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NATIONAL TSING HUA UNIVERSITY

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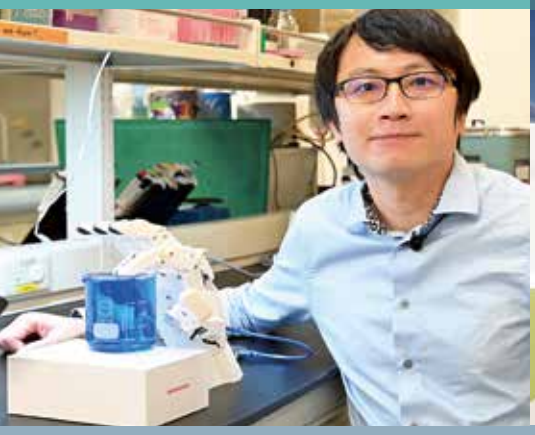


CONTENTS

NTHU WILL SOON INAUGURATE A NEW PRESIDENT

W. John Kao (高為元), chair professor at the University of Hong Kong, has recently been elected to serve as the next president of NTHU. The Presidential Selection Committee said that Prof. Kao is expected to bring new creative energy to NTHU, by virtue of his diverse background and global perspective, his proven track record in initiating and administering international and interdisciplinary projects, as well as his extensive experience in biomedical engineering and cooperation with industry. The Committee was also impressed by Kao's modest and reserved manner, as well as his positive and optimistic outlook, noting that his appointment marks a new milestone in the history of NTHU.

As approved by the Ministry of Education, Prof. Kao's appointment is scheduled to begin on May 1, 2022.

The Committee said that Kao has a wealth of experience in education and industry, and that in his application he has demonstrated lots of enthusiasm for making major contributions to NTHU and higher education in Taiwan.

Kao is currently the Chair Professor of Translational Medical Engineering at the University of Hong Kong, a joint appointment by the Faculties of Medicine and Engineering. Born in Taiwan, he has a bachelor's degree in biomedical engineering from Johns Hopkins University; he also has a master's degree in biomedical engineering and a PhD in macromolecular science and engineering, both from Case Western Reserve University; he has also conducted postdoctoral research at the California Institute of Technology and the Swiss Federal Institute of Technology.

Kao taught at the University of Wisconsin-Madison for 18 years, beginning in 1998, during which time he served as the associate director of the Department of Biomedical Engineering (2010-2011) and the associate dean of the Institute of International Studies (2011-2015). He held joint chair professorship from the Schools of Pharmacy, Medicine, Surgery, Biomedical Engineering, and International Research, and was the Vilas Distinguished Achievement Professor of Pharmacy, Surgery, and Biomedical Engineering (2011-2016). He also

served as the associate executive director of the Institute of Clinical and Translational Research funded by the National Institutes of Health (NIH), for which he headed the value-creation program (2012-2015).

In 2015 Kao was appointed vice president of the University of Hong Kong, and was responsible for promoting international research and education. In early 2019 he resigned from his administrative post to take up his current position as full-time Chair Professor of Translational Medical Engineering; he is concurrently serving as the director of the Institute for Translational Research at the Hong Kong Science and Technology Park.

Kao is a fellow of the American Institute of Medical and Biological Engineering, the International Union of Societies for Biomaterials Science and Engineering, and the Hong Kong Institution of Engineers. He is also a member of the editorial board of several top journals. His research focus is on the synthesis and analysis of biological materials, and the development of simulated biological systems to detect specific biological reactions that affect the biocompatibility of the host at the level of proteins, cells, tissues, and organisms. He designs and shapes functionalized technology for use with biomaterials, and specializes in the use of biomedical equipment in drug delivery, regenerative medicine, and biomedicine, for use in a variety of clinical needs, including cancer treatment, surgery, and wound treatment. The biomaterial technology developed in his laboratory will soon be manufactured by multinational companies, and the experience gained from these applications is expected to help in solving various complex problems in biomedical research.

The Committee was also impressed by Kao's leadership ability and extensive experience in academic administration. The Institute of Clinical and Translational Research at the University of Wisconsin is one of the school's largest federally funded projects. During his tenure as associate executive director of the Institute, Kao oversaw the operation of multiple core facilities, established a number of scientific research commercialization platforms, streamlined the technology transfer process, and increased the success rate.

The Committee also noted that during his tenure as the vice president of the University of Hong Kong Kao was in charge of promoting global research and education affairs, expanding the diversity of the student body, formulating new curriculum in cooperation with various colleges, and implementing the school's policy that every student should participate in at least one overseas study program. He played a key role in establishing joint degree programs with University College London, Cambridge University, Columbia University, and Peking University; he also established multilateral research platforms with a number of elite universities, including University College London and the Universities of Toronto, Chicago, and Sydney, with a focus on jointly responding to the call from the United Nations for implementing the principles of sustainability in academia. His efforts have gone a long way in enhancing the international profile of the University of Hong Kong, as well as its global ranking.

Beginning with his time at the University of Wisconsin, Kao has accumulated extensive experience in industry-university cooperation, based on which he has developed an effective technology transfer strategy. During his tenure as the vice president of the University of Hong Kong he implemented a BOT model for the 2,000-bed Hong Kong University Shenzhen Teaching Hospital. He has unique first-hand experience in medical education, clinical training, and hospital administration. In his capacity as the director of the Institute for Translational Research

at the Hong Kong Science and Technology Park, he stimulated the development of Hong Kong's biomedical science and technology sector, which covers treatment, diagnosis, health informatics, and medical equipment; he has also established cooperative plans and developed sustainable financial plans and feasible business transfer models involving industry, academia, investors, and public institutions.

