Sakhalin Island, and Professor Kingo Miyabe (phytopathology) of Sapporo Agricultural College was assigned to conduct a survey of Sakhalin plants. Miyagi accompanied Miyabe's survey of Sakhalin as his research assistant. Miyagi was incredibly strong and jumped up on the beach before the barge even reached the shore. Then, like a hare, he rushed into the forest to collect seaweed. Miyagi later returned to Okinawa and became a legend in the educational and agricultural fields.

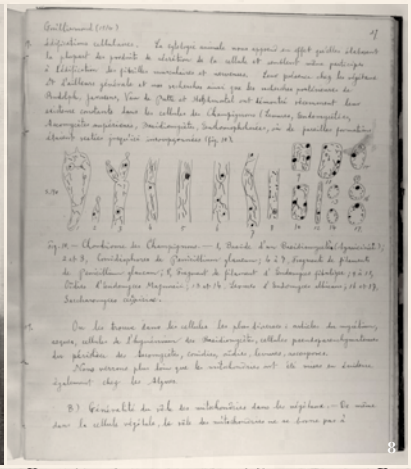
From these examples, one can see that the school and the professors were benefiting by employing Sapporo Agricultural College research students. These students were closer to research staff than to graduate students. However, such work was a valuable experience for these students.

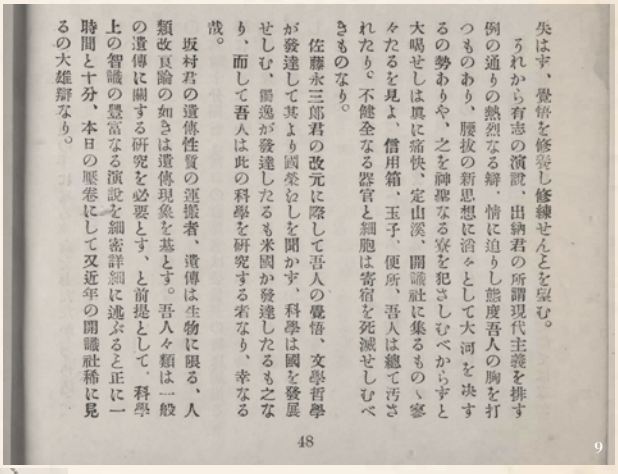
Research at graduate school

In 1907, Sapporo Agricultural College was reorganized into the College of Agriculture of Tohoku Imperial University and promoted to an Imperial University. Then, in July 1908, regulations concerning graduate school were established. The first four graduate students at the College of Agriculture of Tohoku Imperial University were Tetsu Sakamura (botany), Hirokichi Nakajima (forestry), Koichi Ichikawa (animal science), and Fumio Henmi (agricultural chemistry), who entered the school in 1913.

Tetsu Sakamura (1888–1980) had been studying chromosome morphology before entering graduate school. In November 1912, during his third year at the Agricultural College, he gave a lecture titled "Carriers of Genetic Material" at Kaishikisha, a speech meeting held by the Keitekiryo dormitory. Hitoshi Kihara (1893–1986), who was a first-year preparatory

"Sakamura talked about the carrier of genetic characteristics, that the theory of human improvement is based on genetic minutes giving a detailed and scientifically knowledgeable we need to conduct general genetic research" (Kobushi Vol.2,





1. Shonen Matsumura (1901, Hokkaido University Archives)
2. Behavior investigation of Tetsu Sakamura and Hirokichi Nakajima conducted by the Academic Affairs Department for the student supervisors (1913, Hokkaido University Archives). This is thought to have been an investigation carried out for graduate school admission.
3. Greeting postcard from Tetsu Sakamura announcing his departure for study in Europe and the United States (1917, Hokkaido University Archives)
4. Autograph by Hitoshi Kihara (Hokkaido University Archives). 無与等者 (Muyotosha) is a Buddhist term meaning that nothing is the same, and 一粒舎主人(Hitotsubusha Shujin) is Kihara's alias.
5. Faculty and students of the Department of Botany at Sapporo Agricultural College (ca. 1906, Botanic Garden) Back row, right: Tetsuo Miyagi; front row, second from right: Professor Kingo Miyabe
6. Faculty and students of the Department of Botany, School of Agriculture, Hokkaido Imperial University (1918, Botanic Garden) Back row, far left: Hitoshi Kihara
7. Tetsu Sakamura (1926, Hokkaido University Archives)
8. Notebook by Tetsu Sakamura transcribing the work of French plant physiologist Guilliermond(Hokkaido University Archives).
9. Kobushi No. 2 describing Tetsu Sakamura's lecture at Kaishikisha (1912, Hokkaido University Archives)
10. The Wheat Research Monument (photographed in 2019) stands to the west of the School of Science Building No. 6.

