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Japan Prize News
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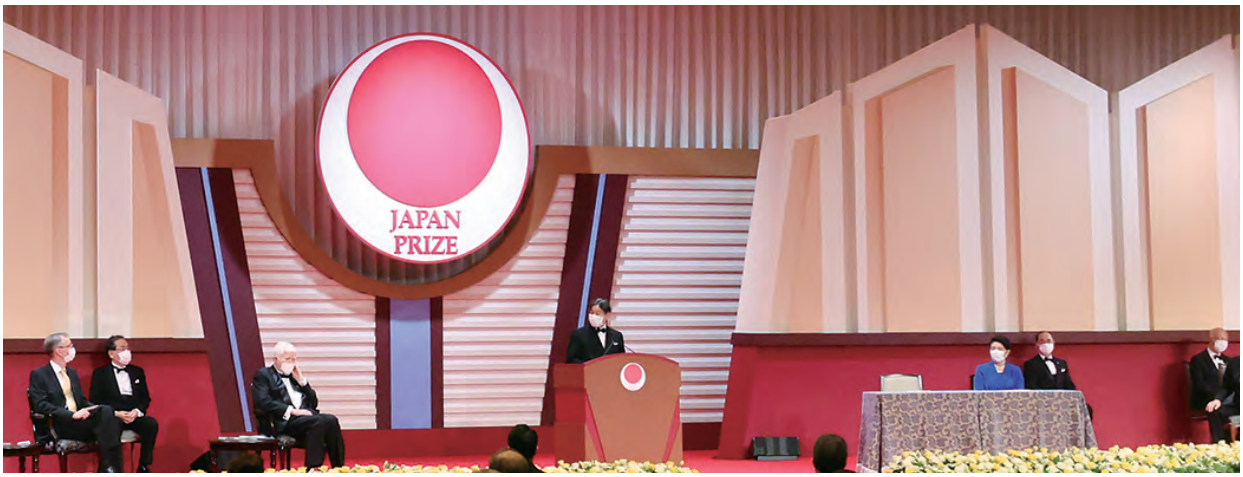
JAPAN PRIZE

2020/2021/2022 Japan Prize Presentation Ceremony

Their Majesties the Emperor and Empress in attendance at this year's function



The Japan Prize is awarded to scientists responsible for producing highly creative research in the fields of science and technology around the world – research that has made significant contributions to the peace and prosperity of humanity. The presentation ceremony for this year's recipients was held on Wednesday April 13, 2022 at the Imperial Hotel in Tokyo's Chiyoda Ward, and in attendance were Their Majesties the Emperor and Empress.

The 2022 recipients of the Japan Prize were joined by the 2021 and 2020 recipients whose ceremonies had been postponed, such that six individuals traveled to Japan to be presented with their certificates, medals, and prize money. The original prize money of 50,000,000 yen was increased to 100,000,000 yen for recipients in 2020 onwards. Prof. Bert Vogelstein and Dr. Robert Weinberg, the 2021 winners in the fields of Medical Science and Medicinal Science, were unable to travel to Japan to attend the ceremony due to COVID-19 travel restrictions, so they will be presented their prizes in the USA at a later date.

The following recipients were able to attend: Prof. Katalin Karikó and Prof. Drew Weissman (Materials and Production, 2022) and Prof. Christopher Field (Biological Production, Ecology/Environment, 2022); Prof. Martin Green (Resources, Energy, Environment, Social Infrastructure, 2021); and Prof. Robert G. Gallager (Electronics, Information, Communication, 2020) and Dr. Svante Pääbo (Life Science, 2020).

Nominations for the Japan Prize are received from roughly 15,000 experts in Japan and other countries annually, and the rigorous screening process to select recipients from the pool of nominees takes almost an entire year. There were 208 nominees for the 2022 Japan Prize in Materials and Production and 138 nominees for the 2022 Prize in Biological Production, Ecology/ Environment. In 2021, there were 142 nominees for the Resources, Energy, Environment, Social Infrastructure prize and 243 nominees for Medical Science and Medicinal Science. Finally, for the 2020 Japan Prize, there were 185 nominees for Electronics, Information, and Communication and 293 nominees for Life Science.