Kao was born in Taiwan, but while he was still in elementary school his family moved overseas due to his father's work requirements. While growing up in the United States and Europe he was exposed to a variety of cultures, gaining an international outlook and the ability to adapt to various situations. From his experience as an ethnic minority in a position of responsibility at a top university in the United States, Kao learned a lot about equality and diversity, at the same time honing his ability to communicate and cooperate with people of diverse backgrounds. From his administrative experience at top universities in the United States and Asia he has acquired expert knowledge of how to seamlessly integrate the global and local perspectives in higher education, as well as how to balance development and cultural values; he is also a staunch advocate of academic freedom and equal rights, and is adept in the use of interdisciplinary education and academia-industry collaboration to obtain practical results and increased visibility.

During the interview with Kao, the Committee came to know that although he has lived and worked overseas for a long time, he has maintained close connections with his place of birth. He often returns to Taiwan to visit his relatives, and nearly every summer he enrolled his young children at summer camps in Taiwan, where they learned Chinese and gained a good understanding of Taiwanese culture and social system. He strongly identifies with NTHU's core values, emphasis on interdisciplinary studies, a diverse and open approach to education; he is also impressed by the faculty's commitment to both academic freedom and excellence in research and education. With a good understanding of the challenges facing NTHU, Kao is well positioned to lead the school at this time of change and transformation.

At a school briefing held for teachers and students during the interviewing process, Kao said that he was born in Taipei, where he attended the Dongmen Elementary School. Shortly after moving to the United States with his family, America broke off its diplomatic relations with Taiwan, making life quite difficult for US-based Taiwanese, who were even forbidden to display the ROC flag in public. "During these past 40 years overseas, no matter where I have been, I've always felt a strong sense of connection with Taiwan. Thus I'm grateful to have this opportunity to share my experience with you, and I feel like I'll soon be coming home," said Kao, visibly moved.

Kao said that he believes that NTHU is at a turning point in its history. Recent and future developments at the school include the merger with the National Hsinchu University of Education, the Taipei School of Economics and Political Science (TSE), the Tsinghua Semiconductor Research Institute, the Tsinghua University Hospital, and the post-baccalaureate program in medicine—all of which present unprecedented opportunities and challenges. Thus it is a good time to clearly establish the school's brand image, so as to firmly establish NTHU on the world stage.

A MODEL OF SUSTAINABILITY: NTHU WON THE UNIVERSITY SUSTAINABILITY AWARD

National Tsing Hua University (NTHU) was awarded the Taiwan University Sustainability Award at the 14th Taiwan Corporate Sustainability Awards (TCSA) held by the Taiwan Institute for Sustainable Energy (TAISE) on November 17. Standing out amongst the 38 participating universities, NTHU was ranked first in the comprehensive evaluation, and in the individual competitions also received the Social Inclusion Leadership Award as well as the University Sustainability Report Gold Award.

The judges cited the exemplary way in which NTHU has built on its core competence in teaching and research to respond with concrete actions in meeting the requirements of sustainable development, including the implementation of a campus-wide campaign for reducing energy consumption and carbon emissions. In addition, they were impressed by NTHU's workplace ethics emphasizing diversity

President Hocheng Hong (center) and Chief Sustainability Officer Tai Nyan-hwa (戴念華) (second from the left), Sustainability Office Director Lin Fu-ren (林福仁) (first from the left), Vice President and Chief of Staff King Chung-Ta (金仲達) (second from the right), Dean of International College Doong Ruey-an (董瑞安) (first from the right).

and equality, as well as the way in which faculty and staff are rewarded for outstanding performance in research, teaching, counseling, and public service, all of which has had a positive impact on the larger society and enhanced the university's international profile. In terms of sustainability, NTHU has consistently demonstrated what is meant by its school motto, "To Oneself Be True, Give Nature Its Due."

President Hocheng Hong said that the natural beauty of the campus goes hand-in-hand with the principles of sustainability. In addition to being the first university in Taiwan to appoint a chief sustainability officer, NTHU has a total of 517 undergraduate courses related to sustainability, and 216 at the graduate level, which together amount to 13% of the school's course-offerings.

NTHU senior vice president and chief sustainability officer Tai Nyan-hwa (戴念華) pointed out that in order to deepen the concept of sustainability on all levels, each administrative and academic department has appointed a sustainability officer, all 26 of whom belong to the Sustainability Committee, which meets every two months to discuss the latest developments and coordinate their efforts.

Sustainability Office director Lin Fu-ren (林福仁) said that since research, teaching, and public service are the most important tasks of a university, the school's early efforts in promoting sustainability focused on encouraging teachers, researchers, and students to integrate the principles of sustainability into their ongoing work. Numerous faculty members are conducting research directly related to the 17 goals of sustainable development promulgated by the United

President Hocheng receiving the Award.

Nations. In the process, they have demonstrated how focusing attention on an issue generate positive change.

Lin said that in addition to the ongoing Rising Sun Scholarship for financially disadvantaged students, NTHU has established a special fund for assisting students undergoing hardship due to the COVID-19 pandemic, both of which tie in with the UN's sustainability goals of "no poverty" and "quality education."

Lin also pointed out that making sustainable development a reality requires planting the seeds of sustainability in the hearts of students, so that when they graduate, these seeds will sprout and grow strong throughout society.