course student at the time, said of the lecture, "This was the first academic lecture I heard on cell nuclei and chromosomes. All of the dormitory students were very deeply impressed." The second issue of Kobushi, a literary magazine of Keitekiryo at that time, also praised him highly, saying, "It was one of the most exceptionally eloquent speeches made at Kaishikisha in recent years." Sakamura entered graduate school with a research theme of plant genetics and cytology, and conducted research on wheat chromosomes. In 1918, when he was completing his graduate studies, he made the landmark achievement of determining the number of chromosomes in wheat. After completing graduate school, Sakamura became an assistant professor at Hokkaido Imperial University, which was established by reorganizing the College of Agriculture of Tohoku Imperial University, and traveled to Europe and the United States to study. Hitoshi Kihara, who entered graduate school while Sakamura was overseas, took over the wheat research that had come to a halt while Sakamura was studying abroad.

that heredity is limited to living organisms, and phenomena. He spent exactly one hour and 10 speech on the subject, based on the premise that December 1912).

Wheat Research Monument

After returning to Japan, Sakamura was transferred from a professorship at the School of Agriculture to a professorship in the newly established Course of Botany at the School of Science, where he made significant achievements in the field of plant physiology and was honored as a Person of Cultural Merit in 1976. Meanwhile, Kihara soon moved to Kyoto Imperial University to continue his research on wheat, receiving the Imperial Prize of the Japan Academy in 1943 and the Order of Culture in 1948 as a leader in cytogenetics research.

In 1976, on the 100th anniversary of the founding of Hokkaido University, the Wheat Research Monument was erected at the site of the wheat field on campus that provided research materials for Tetsu Sakamura and Hitoshi Kihara. It is a monument to the research story of one of the first graduate students of Hokkaido University and his junior who took over the research.

Hokkaido University
HISTORY
1886-1976

1886	March	The Imperial University Order regulates graduate schools.
	December	Sapporo Agricultural College's research students are officially recognized.
1896	September	Sapporo Agricultural College's research student system is revised.
1907	September	Sapporo Agricultural College is reorganized into the College of Agriculture of Tohoku Imperial University.
1908	August	Regulations for the Graduate School of the College of Agriculture of Tohoku Imperial University are established.
1913	September	The first four graduate students (including Tetsu Sakamura) enter the College of Agriculture of Tohoku Imperial University.
1918	April	The College of Agriculture of Tohoku Imperial University gains its independence as Hokkaido Imperial University.
	September	Hitoshi Kihara enters graduate school.
	December	Tetsu Sakamura, who has completed his graduate studies, goes abroad to study as an assistant professor, and Hitoshi Kihara takes over his wheat research.
1920	April	Hitoshi Kihara becomes an assistant at the School of Science of Kyoto Imperial University.
	July	The Doctor of Science degree is awarded to Tetsu Sakamura (Tokyo Imperial University).
1921	December	Tetsu Sakamura is promoted to professor at the School of Agriculture.
1924	April	Hitoshi Kihara is appointed associate professor at the newly established School of Agriculture of Kyoto Imperial University (becomes a professor in 1927).
	July	The Doctor of Science degree is awarded to Hitoshi Kihara (Kyoto Imperial University).
1930	April	The School of Science at Hokkaido Imperial University is founded; Tetsu Sakamura is transferred to a professorship at the School of Science.
1976	September	The Wheat Research Monument is erected on the site of the wheat field at Hokkaido University.

Hokkaido University Archives

This facility collects, classifies and preserves historical documents and records of Hokkaido University. It also conducts investigations and research on its history.

Topics

01

The Start of Elm Forest Project, Connecting the Value of Historic Buildings to the Future

The Elm Forest Project is designed to preserve and renovate the former Department of Entomology and Sericulture and the former Entomology Specimen Room, the oldest buildings on the Sapporo Campus, which are located in the Elm Forest, and to revitalize them as the Hokkaido Wine Education and Research Center building, thereby linking their legacy to the future campus.