JAPAN PRIZE

The establishment of the Japan Prize was motivated by the Japanese government's desire to create an internationally recognized award that would contribute to scientific and technological development around the world. With the support of numerous donations, the Japan Prize Foundation received endorsement from the Cabinet Office in 1983.

The Japan Prize is awarded to scientists and engineers from around the world who have made creative and dramatic achievements that help progress their fields and contribute significantly to realizing peace and prosperity for all humanity. Researchers in all fields of science and technology are eligible for the award, with two fields selected each year in consideration of current trends in scientific and technological development. In principle, one individual in each field is recognized with the award, and receives a certificate, a medal, and a monetary prize. Each Award Ceremony is attended by the current Emperor and Empress, heads of the three branches of government and other related officials, and representatives from various other elements of society.

Address by His Majesty the Emperor

It brings me great pleasure today to be here at the Japan Prize Presentation Ceremony, together with distinguished participants and guests from many different countries and regions of the world. On the occasion of this esteemed ceremony, I would like to extend my heartfelt congratulations to each of the distinguished laureates: Professor Robert Gallager, Doctor Svante Pääbo, Professor Martin Green, Professor Bert Vogelstein, Doctor Robert Weinberg, Professor Katalin Karikó, Professor Drew Weissman and Professor Christopher Field.

Professor Gallager proposed the utilisation of reliable and efficient 'LDPC codes' as schemes for detecting and correcting errors in digital information and communications. This theory has proved highly effective with the rapid improvement of computer processing capability, and has become an extremely important part of basic technology that supports the modern digital society.

Doctor Pääbo has successfully decoded the Neanderthal genome for the first time in the world by adopting a genetic method of extracting and analysing DNA fragments from ancient human bones. His method has since yielded findings that have led us closer to the core of the evolution of modern humans and shed new light on the birth and evolution of the modern human species.

Japan Prize WEEK

April 13

Presentation Ceremony

April 14

Commemorative Lectures

Professor Green has been dedicated to the improvement of the energy conversion efficiency of crystalline silicon photovoltaic devices since the 1970s and has succeeded in inventing practical devices that are superior in both performance and cost. At present, this technology has become the mainstay of solar power generation, and his research has contributed significantly to its popularisation.

Professor Vogelstein and Doctor Weinberg proposed and verified the multi-step carcinogenesis model, according to which cancer is caused by multiple gene mutations occurring in stages within a single cell. The elucidation of the process underlying the transformation of normal cells into cancer cells has contributed significantly to the development of modern cancer therapies.

Professors Karikó and Weissman discovered that by replacing messenger-RNA-constituent uridine with a modified nucleic acid called pseudouridine, they could suppress the undesired immune response at the time of administration as medicine. This research paved the way for medical applications and became the key contributing factor in the swift development of the COVID-19 vaccine.

Professor Field developed a device that can measure the photosynthetic rate and transpiration of living leaves while the plant remains rooted in the soil, and advanced the formula to express the impact of environmental variables on photosynthesis. He then further refined the model to reveal the distribution of CO_2 absorption in the global biosphere and the causes of the increase in atmospheric CO_2 concentration, thereby facilitating the prediction of future climate change.

I would like to convey my deepest respect to each of these eminent researchers whose studies have contributed immensely to the development of various scientific and technological fields and to the well-being of humanity.

Presently, people around the world, including Japan, are facing various challenges due to the impact of COVID-19. Under the prevailing circumstances, the role of science and technology seems to become increasingly crucial.

It is my sincere wish that by gathering the wisdom of various fields and by the people of the world joining forces with one another, we can overcome the current challenges and build a future full of promise.

I would like to conclude by expressing my earnest hope that the Japan Prize will further contribute to the advancement of science and technology to bring happiness to people, and also contribute to the peace and prosperity of humankind. Thank you.