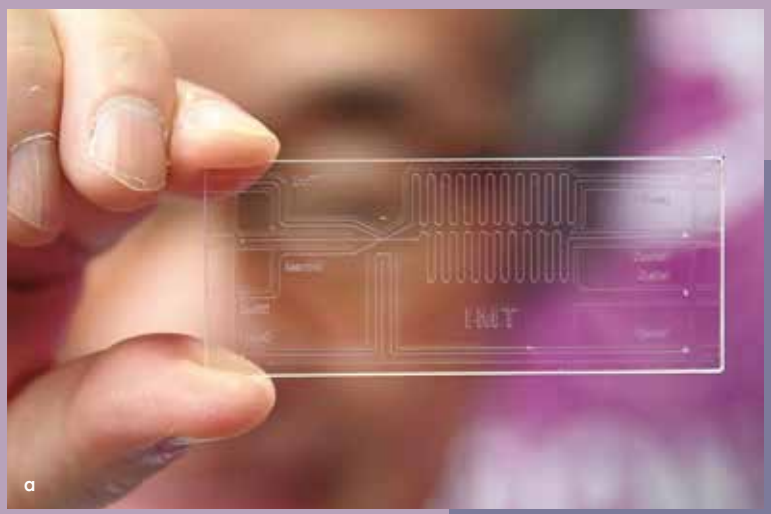
NTHU AND DAICEL OF JAPAN JOINTLY DEVELOP A REVOLUTIONARY DESKTOP CHEMICAL PLANT

National Tsing Hua University and the well-known Japanese chemical company DAICEL announce a five-year joint project to integrate an innovative microfluidic system developed by Prof. Kitamori Takehiko (北森武彦) into the chemical manufacturing industry. Total investment in the project is 450 million Japanese yen (approximately NT$110 million), and its potential to reduce energy consumption while lowering the production of carbon and waste is expected to set a new standard for sustainability in the chemical industry.

Prof. Kitamori, a world-renowned pioneer in microfluidic and nanofluidic technology and the former vice president of the University of Tokyo, has been serving as the Yushan Honorary Chair Professor of the Institute of Nanoengineering and Microsystems, Department of Power Mechanical Engineering at NTHU since 2020. Building on his previous research conducted at the University of Tokyo, he has developed an innovative microfluidic system which allows the mixing and extracting operations conventionally carried out with large-scale equipment to be performed using a glass chip the size of a business card and capable of combining thousands of microfluidic chips simultaneously, making it possible to create a "desktop chemical plant."

Kitamori explained that it can be quite difficult to instantaneously mix several large barrels of chemicals with different temperatures and reaction speeds, and there may even be an explosion if the materials are not handled carefully. Thus the preferred way of blending chemicals is by passing it through a microchannel, which makes it possible to precisely control the amount of raw materials used, as well as the mixing sequence and conditions, thereby optimizing the quality of the final product.

Kitamori said that the aim of the project is to reduce the size of chemical production equipment, so that what is currently produced by a factory measuring 20 x 20 meters can be miniaturized into a system only two square meters in size. What's more,



a. Prof. Kitamori Takehiko (北森武彦) has developed an innovative microfluidic system which allows the mixing and extracting operations conventionally carried out with large-scale equipment to be performed using a glass chip the size of a business card. (Photo: National Tsing Hua University)
b. Prof. Kitamori Takehiko
c. Daicel President Ogawa Yoshimi

b

c

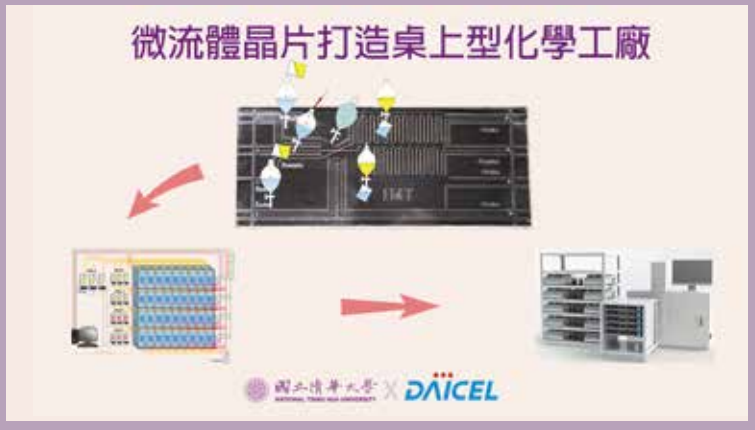
such a system would use less energy and materials, making it less expensive, and would also produce less carbon.

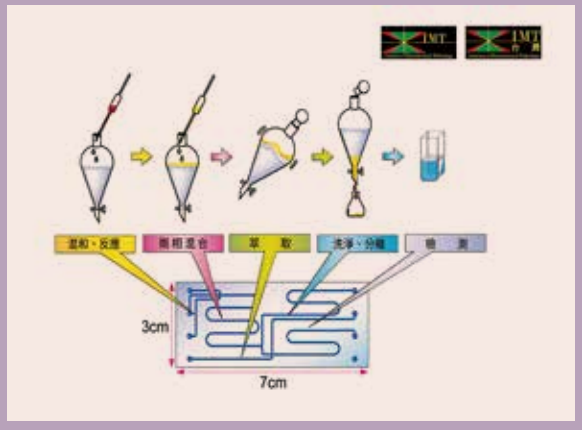
Years ago, when DAICEL president Ogawa Yoshimi (小河義美) heard about the microfluidic technology developed by Kitamori, he was deeply impressed, and is now highly pleased that DAICEL is going to integrate this innovative technology into its operations. He is also looking forward to cooperating with NTHU in introducing this epoch-making manufacturing process to the world, which he also sees as a way of promoting sustainability and the circular economy.

Nagamatsu Shinji (永松信二), DAICEL's executive advisor of research center, said that uniting DAICEL's expertise in chemistry with NTHU's strengths in machinery and electrical engineering is sure to be a winning combination.

Dr. Fan-gang Tseng (曾繁根), Vice President and Director of Research and Development said that he is very optimistic about the future development of the microfluidic chemical plant. He pointed out that the adoption of this microfluidic process by DAICEL—one of the largest chemical companies in Japan—and by Taiwan's many small and medium-sized chemical factories would constitute a revolutionary leap forward, and could lead to similar processes being applied by the semiconductor and biomedical industry.

