### THE JAPAN PRIZE FOUNDATION

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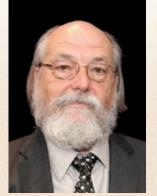
# **JAPAN PRIZE**

# 2011 (27th) Japan Prize was awarded to four doctors from Japan and the United States - The presentation of the prize took place in both Japan and the United States -

### "Information and Communications" field



Dr. Dennis M. Ritchie Distinguished Member of Technical Staff Emeritus, Bell Labs USA



Dr. Ken L. Thompson Distinguished Engineer, Google Inc. USA

### "Bioscience and Medical Science" field



Dr. Tadamitsu Kishimoto Emeritus Professor, Osaka University Japan



Dr. Toshio Hirano Professor, Osaka University Japan

We would like to express our deepest sympathies for the people who suffered from the Great East Japan Earthquake.

The Japan Prize Foundation presents the Japan Prize award for those whose outstanding achievements in science and technology are recognized as having advanced the frontiers of knowledge and served the cause of peace and prosperity for mankind. The 2011 Japan Prize in the field of "Information and Communications" was awarded to Dr. Dennis Ritchie and Dr. Ken Thompson for developing the UNIX operating system, and in the field of "Bioscience and Medical Science", it was awarded to Dr. Tadamitsu Kishimoto and Dr. Toshio Hirano for their discovery of Interleukin-6 and its application in treating diseases.

After announcing the Laureates for 2011 on January 25, we were at the height of preparation for the Japan Prize Presentation Ceremony and the Banquet scheduled on April 20 in Tokyo, when the Tohoku earthquake and tsunami disaster of March 11 stuck.

After considering various circumstances, we reached a conclusion that the presentation ceremony, the banquet and all of the related events had to be canceled. However, the thoughtful support of the people and organizations concerned made it possible for us to honor the laureates and award the Japan Prize at various locations.

### **JAPAN PRIZE**

The Japan Prize is awarded to scientists throughout the world who have been credited with original and outstanding achievements and have made major contributions to the advancement of science and technology, thereby manifestly furthering the cause of peace and the prosperity of mankind. While the prize encompasses all categories of science and technology, two fields of study are designated for the prize each year in consideration of developments in science and technology.

Each Japan Prize laureate receives a certificate of merit and a prize medal. A cash award of 50 million yen is also made for each prize field.

# **Development of the operating system, UNIX**



Dr. Dennis M. Ritchie Born: September 9, 1941 Distinguished Member of Technical Staff Emeritus, Bell Labs

Message from the laureate

In accepting this prestigious award I would like to thank the executives of the Japan Prize Foundation -President Ito, Chairman Yoshikawa, and all the support staff. I would also like to thank my family for their love and their unwavering support.

I especially extend thanks to Ken Thompson, my colleague and respected friend, with whom I am sharing this award and who is probably more deserving for his contributions than I.

And I would like to recognize the role of the company I worked for over more than forty years: Bell Labs.

Bell Labs has moved about in structure and location within its several parent corporations. Through all of this, the research part of Bell Labs remained amazingly stable. The work changed along with technologies, and in fact the interesting areas for research changed as well. Fortunately, software work remained vital, and that is one reason my own job lasted for so long.

One constant over my career has been the wonderful atmosphere provided by my colleagues. The fact is that many of the fresh ideas in Unix were provided by others working with us.



### Dr. Ken L. Thompson

Born: February 4, 1943 Distinguished Engineer, Google Inc.

Message from the laureate

It is a great honor to receive the Japan Prize the world's most important award for science and technology impact.

When talking about impact, it is befitting that the computer field should be included. Perhaps no other field of science has had a greater impact on human activity.

I cannot help but have two contradictory feelings about this award. First is the elation of being elevated to the level of past recipients. And then after looking at those recipients, a feeling that I do not measure up.

I am honored to accept the Japan Prize, with Dennis Ritchie, in the fields of Information and Communications. I am humbled to join the distinguished list of other recipients.

## **JAPAN PRIZE**

Field eligible for the award: "Bioscience and Medical Science"

# Discovery of interleukin-6 and its application in treating diseases



Dr. Tadamitsu Kishimoto

Born: May 7, 1939 Emeritus Professor, Osaka University

#### Message from the laureate

In the early 1970s, a molecule that induces antibody production by B lymphocytes was discovered and later named as IL-6. We were very fortunate that this newly discovered molecule plays major roles in the pathogenesis of many diseases.

Based on our successive fundamental research on the structures of IL-6 molecule and its receptors, and the signal transducing function, an effective antibody drug for inflammatory diseases such as rheumatoid arthritis was developed for the first time in Japan. Today the drug has been approved in over 90 countries and is widely used around the globe.

It has been my belief that true medical research seeking for essence will eventually yield improvements in diseases diagnosis and treatments, regardless of whether it seems beneficial or not. It has been said that our research on IL-6 will abolish the need for wheelchairs among rheumatoid arthritis patients in 10 years, and I am absolutely delighted that our research has led to helping many people suffering from diseases.