April 15

Courtesy Call on the Prime Minister

Award Dinner

Media Interview

Field：Materials and Production

For pioneering research contributing to the development of mRNA vaccines

The 2022 Japan Prize

Prof. Katalin Karikó

Born: 17 January 1955　　Based in: Hungary, USA

Senior Vice President, BioNTech SE
Adjunct Professor, Perelman School of Medicine, University of Pennsylvania
Professor, University of Szeged

Message from the Laureate

It is an incredible honor to receive the 2022 Japan Prize along with my fellow scientist, Drew Weissman, with whom I have worked shoulder-to-shoulder through the years. It is a great privilege to belong to the group of scientists who were the Japan Prize recipients in the prior years.

This very distinguished award puts a spotlight on the importance of scientific research and technological advancements, as well as international collaboration. All of these were so crucial for the development of the mRNA vaccine. This Prize also recognizes thousands of other scientists, doctors, and technical experts who over the last few decades helped to advance the knowledge across different fields that built the foundation for our work.

I am very grateful to all of those who have helped me through the years: my family, my teachers and mentors, and all the fellow students and scientists. Thanks for their support, their generosity and inspiration.

My journey from the humbled beginning demonstrates that it doesn't matter where you start, you can achieve so much if you put your mind to it and do not give up. So, I hope that the recognition I am receiving today will inspire the future generation and they too would like to be a scientist.

Prof. Katalin Karikó

The 2022 Japan Prize

Prof. Drew Weissman

Born: 7 September 1959 Based in: USA

Professor of Medicine, University of Pennsylvania School of Medicine

Director Penn Institute for RNA Innovation

Message from the Laureate

I am truly grateful that work I was involved in has helped the world. That's the hope of every physician-scientist. I am honored to be the recipient of the Japan Prize and to be counted among a remarkable group of recipients, which includes my long-time scientific partner, Katalin Kariko, and Ugur Sahin and Özlem Türeci.

At Penn, Dr. Kariko and I investigated mRNA as a medical intervention. Importantly, my lab is collaborating with researchers, organizations, and governments around the world to help them create their own mRNA vaccines for COVID-19 and other diseases and therapeutics to increase the global supply for people in low- and middle-income countries. And we are taking opportunities to educate people on the science behind this often-misunderstood vaccine.

Scientists know our work is never over because, as much as it's black and white when looking at data on the page, the implementation and utilization of discovery is open ended. Our work is never over because of the need for scientific breakthroughs: not just for the current pandemic, but for maladies that have plagued our world for thousands of years. They need them for infectious diseases, autoimmune diseases, neurologic diseases, and rehabilitation after trauma.

Today, as I take a second to appreciate the good fortune that our work has helped millions of people around the world, I also want to recognize the scientists who are "at home" in their own labs right now, fueling the engine of progress, doing the work that may lead to something amazing. I'll join you back home in my lab in the morning...or if I get antsy, maybe in a few hours.

Together, we'll see what the future holds.

Drew Weissman

Field：Biological Production, Ecology/Environment

For outstanding contributions to estimation of global biospheric productivity and climate change science using advanced formulas based on observation

The 2022 Japan Prize

Prof. Christopher Field

Born: 12 March 1953　　Based in: USA

Professor for Interdisciplinary Environmental Studies, Director,
Woods Institute for the Environment, Stanford University

Message from the Laureate

Their majesties the Emperor and Empress, distinguished guests, ladies and gentlemen; I want to express my deep gratitude to the Japan Prize Foundation and the nation of Japan for recognizing my work with the 2022 Japan Prize in the area of Biological Production, Ecology and Environment. I am honored and humbled.

Recognition with the Japan Prize provides me with an opportunity to extend my thanks and acknowledge the contributions of the many family members, mentors, students, and collaborators who have inspired, improved, and supported the work.

My research underscores the value of nature in helping solve the climate crisis, but it also highlights the critical importance of redoubling our efforts to tackle the climate crisis and protect Earth's ecosystems.

I am deeply grateful for this recognition and for the opportunity to reinforce its messages about the importance of research and, as stated in the Cabinet Endorsement of the Japan Prize in 1983, furthering the cause of peace and prosperity of mankind. Thank you very much.