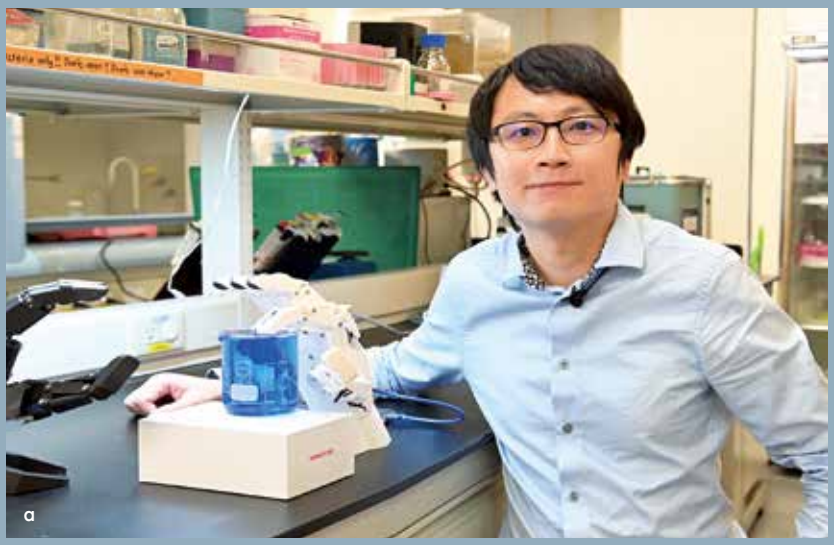
Tseng thanked the Yushan Scholar Program of the Ministry of Education, which helped bring the world-class scholar Kitamori to NTHU.





RESEARCHERS DEVELOP A SELF-POWERED MONITORING SYSTEM

Even as automated sensing technology used in human physiological and environmental applications continues to develop in leaps and bounds, power supply remains an ongoing issue. With this in mind, Professor Lin Zong-hong(林宗宏) of the Institute of Biomedical Engineering has developed a sensing system which generates its own energy from body heat, the heartbeat, friction, static electricity, or vibration. Lin has adapted this revolutionary technology for use in a pressure-sensing insole which monitors a patient's movement and receives data through the Internet of Things to provide instant medical advice.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Lin said that such a self-powered sensing system is especially suited for use with assistive devices, since it allows for continuous monitoring of the physiological data which plays an important role in postoperative tracking and home care for chronic diseases.

Lin's research team has already used this system to develop a pressure-sensing insole. Each insole is implanted with four flexible sensors; each one is a centimeter in length, and so thin that it weighs a mere 1.5 grams. Each sensor communicates with a wearable wireless transmission device which transmits to the patient's mobile phone such information as foot pressure and the amount of time each part of the foot touches the ground. The insole also analyzes the patient's center of gravity and foot muscles while walking, which helps in diagnosing such conditions as jogger's heel (plantar fasciitis), a herniated intervertebral disc, and a cruciate ligament injury.

Lin said that the insole sensor was actually inspired by the unique


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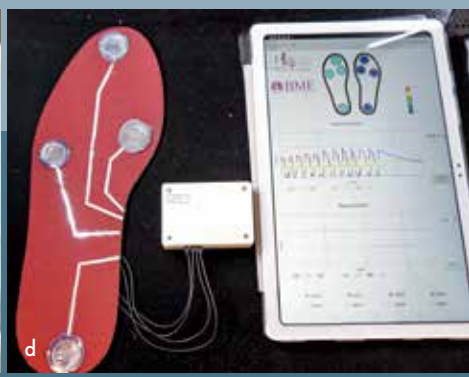
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microstructures on a shark's outer skin which conduct electric current. The liquid metal in the middle of the sensor allows it to accurately measure vibrations and generate electricity.

Lin points out that his self-powered sensing system is well suited for use with medical devices implanted in the body, such as cardiac defibrillators, since it reduces the need for periodic and risky replacement. For patients with chronic diseases such as diabetes, the sensing system allows a doctor to remotely monitor the patient's physiological changes through foot pressure and perspiration, making treatment more immediate and accurate.

Existing automatic monitoring systems use sophisticated components, making them quite expensive. By contrast, since Lin's sensing system converts mechanical energy such as small vibrations into electrical signals that can be analyzed by the Internet of Things, it can be made of low-cost components; it's production cost is further reduced by its simple design and the wide variety of materials it can be made from. Moreover, in light of aging populations and increasing need for long-term care in many parts of the world, the need for such monitoring devices is expected to increase in the coming decades. Self-powered monitoring systems also have lots of potential for helping in the battle against the COVID-19 pandemic. Lin's system won the Ministry of Science and Technology's 2021 Future Tech Award and has been patented in Taiwan and the United States.

A research team led by Professor Lin Zong-hong (center) of the Institute of Biomedical Engineering has developed a self-powered system suited for use in medical and environmental monitoring.

In addition to medical applications, Lin is also exploring how his system might be used in environmental monitoring, such as using the sensor to provide real-time data on pollution levels in rivers by monitoring concentrations of heavy metals, such as mercury, lead, cadmium, and arsenic. Lin says that his system could even be used for long-term monitoring of the planet Mars.

Lin's research team has also adapted this system to create a type of glass which uses a transparent conductive film to automatically adjust the transparency of the glass, making it suitable for use in hospital wards, glasses for amblyopic patients, car windshields, and lenses for computers and mobile phones.

a. Lin's system can also be used to monitor concentrations of heavy metals in rivers.
b. Lin's insole assists in diagnosis and treatment.
c. Installed in a mechanical hand, the monitor measures the concentration level of heavy metals as soon as it touches the surface of the water.
d. Each sensor communicates with a wearable transmission device which transmits information to the patient's mobile phone.