Although these buildings still make a beautiful addition to the campus, they do not meet current seismic standards, so people are not allowed to work in these buildings. Therefore, we are planning to preserve, repair, and restore the original buildings as much as possible by carefully reading the architectural design of the buildings at the time of their creation, but currently lack the budget to do so.

We would very much appreciate your help in passing on the value of the University's historic buildings to the future 100 years from now.

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エルムの森プロジェクト

Donation thanksgiving gifts

Miyako zo Yayoi Set
Ham and sausage made with time-honored techniques from the Hokkaido University farm and cider made from apples grown in the Yoichi orchard are packaged in a wooden box made from a tree grown in the Hokkaido University Experimental Forests.
Miyako zo Yayoi is the song of the Hokkaido University Keitekiryo dormitory written in 1912, and has been sung along with the school song Tokoshie no Sachi. Each item is named after a landscape from Hokkaido University as depicted in the lyrics of the song Miyako zo Yayoi.

*You may donate as many units as you wish at 200,000 yen per unit. The names of donors who contribute one million yen or more will be placed on the nameplate for the Hokkaido Wine Education and Research Center building.

02

467 Students selected for the 2021 Hokkaido University DX Doctoral Fellowship Award Ceremony and Guidance Session Held

The Hokkaido University DX Doctoral Fellowship award ceremony and guidance session were held on December 21 (Tue.), 2021.

The Hokkaido University DX Doctoral Fellowship program was established after the University's Research Support Project for DX Doctoral Students to Lead Society 5.0 was adopted as part of the Support for Pioneering Research Initiated by the Next Generation program of the Japan Science and Technology Agency. The fellowship program provides selected outstanding doctoral students with a stipend equivalent to living expenses and research expenses as well as career development and training to secure an environment in which doctoral students can devote themselves to research and improve their research skills.

In FY2021, the first year of the program, applications were accepted from September to October, and 467 students were selected. The award ceremony was held online, and President Kiyohiro Houkin and Executive Director/Vice President Junji Yamaguchi sent messages of encouragement. On behalf of the selected students, two students expressed their enthusiasm and aspirations for their future research activities.

At the guidance session, Koichiro Ishimori, program director and professor of the Faculty of Science, and others outlined the procedures necessary for doctoral students to independently pursue research as researchers, including how to use the research funds and research incentive funds provided.

President Houkin sends a message of encouragement.

Hokkaido University DX Doctoral Fellowship portal site

https://sites.google.com/eis.hokudai.ac.jp/dxphd-fellow/home

Representative students who shared their aspirations (from left, Tonozuka of the Graduate School of Education and Kajihara of the Graduate School of Medicine).

Historic Buildings that Watch Over the Campus

Photographer: Hiromi Terashima / Akihito Yamamoto

a

Sapporo experienced the heaviest snowfall on record, covering the campus with much more snow than usual.

Many historic buildings remain on campus, and a project is under way to revitalize and make effective use of these buildings that have accompanied the development of the University (see Topics).
We are committed to linking the historical value of the University to the future.

Soon the campus will be covered with budding grass and trees, creating lush, historic and atmospheric landscapes.

Note: For videos showcasing the natural splendor of the campus in different seasons, please visit the University website.

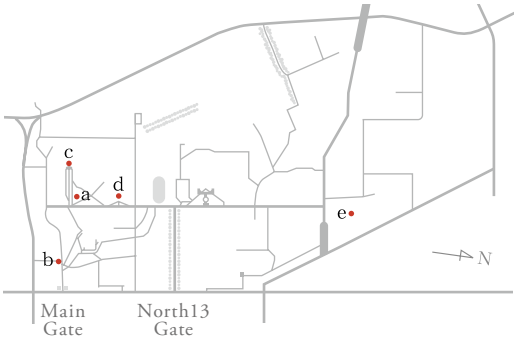
Videos of campus views QR code

b

c

d

e



a. Former Department of Entomology and Sericulture
b. South Gate
c. School of Agriculture
d. The Hokkaido University Museum
e. The Second Farm (Model Barn)

HOKKAIDO
UNIVERSITY

https://www.global.hokudai.ac.jp/