Chris Field

Field : Resources, Energy, Environment, Social Infrastructure

Development of High-Efficiency Silicon Photovoltaic Devices

The 2021 Japan Prize

Prof. Martin A. Green

Born: 20 July 1948 Based in: Australia

Professor, University of New South Wales (UNSW Sydney)

Message from the Laureate

It is a great honour to receive this award, the 2021 Japan Prize in the field of "Resources, Energy, Environment and Social Infrastructure". I acknowledge the Japanese people and their government for establishing and supporting it. The award is a reminder that the quest for inexpensive, renewable energy is a global quest seeking to sustain the trajectory of human civilization on our shared planet.

I have devoted my career to solar, working with my students and colleagues to take solar cells from an expensive item only affordable for spacecraft, when I began, to the cheapest source of large-scale energy, as it has now become.

I thank these students and colleagues and especially my wife Judy – my own renewable energy resource – who has given me the freedom to pursue this great passion.

Finally, I thank you again for the lustre and honour of this award.

Martin A. Green

The 2021 winners in the fields of Medical Science and Medicinal Science, Prof. Bert Vogelstein and Dr. Robert Weinberg, were unable to travel to Japan to attend the ceremony due to COVID-19 travel restrictions, so they will be presented their prizes in the USA at a later date.

Field : Electronics, Information, Communication

Pioneering contribution to information and coding theory

The 2020 Japan Prize

Prof. Robert G. Gallager

Born: 29 May 1931 Based in: USA

Professor Emeritus, Massachusetts Institute of Technology

Message from the Laureate

I am pleased and deeply honored to accept the Japan Prize for my work on error correction codes for data communication. These codes were impractical for 35 years because of computational complexity, but are now widely used throughout the internet. The internet, as a central component of the information age, holds great promise to promote "the peace and prosperity of mankind," so important as a criterion for the Japan Prizes. At the same time, our ways of communicating, learning, and thinking are changing so rapidly in the information age that we are struggling to integrate them into an improved way of life. We tend to google before thinking and to be impatient with slow careful thinking.

A central challenge for all of us will be learning to use these new technologies to actually promote peace and prosperity for humankind.

Robert G. Gallager

Field：Life Science

Pioneering contributions to paleoanthropology through decoding ancient human genome sequences

The 2020 Japan Prize

Dr. Svante Pääbo

Born: 20 April 1955　　Based in: Sweden

Director, Department of Evolutionary Genetics, Max Planck Institute for Evolutionary Anthropology

Message from the Laureate

I would like to thank the Japan Prize Foundation for this great honour. It is indeed very rewarding to see that what started as hobby at the side of my official work as a graduate student has contributed to the establishment of an entirely new research field.

There were errors and setbacks along the way, but today the information extracted from ancient genomes contributes to our understanding of the evolution and history of humans and many other organisms.

This research field has given us new perspectives on how people have moved around our planet and mixed with each other. And we have learned about a previously unknown form of humans, the Denisovans, that existed in Asia, and we now know that they, as well as Neandertals, live on as part of the ancestry of people today.

The development of this research field has been – and continues to be – a great adventure!

I accept this honour as a recognition of this field and everybody who has contributed to it.

Svante Pääbo

Presentation Ceremony

The Japan Prize Award Ceremony for the years 2020, 2021, and 2022 was held at the Imperial Hotel Tokyo in the presence of Their Majesties the Emperor and Empress. It was attended by Hiroyuki Hosoda (Speaker of the House of Representatives), Akiko Santo (President of the House of Councillors), Naoto Otani (Chief Justice of the Supreme Court), Shinsuke Suematsu (Minister of Education, Culture, Sports, Science and Technology), and approximately 150 representatives from the academic and business sectors.

Friends and family members of the recipients looked on as each was presented with a certificate and medal by Yoshio Yazaki, Chairman of the Japan Prize Foundation. Each of the new laureates addressed the audience with their medals in hand, and all expressed their happiness at receiving the award.