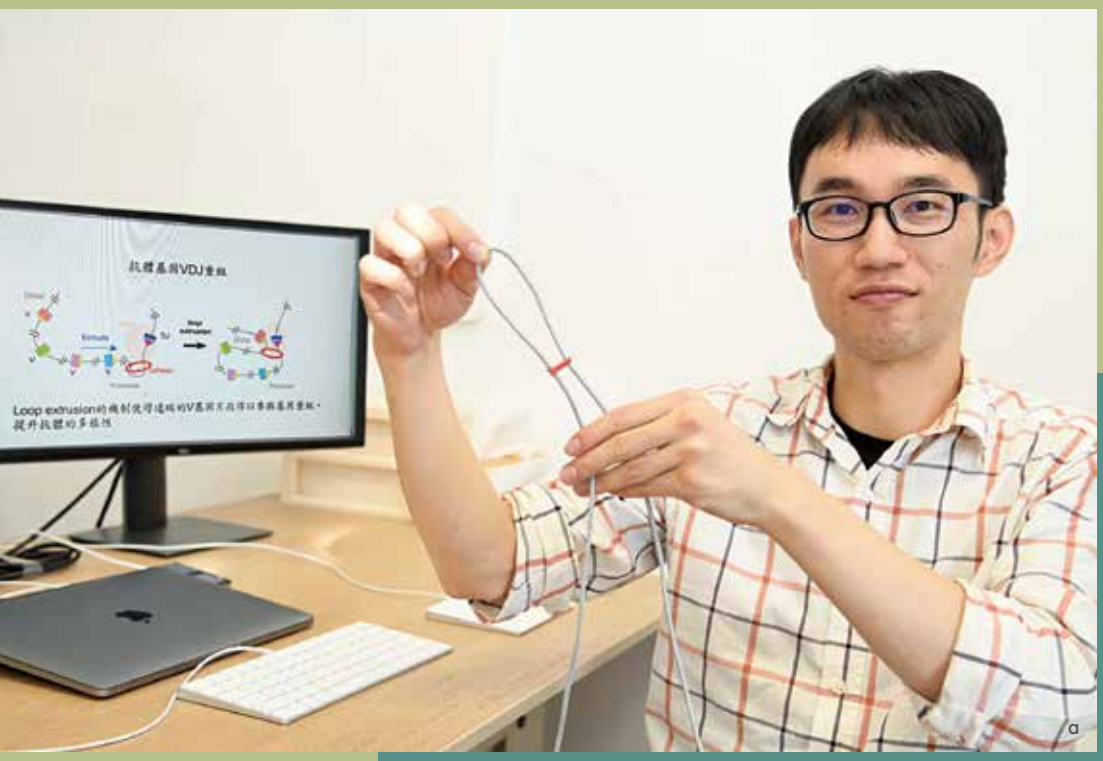
UNRAVELING THE MYSTERY UNDERLYING ANTIBODY GENE RECOMBINATION

Working in conjunction with a team from Harvard University, Dr. Lee Cheng-sheng (李政昇) of the Institute of Molecular and Cellular Biology has discovered the mechanism underlying antibody gene recombination, which enables a single gene to produce different antibodies to counter various pathogens.

Lee said that while B lymphocytes are growing, it's the recombination of the antibody genes in the chromosomes which allows them to produce immunoglobulins on the cell surface so that they can secrete antibodies when encountering pathogens. But the problem is, seeing that the chromosomes of a single cell in the human body would be two meters long if straightened out, and since the antibody gene fragments in the chromosomes are so far apart, how do they meet and recombine?

The research team discovered that the adhesion protein that organizes chromosomes plays a key role in this mechanism. Lee explained that the chromosomes are like a Scout rope full of gene fragments, and the adhesive protein is like a rubber band. If you put the Scout rope into the rubber band and putt it up, the V gene fragments at one end of the rope and the D and J gene fragments at the other end come together to form antibody genes. This is what's called the loop extrusion model.

By choosing different V, D, and J combinations for different B lymphocytes, a diversity of antibody genes can be formed in the human body, and a large number of B lymphocytes with corresponding antibodies can be replicated to counter different pathogens.



a. Lee demonstrating how adhesive protein acts like a rubber band which recombines gene fragments in a chromosome.
b. Adhesive protein recombining gene fragments in a chromosome.

The international research team was led by Professor Frederick Alt of Harvard Medical School, and included members from the Boston Children's Hospital and the National Institutes of Health, both in the US.

Lee completed his bachelor's degree in life sciences at NTHU,

and earned a Ph.D in molecular and cell biology from Brandeis University in the US, where he conducted research on the repair mechanism of DNA. After completing postdoctoral research at Harvard, specializing in antibody gene recombination, he returned to Taiwan and in 2019 began teaching in the College of Life Science at NTHU.

Lee (right) with his wife, Chang Hsiao-han (張筱涵), who also teaches in the College of Life Science.

b

A STITCH IN TIME: TAIWAN AND JAPAN JOIN HANDS IN PROVIDING CRITICAL CARE

Japan has donated five batches of the AZ COVID-19 vaccine to Taiwan, and Taiwan has reciprocated by providing treatment at NTHU's Boron Neutron Capture Therapy Center (BNCTC) for a 20-year-old Japanese woman suffering from a malignant brain tumor. The treatment was a success, and she has now returned to school.