Prof. Robert G. Gallager

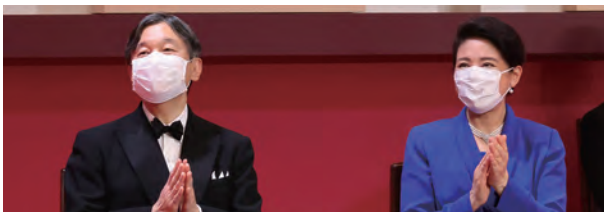
Dr. Svante Pääbo

Prof. Martin A. Green

Prof. Katalin Karikó

Prof. Drew Weissman

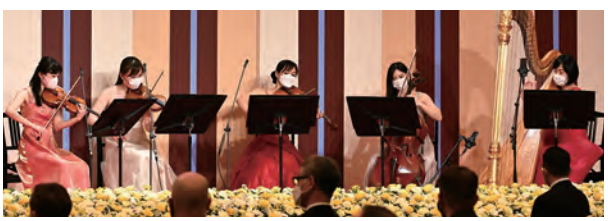
Prof. Christopher Field



Their Majesties the Emperor and Empress applauding the recipients.

Speaker of the House Hiroyuki Hosoda delivering the congratulatory address.

Japan Prize Foundation President Hiroshi Komiyama delivering his opening address.



Commemorative concert being performed.

2020/2021/2022 Japan Prize Commemorative Lectures

Commemorative lectures were given by the 2020, 2021, and 2022 Japan Prize recipients. Prof. Bert Vogelstein and Dr. Robert Weinberg, the 2021 winners in the fields of Medical Science and Medicinal Science, were unable to travel to Japan to attend the ceremony due to COVID-19 travel restrictions, so they delivered their lectures over video.

Commemorative Lecture Topics

The 2020 Japan Prize

Electronics, Information, Communication

From Information Theory to the Information Age

Prof. Robert G. Gallager

Life Science

An Ancient DNA View of Human Origins

Dr. Svante Pääbo

The 2021 Japan Prize

Resources, Energy, Environment, Social Infrastructure

High Efficiency Silicon Solar Cells: Invention, Development & Commercialization

Prof. Martin A. Green

The 2022 Japan Prize

Materials and Production

Developing mRNA for therapy

Prof. Katalin Karikó

Nucleoside Modified mRNA-LNP Therapeutics

Prof. Drew Weissman

Biological Production, Ecology/Environment

Nature's Role in Climate Change Solutions

Prof. Christopher Field

Commemorative lectures by the 2020, 2021, and 2022 recipients are available for viewing on YouTube. Please visit the URL below to watch each lecture.

https://www.youtube.com/user/JapanPrize/videos

Prof. Katalin Karikó

The 2022 Japan Prize

Materials and Production

Theme：Developing mRNA for therapy

Messenger ribonucleic acid (mRNA) was discovered in 1961 and the first vaccine based on mRNA-containing lipid nanoparticles (mRNA-LNP) was approved for treatment of coronavirus disease (COVID-19) in 2021. The structure of mRNA was first revealed by Dr. Furuichi in Japan and then clearly shown to be strongly associated with translation and subsequent protein production. In 1978, a very important study was conducted to formulate mRNA for the first time in the laboratory. In 1984, preparation and commercialization of mRNA were successfully achieved with RNA polymerase. In the period from 1993 to 1994, mRNA-based vaccine had been developed as a vaccine for infectious diseases. However, since the vaccine was shown to be effective for only a short period of time, many scientists decided to abandon efforts to develop new RNA-related drugs, yet other research efforts continued steadily up to 2021.

I started getting involved in RNA studies from 1989, and gradually became interested in mRNA encoding therapeutic protein. In a joint study with Dr. Weissman, we identified an issue with the immunogenicity followed by measurement of the inflammatory molecules, and recognized that nucleoside modification in transfer RNA (tRNA) is responsible for lacking inflammatory reactions. We then purchased multiple modified nucleoside triphosphate products to add to human dendritic cells. We found that RNA containing modified uridine did not cause inflammation. The pseudo-uridine-containing mRNA, produced proteins that were approximately ten times the amount of natural uridine-containing RNA.

Unlike proteins which rapidly decompose, optimized mRNA is shown to be continuously effective as a treatment. Studies with animals suggests that repeated injection can induce immune tolerance and lower-dose injections can enhance production of a very high level of antibodies in test animals.