The doctor in charge of the treatment was Yi-Wei Chen of the Oncology Department at Taipei Veterans General Hospital (TVGH). He said that only Taiwan and Japan have medical centers using boron neutron capture therapy (BNCT) to treat cancer. However, Japan's Ministry of Health, Labor, and Welfare has not yet approved BNCT for treating malignant brain tumors, leaving Taiwan as the only source of treatment for malignant brain tumors that are difficult to treat by surgery.

Chen said that the Japanese patient was originally diagnosed with rhabdomyosarcoma of the right ear canal at the age of six. After surgery and chemotherapy, the condition was stable for a time. Unexpectedly, the tumor recurred in 2018, and the tumor metastasized to the hindbrain. After it was determined that it turned out to be malignant peripheral nerve sheath tumor, she received heavy particle and CyberKnife treatment in Japan, but the tumor still recurred.

Thus she decided to come to Taiwan for BNCT, and arrived in April 2021. By that time the tumor was 6–7 cm in size, but after the first round of irradiation at the THOR BNCT Cancer Center, it shrank by 80%, and the compression on her neck relieved considerably, much to the delight of the medical team, and she returned to Japan. However, at the end of July, some signs of recurrence were discovered, and she was advised to return to Taiwan for a second round of irradiation.

A Japanese woman (center, holding teddy bear with a graduation cap) in front of the NSTDC with the medical team after receiving BNCT for a malignant brain tumor.

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a. The NSTDC medical team (left to right): Liu Hong-ming (劉鴻鳴), Ph.D.; Professor Yeh Tsung-kuang (葉宗洸); Professor Lee Min (李敏); Dr. Chen Yi-wei (陳一瑋) of TVGH; and Peir Jinn-jer (裴晉哲), Ph.D.
b. In September the BNCTC won the NTHU Outstanding Industry-Academia Research Award. Team members (left to right): NSTDC director Yeh Tsung-kuang, BNCTC director Lee Min, and Dr. Chen Yi-wei of TVGH.

She went to the THOR BNCT Cancer Center for treatment on September 17. After the injection of the Boron-10 drug and a 20-minute session of neutron source irradiation, she had a group photo in front of the NSTDC with the medical team, who presented her with a teddy bear wearing a graduation cap, as a way of wishing her a speedy "graduation" from her cancer. Afterwards, she thanked the medical team in fluent English.

Working closely with the TVGH, the BNCTC has treated over one hundred patients from all over the world, including Spain, Brazil, Australia, Singapore, Japan, and China.

BNCT is a kind of targeted radiotherapy in which the patient is first injected with a boron-containing drug; once the drug has accumulated in the tumor, the neutron beam from the nuclear reactor is used to irradiate the tumor, and the high-energy particles generated by the boron neutron capture reaction effectively kill off the tumor cells, without damaging nearby normal cells. Thus BNCT is well suited for treating diffuse cancers and cases in which surgery is contraindicated.

SOWING SEEDS OF FRIENDSHIP AND CROSS-CULTURAL UNDERSTANDING: THE TAIWAN-EUROPE CONNECTIVITY SCHOLARSHIP

In September 2020, the President of the Czech Senate, Miloš Vystr il, led a delegation on a visit to Taiwan which resulted in the two governments concluding an agreement to cooperate on 22 items, including a student exchange program. Since then, the program has been expanded to include academic and cultural exchanges between Taiwan and a number of other European nations with representative offices in Taiwan, including Britain and Hungary. NTHU has long been cooperating with well-known universities in various European countries, and the recent addition of the NTHU's Chinese Language Center to the Ministry of Education's list of recommended centers for teaching Chinese to foreigners also gave a big boost to academic exchanges between Taiwan and Europe. What's more, NTHU has recently been recognized by the Ministry of Foreign Affairs as one of the partner schools for the Taiwan-Europe Connectivity Scholarship, which is expected to further expand academic cooperation and strengthen bilateral relations.

Following a hiatus of one year due to the COVID-19 pandemic, during the current academic year there are

13 European exchange students at NTHU, two from the Czech Republic, four from Germany, five from France, and two from Belgium, all receiving the Taiwan-Europe Connectivity Scholarship. In addition to their main coursework, Scholarship recipients are required to take a two-credit course in Chinese every semester, and after only two months many are able to order a meal in Chinese. The exchange program also includes a fieldtrip to Sun-Moon Lake, organized by the Office of Global Affairs, as a way of introducing participants to Taiwanese tea culture and giving them a chance to spend more time with their local counterparts. While learning about the production process, the participants were fascinated by the intriguing scent given off by the tea leaves when rubbed between one's hands. They all came away with a deep appreciation for Taiwanese tea and all the work that goes into producing it.

The exchange students are especially grateful to the Ministry of Foreign Affairs for making special arrangements allowing them to come to Taiwan despite of the pandemic. They have also been quite impressed by how friendly and helpful Taiwanese people are to strangers, both on and off campus. Duygu Bayrak from RWTH

a. Visiting the tea house.
b. Sorting out the tea with one's own hands.

Aachen University in Germany said that she very much enjoys NTHU's expansive campus filled with greenery, and that she has come to enjoy it even more after the Office of Global Affairs sent her to the campus security office to pick up a free used bicycle.

A few of the students have developed a deep connection with Taiwan. One example is French student Adèle Laurent (愛戴兒), who began studying Chinese in high school. In 2017 she came to Taiwan as an exchange student for two months at the Taichung First Senior High School, and was so impressed by the friendliness of the Taiwanese people that she decided to return someday. After finishing high school, she entered the Department of Chinese Literature at the Paris Diderot University, and when she learned about the Scholarship, she jumped on the opportunity to return to Taiwan.

Also in the program is Alexandre Tchen-ya Loys el (暴振亞), a student from France with a deep connection with Taiwan. His mother is Taiwanese, but this is the first time he has stayed in Taiwan for such a long time. In addition to understanding the country where his mother grew up, he is also taking the opportunity to get to know his relatives in Taiwan. He has his sights on a career which will allow him to serve as a bridge between Taiwan and France.