The COVID-19 vaccine that is the first mRNA-LNP vaccine injected in humans has also been examined for its efficacy in other clinical studies.

Prof. Drew Weissman

The 2022 Japan Prize

Materials and Production

Theme：Nucleoside Modified mRNA-LNP Therapeutics

The cost for discovery of drugs focusing on proteins such as monoclonal antibodies is extremely high, and such drugs are not always readily available to everyone throughout the world. Drug development focusing on ribonucleic acid (RNA) on the other hand, is relatively inexpensive and safe, and usage can be easily expanded.

Messenger RNA (or mRNA) covered on its exterior with individual lipid nanoparticles (LNP) has no problems with the ribonuclease (RNAse) decomposing before reaching the target cells. Orally administered RNA drugs degrade within two days, while cutaneous vein, intradermal, intramuscular, and subcutaneous injections however, show continuous effects for two weeks, leading to the conclusion that these injections are ideal for administering vaccines. In experiments on animals having influenza viruses, human immunodeficiency virus (HIV) envelope immunogens were utilized to enhance antibody responses from T follicular helper cells, and vaccines having the same structure were shown to also exert effects on influenza strains other than the target strain.

Moreover, the structure of the vaccines was modified to induce expression of a target antibody or target protein on the surface while still retaining the LNP function for changing the LNP target from the liver or dendritic cells to other organs or cells. Inducing the expression of anti-CD4 antibodies through this approach demonstrated that the target was changeable from the circulatory system to the lymphatic system by intravenous injection in mice whose organs had been removed.

The approach allows adding various RNA encodings by way of therapeutic proteins, gene editing programs, and proteins that inserts new genomes to regions where are needed. mRNA-containing lipid nanoparticles (mRNA-LNP) not only proved effective in vaccines but is also a highly promising treatment for myocardial fibrosis for which only expensive treatment methods have been available up to now, as well as certain conditions that require genome modification such as sickle cell anemia, Alzheimer-type dementia, and Parkinson's disease.

2020/2021/2022 Japan Prize Commemorative Lectures

Prof. Christopher Field

The 2022 Japan Prize

Biological Production, Ecology/Environment

Theme : Nature's Role in Climate Change Solutions

Since the beginning of the Industrial Revolution, a linear relationship between carbon dioxide (CO_2) emissions and global warming has been proven. Considering the cumulative CO_2 emissions affecting global warming, emissions would have to drop to zero by 2040 at the earliest and 2080 at the latest. The results of our study on changes in plant growth, the effects of climate change on temperate forests, and carbon uptake and loss using a set of techniques called Inverse Modeling indicate that terrestrial CO_2 sinks are affected by CO_2 fertilization effects, responses to climate change, and past land use. The challenge for the future is to explore the impact of climate change on this background sink and determine whether it can continue to absorb emissions in the future. Moreover, we must identify ways to strengthen its effectiveness and focus on limiting climate change to protect this background sink, which is a key element in supporting nature's role in tackling climate change.

There are several ways to limit climate change. First, we can decrease the amount of deforestation and improve agricultural practices so that soils can lose less carbon. Second, increasing forest and grassland cover improves absorption rates. Introducing these solutions also brings additional benefits in terms of biological diversity, habitat quality, and healthy ecosystems.

Unlike solutions that focus on reducing emissions, these natural climate solutions involve the risk of future CO_2 emissions. In addition, we must consider whether protecting forests in one location will lead to increased deforestation elsewhere, especially in other countries. We also face the challenge of additionality—the uncertainty of the amount of the carbon protected in terms of carbon payment.

As a solution to these challenges, I propose the implementation of buffer pools and partial credits, the establishment of robust standards, and real community engagement.

Prof. Martin A. Green

The 2021 Japan Prize

Resources, Energy, Environment, Social Infrastructure

Theme : High Efficiency Silicon Solar Cells: Invention, Development & Commercialization

Photovoltaics became a reality with Einstein's discovery and the resulting quantum mechanics that developed. The work of Einstein has also led to the development of the basic principles of solar cells. A solar module is made up of solar cells connected in series. The cost of photovoltaics has declined by a factor of 24 from 2008 to 2020, and solar is now the cheapest way of generating electricity and the most popular way of generating electricity to mitigate climate change. To cut back on carbon emissions, various bodies, including the International Energy Agency and the International Panel on Climate Change (IPCC), have put forward a plan to install the total amount of 1 terawatt of solar a year.