Another participant in the program is Patrik Mucina (覃彥) from the Czech Republic, who amazes people with his fluent Chinese, in listening, speaking, reading and writing. He said that when he was studying Chinese in the Czech Republic, he had some friends from Taiwan who got him interested in the culture and history of Taiwan, and when he learned that traditional Chinese characters are still used in Taiwan, he knew it was the best place to improve his Chinese proficiency. After arriving in Taiwan, he was even more certain that he had made the right decision, and soon began to feel a strong sense of connection, and he's now planning to stay on for graduate school or a job. As a way of learning more about the local culture, he is also studying Taiwanese (Hoklo).

Actually, Taiwan has long been hosting Czech exchange students, amongst whom is the current mayor of Prague, the capital of the Czech Republic, Zden k H ib (賀吉普), who came to Taiwan as a medical intern. During his stay in Taiwan, he experienced the beauty of Taiwanese society, and became an ardent supporter of Taiwan. NTHU currently has 330 sister schools in 52 countries around the world, including 78 in Europe. It is expected that the increasing number of European students undertaking studies in Taiwan will also provide local students with more opportunities to interact with their European counterparts, thereby promoting mutual understanding and friendship, and strengthening ties between Taiwan and Europe.

UMC SPONSORS THE LIU CHUNG-LAUNG BUILDING AND MEMORIAL HALL

On November 5th United Microelectronics Corporation (UMC) announced that it will be sponsoring a renovation of the Electrical Engineering and Computer Science Building, which will be renamed the Liu Chung-laung Building, in memory of former NTHU president Liu Chung-laung (劉炯朗), who passed away last year. The renovated building will include a dedicated space commemorating Liu's illustrious career in information science—the Liu Chung-laung Memorial Hall. Part of the donation will also be used to recruit foreign faculty and to establish a scholarship for outstanding doctoral students.

The donation ceremony was held at the Tsinghua Hall of Fame, and was attended by UMC chairman Hung Chia-tsung (洪嘉聰)(Stan Hung), President Hocheng Hong, as well as a number of UMC senior executives, including co-president S.C. Chien (簡山傑), executive vice president Hsu Minchih (徐明志), vice president Lai Mingche (賴明哲), and chief human resources officer Chen Jin-shuang (陳進雙). Also in attendance were Liu's widow, Chang Yunshi (張韻詩), a distinguished research fellow of Academia Sinica and an honorary chair professor at NTHU.

a

Hung said that Liu Chung-laung's relationship with UMC goes back quite far. Over a period of 15 years, beginning in 2006, Liu served as the independent director of UMC, as well as its director last year. To acknowledge Liu's many valuable contributions to the company's development over the years, UMC decided to make a donation to NTHU, as a way of sharing his far-reaching insight with future generations of students.

b

a. UMC chairman Hung Chia-tsung (right) and NTHU president Hocheng Hong at the donation ceremony.
b. At the donation ceremony (left to right): former NTHU presidents Chen Wen-tsuen (陳文村) and Chen Lih-juann (陳力俊); NTHU president Hocheng Hong; Liu's widow, Chang Yunshi (張韻詩); UMC chairman Hung Chia-tsung (洪嘉聰); UMC co-president SC Chien (簡山傑); UMC executive vice president Hsu Minchih (徐明志); and UMC vice president LLai Mingche (賴明哲).


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c. UMC co-president S.C. Chien at the podium.
d. Hocheng recounting some of Liu's many contributions to NTHU.
e. Chen Lih-juann said that one of the things that impressed him most about Liu was all the energy he put into supporting NTHU, even after leaving office.
f. Simulation of the exterior of the Liu Chung-laung Building.

President Hocheng said that UMC timed its donation to coincide with the first anniversary of Liu's death, which occurred on November 7 of last year. In addition to being an outstanding scientist and author of international stature, he was a dedicated teacher who gave lots of personal attention to his students, even when they made big mistakes. As president of NTHU, he arranged the first of a series of major donations from Taiwanese enterprises, and has come to be regarded as a model of character, words, and deeds.

Borrowing an idea from President Kennedy of the United States, Hocheng said that the quality and ethos of a university is to be gauged not only by its graduates, but also by the sort of people it commemorates, and that commemorating Liu makes a clear statement about what matters most at NTHU.

Mrs. Liu said that her late husband was a gifted speaker, and that if he were here today, he would surely deliver an eloquent speech to express his gratitude. Saying that she herself is nowhere near as eloquent, she read out one of Liu's favorite short poems, "Don't Weep at My Grave," as a gesture of gratitude to both NTHU and UMC.

Also attending the ceremony were former NTHU presidents Chen Lih-juann and Chen Wen-tsuen. Chen Lih-juann said that one of the things that impressed him most about Liu was all the energy he put into supporting NTHU, even after leaving office.

Fred Huang, dean of the College of Electrical Engineering and Computer Science, said that the renovation of the 30-year-old Electrical Engineering and Computer Science Building will include remodeling its conference hall, updating its facilities, and refurbishing the plaza out front. In addition, onto one of the walls in the first-floor lobby will be projected a laser image of the genial Liu, and one of his famous mathematical formulas will become visible


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g. Simulation of the first-floor lobby of the Liu Chung-laung Building.
h. Simulation of the Liu Chung-laung Memorial Hall.

when viewed from the side.

Also on the first floor, the Liu Chung-laung Memorial Hall will display Liu's published works and related memorabilia. Huang said that the Hall will have a cozy feel of a study, with lots of comfortable places to sit while listening to an excerpt from I Love to Talk and You Love to Laugh, a lively and thought-provoking weekly radio show hosted by Liu, or reading one of his award-winning books, such as Understanding Natural Science, What They Never Taught in Chinese Language Class, and An After School Class in Fantasy.