As for the evolution of solar cells, following the discovery of the p-n junction in semiconductors, spacecraft began to use solar cells to power communication satellites in the late 1950s. In the 1960s, COMSAT discovered a way to increase the efficiency of silicon solar cells, and in the 1970s, many countries including the United States and Japan started solar research projects to explore alternative sources of energy to replace crude oil. Since then, I have been conducting research to improve solar cell efficiency using the principle of tunneling, and in 2008, succeeded in improving efficiency to 25%. Today, Kaneka Solartech Corporation has silicon solar cells with the highest conversion efficiency. However, commercially, the Passivated Emitter and Rear Cell (PERC) that was invented by our university accounts for over 90% of the world's total production of solar cells.

The cost reduction in solar photovoltaics is attributed largely to the extensive uptake of PERC technology, which features improved efficiency, reduced production cost, and enhanced cell functionality. We anticipate that there is still more cost reduction to come, which will lead to more solar uptake and ultimately contribute to climate change mitigation.

Dr. Robert G. Gallager

The 2020 Japan Prize

Electronics, Information, Communication

Theme : From Information Theory to the Information Age

Communication capabilities are the most important difference between humans and other animals. Communication is an essential skill for humans to work together, to share scientific, psychological, political, and social ideas, and to share the many joys of living. Dr. Claude Shannon's paper on information theory, published in 1948, laid the foundation for the information age. In this paper, he emphasized the importance of enabling the receiver to distinguish between discrete and analog messages. In a communication system, there are a source where the messages come from, the actual messages, and the binary data that the messages get turned into; then, there are an encoder that encrypts the data, a modulator that converts them into the frequency which can be transmitted, a noisy channel for transmission, a demodulator to remove the noise, and a decoder that decrypts the encrypted data. The practice of encoding message sources into binary data has become almost universal. With binary data, for n different binary digits used, there are 2^n possible messages that can be communicated. The amount of uncertainty in a message can be identified using entropy in information theory, thereby allowing for communication.

Adding redundancy to the data is useful to reduce the uncertainty in a bit string by error correction; how much redundancy that needs to be added can be calculated by identifying the channel capacity. As networks got bigger, error correction became more important. I developed low density parity check (LDPC) codes as a solution, which are now the standard for 4G and 5G.

The last 50 years have seen tremendous technological advances. We can now search information easily on the Internet. The challenge in the future is to acquire the capability to find and select the correct information from a vast amount of information.

Dr. Svante Pääbo

The 2020 Japan Prize

Life Science

Theme : An Ancient DNA View of Human Origins

Humans are said to have originated in Africa some two to four hundred thousand years ago and started spreading to the Middle East approximately 70,000 years ago. Our research group compared genomes from ancient and modern humans and demonstrated that people in our modern world carry 1% to 2 % of the genomes of Neanderthals, people of Mainland Asia carry approximately 0.2% of the genomes of Denisovans, and about 5% of the genomes of Denisovans are mixed in with those of Papua New Guinean and Aboriginal Australians.

Studies of ancient genomes can lead to significant medical discoveries. For example, there is a genetic variant for gene encoding a progesterone receptor and that variant exists outside Africa but can hardly be found anywhere in Africa. A variant that is associated with preterm birth has been identified in Neanderthals and Denisovans. We used the UK BioBank to investigate why the variant associated with the risk of preterm birth is inherited and found that the variant could also decrease the risk of miscarriages.

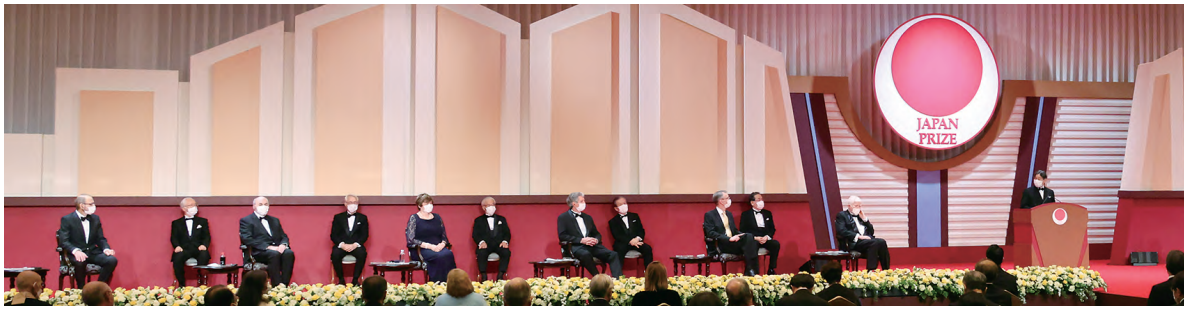
Moreover, the chromosome 3 variant related to resistance to the novel coronavirus also suggests an association with Neanderthal genomes, showing that this variant may increase the risk of dying from the novel coronavirus by approximately two times yet also suppresses human immunodeficiency virus (HIV) infections. The variant in chromosome 12 is a gene to produce an enzyme that degrades viral genomes in an opposite manner suggesting increased resistance to the novel coronavirus.

Currently, specific genomes in modern humans have been investigated in mice and by using stem cells in a joint effort with the Max Planck Institute in Germany and Okinawa Institute of Science and Technology and Kyoto University in Japan, we discovered a genome responsible for chromosome segregation. Further investigation as to whether or not the chromosome segregation function in ancient humans may bring about a difference in brain functions is warranted.

Projects of the Foundation

For the further development of science and technology...

In addition to selecting and awarding the Japan Prize, the Japan Prize Foundation is engaged in projects designed to contribute to the development of science, technology, and society, including the offering of research grants for the training of young scientists, and our "Easy-to-understand Science and Technology Seminars" aimed at the children who will lead the coming generations.



JAPAN PRIZE

The creation of the Japan Prize was motivated by the Japanese government's desire to "contribute to the development of science and technology worldwide by establishing a prestigious international award". Supported by numerous private donations, the Japan Prize was established in 1983 with a cabinet endorsement.

This award honors scientists and researchers worldwide who are recognized for having contributed signifi cantly to the peace and prosperity of humankind through their original and outstanding achievements that have greatly advanced the progress of science and technology.

The eligible fields of this award cover all fields of science and technology. Every year, two fields for the award presentation are chosen by considering the developments in science and technology.

As a general rule, one award is given for each field and each laureate receives a certificate of merit, a prize medal and a cash prize.

The Presentation Ceremony is held annually in the presence of Their Majesties the Emperor and Empress, and is also attended by the Speaker of the House of Representatives, the President of the House of Councillors, the Chief Justice of the Supreme Court, various ministers, as well as eminent figures from various circles.

Research Grants

The "Japan Prize Heisei Memorial Research Grant Program" is named after Their Majesties the Emperor Emeritus and Empress Emerita, who have been interested in the research activities of young scientists and have encouraged them for many years.

The Foundation provides research grants to scientists mainly under 45 years of age. Every year, the Foundation selects four to eight scientists who undertake knowledge-integrated research that contribute to solving social issues, and gives five to ten million yen.

The Foundation encourages international collaboration of scientists beyond their expertise.

(An applicant must belong to a research organization in Japan.)

"Easy-to-Understand Science and Technology Seminars"

The Foundation holds a series of public and student seminars on advanced technologies commonly used in everyday life by inviting experts, who will explain state-of-the-art technologies in plain terms. The program began in March 1989 and has since executed more than 300 seminars across Japan by the end of 2019.

Donating to our Foundation

Any donations to our foundation will be greatly appreciated.
The money will go towards expanding our activities.
If you wish to make a donation or have any queries, please contact our office.
Our foundation is a certified Public Interest Incorporated Foundation which falls under the category of “Special Public Interest Promotion Corporation”.
Personal or corporate, any donation to our foundation will be given preferential tax treatment according to the tax laws.

THE JAPAN PRIZE FOUNDATION

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