Huang said that the renovated plaza will feature a pillar inscribed with Liu's poetry, which will have EE (electrical engineering) and CS (computer science) projected onto it at night.

Huang said that in addition to his profound knowledge of science, Liu also had a strong interest in literature, poetry, travel, fine food, and fashion. As for his teaching style, he was well known for his ability to make complex theories intelligible by presenting them in simple language. Even though the next generation of students won't have a chance to meet Liu in person, by visiting the Hall they can still deeply imbibe his knowledge, and gain inspiration and edification from his writings and memorabilia.

A NEW EDUCATIONAL TECHNOLOGY UNVEILED AT NTHU

During the COVID-19 pandemic, a new mode of instruction where teaching takes place at the same time for others who are physically present in the classroom and for others who join the class remotely via the internet, has become the new norm. As a result, traditional classrooms urgently need to be upgraded. With this situation in mind, on December 7th AU Optronics (AUO) donated to the College of Technology Management a set of its latest smart classroom equipment—the "AUO Lecture Hall," featuring large LED screens, touch monitors, digital desks, and a camera with high-definition tracking. With one click it could automatically records and broadcasts, making it ideal for the innovative learning environments being planned for the post-pandemic era.

a

At the press conference announcing the donation, President Hocheng Hong and AUO Chairman and CEO Paul S.L. Peng (彭双浪) used the whiteboard of the AUO Lecture Hall to present a formula for industry-academia cooperation integrating sustainability with research and development.

Peng said that he recently began to teach some classes for NTHU's Executive Master of Business Administration (EMBA) program, focusing on solving problems by utilizing a variety of resources and perspectives. However, he soon realized that the pandemic has made it necessary to effectively integrate distance learning into

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a. NTHU president Hocheng Hong (right) and AUO Chairman Paul S.L. Peng (彭双浪) in front of the main screen of the AUO Lecture Hall.
b. Hocheng (right) and Peng using the whiteboard of the AUO Lecture Hall to present a formula for industry-academia cooperation.

the traditional classroom. It just so happens that JECTOR Digital, an affiliate of AUO subsidiary AUO Display Plus, is the top brand in Taiwan for high-tech classroom equipment, so he decided to design a smart classroom for the College of Technology Management.

Peng said that NTHU is one of the top schools in Taiwan, and that many of AUO's senior executives are alumnus, making it an ideal venue for unveiling the AUO group's latest innovations in classroom technology, adding that the improvements in the quality of digital classrooms and interactive teaching can be expected to make teaching and learning more effective and setting a new standard for industry-academia cooperation; bringing about a win-win-win situation for industry, academia, and students.

President Hocheng Hong said that NTHU and AUO have many things in common. One is that they attach much importance to knowledge and innovation. He said that NTHU ranks first among all universities in Taiwan in terms of patents in the United States, and he's heard that AUO has around 20,000 patents—which comes to about one patent for every two employees. Another thing they have in common is the value they place on sustainability; AUO makes much use of renewable energy and has fully embraced the circular economy model of production, consumption, and recycling, in recognition of which the company won the 2021 Sustainable Operations Award, while NTHU has won the University Sustainability Award.

Hocheng further noted that it's these two common values which place NTHU and AUO at the vanguard of hybrid education and made their relationship a model of industry-academia cooperation. Commenting on the valuable support industry provides to education, he quoted an African proverb, "Raising a child requires the energy of the entire village." He also thanked AUO for its generous and timely donation.

The AUO Lecture Hall system

Peng said that NTHU is the ideal venue for unveiling the AUO group's latest innovations in classroom technology.


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c. College of Technology Management dean Lin Che-chun (林哲群) (left) presenting a souvenir to Peng.
d. NTHU faculty and AUO executives at the event.
e. You use a finger to write on the touch screens, and a fist to erase.

includes a seamless 135-inch LED screen, flanked with 86-inch touch monitors on each side, which can transfer whatever is written on them to the large screen. The system also has three cameras, one of which automatically follows the teacher's movements, while the other two film the audience, facilitating interaction with students participating online.

EMBA director Lin Shih-chang (林世昌) was the first to try out the AUO Lecture Hall in one of his classes, and both he and his students were amazed by its fresh and thoughtful design. They were especially impressed by the picture quality of the "theater mode," which was better than what you find in a movie theater.

Lin had the students use the touch screens on both sides to write down the advantages and disadvantages of UBER; they wrote with a single finger, used a fist to erase anything that needed to be changed, and their lists were displayed on the large screen to facilitate class discussion. AUO Display Plus design manager Lin Shun-hong (林順宏) said that the 86-inch monitor is the largest writable touch display currently being produced. He is also a graduate of the EMBA program at NTHU, and designed the system with NTHU in mind.

Chairman Peng said that he particularly appreciates the system's teleprompter, which displays an outline at the back of the classroom, making it easy for the teacher to refer to it while moving about the room. The EMBA program also has cohorts in Malaysia and Jinmen, and when they join a class being taught at NTHU the teacher can easily interact with them.

College of Technology Management dean Lin Che-chun (林哲群) had a special word of thanks for AUO Display Plus general manager Liao Shihong (廖世宏) and AUO chief sustainability officer Amy Ku (古秀華), whose painstaking efforts over several months have been instrumental in making the AUO Lecture Hall a model of industry-academia cooperation.

NATIONAL TSING HUA UNIVERSITY WELCOMES INTERNATIONAL STUDENTS

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Undergraduate Program: November 15~February 15
Spring Semester Application: August 15 to October 16

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Fall Semester Application: February 1~ April 15
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