Dr. Toshio Hirano Born: April 17, 1947

Professor, Osaka University

#### Message from the laureate

With a firm belief in the importance of attaining the true nature of things, I have been challenging the confronting difficulties one by one as if I was climbing up mountains and cliffs to reach the extreme summit.

Through these fundamental research efforts, we were blessed with the discovery of IL-6 which opened up the way for the development of therapeutic medication for diseases like rheumatoid arthritis.

It is something I could never have imagined when I graduated from the medical department of Osaka University 39 years ago. Today, I am determined as ever to keep contributing to the society through medical research and developing the next generation researchers.

I believe that Japan, for the sake of its future, must contribute to the peace and prosperity of mankind by acknowledging the importance of fundamental science, and engaging in scientific and technological development.

I sincerely hope that this prize will reaffirm the importance of fundamental scientific research and set a vision and dream for the young people.

# **Press Conference**



On January 25, 2011, the press conference announcing the laureates of 2011 (27th) Japan Prize was held at Hotel New Otani Tokyo.

The press conference began with the announcement of laureates by Chairman Yoshikawa, followed by Selection Committee Chairman Komiyama explaining the laureate selection process. Next, the basis for the laureate's achievements were explained by Selection Subcommittee Chairman Miyahara and Asashima for the fields of "Information and Communications" and "Bioscience and Medical Science" respectively.



Prof. Yoshikawa Chairman of Board of Directors



Prof. Komiyama Chairman of Selection Committee



Prof. Miyahara Chairman of Selection Subcommittee



Prof. Asashima Chairman of Selection Subcommittee





Dr. Thompson at the press conference

Dr. Ritchie participates by video message

# The Japan Prize Presentation (Japan)



President Ito and Dr. Kishimoto (right)

### April 20, 2011

Hotel New Otani Osaka

#### Japan Prize Foundation:

- President, Dr. Masao Ito and his wife
- Chairman, Prof. Hiroyuki Yoshikawa and his wife



Chairman Yoshikawa and Dr. Hirano (right)



Congratulatory Dinner



Back row from right to left : President Ito and his wife, Chairman Yoshikawa and his wife Front row from right to left : Dr. Kishimoto and his wife, Dr. Hirano and his wife

# The Japan Prize Presentation (United States)



Dr. Thompson, and Chairman Yoshikawa

#### May 17, 2011

The Auditorium of Google Inc. H.Q., Mountain View, California

#### **Google Inc.:**

- Vice President, Dr. Vinton Cerf (2008 Japan Prize Laureate)
  Senior Vice President, Dr. Bill Coughran
- Other executive officers and employees, approx.160 people in total Consulate-General of Japan in San Francisco:

Deputy Consul General, Mr. Michio Harada

- The Japan Prize Foundation:
- Chairman, Prof.Hiroyuki Yoshikawa and his wife
- Senior Executive Director, Mr. Ken Shimba



From left to right: Dr. Cerf, Dr. Coughran, Mrs. Thompson, Dr. Thompson, Mrs. Yoshikawa, Chairman Yoshikawa



At the Computer History Museum



Dr. Ritchie and Chairman Yoshikawa

#### May 19, 2011

The Auditorium of Bell Labs H.Q., Murray Hill, New Jersey

#### Bell Labs:

- President, Dr. Jeong Kim
- Other executive officers and employees
- Members of Bell Labs alumni, approx.360 people in total **Consulate-General of Japan in New York:**
- Consul General, Ambassador Shigeyuki Hiroki
- The Japan Prize Foundation:
- Chairman, Prof. Hiroyuki Yoshikawa and his wife
- Senior Executive Director, Mr. Ken Shimba



From left to right: Chairman Yoshikawa, Mrs.Yoshikawa, Dr. Ritchie, President Kim



Dr. Ritchie at an interview

# PR Campaign

On October 1, 2010, The Science and Technology Foundation of Japan was officially recognized as a Public Interest Incorporated Foundation by the Prime Minister of Japan.

On this occasion, the Foundation's name was changed to "The Japan Prize Foundation". The Foundation has since been actively promoting its recognition internationally through PR campaigns and spreading information globally.



"Science" (Feb. 18, 2011)



"Science" (June 3, 2011)

# The Japan Prize Foundation

The Foundation was established in 1982, with the aim of contributing to the further development of science and technology. In addition to recognizing outstanding achievements with the Japan Prize, the Foundation has been promoting science and technology by hosting the "Easy-to-understand Science and Technology Seminars" and awarding Research Grants to help nurture young scientists.

### **Research Grants**



The Foundation provides research grants to scientists and researchers who are under 35 years of age. Every year, the Foundation selects recipients in the same fields as the Japan Prize and gives one million Japanese yen (approx. US \$ 12,000) per person. Each year, about 20 young scientists receive grants. "Easy-to-understand Science and Technology Seminars"



The Foundation hosts series of seminars on advanced technologies that are being used widely in our everyday lives. The seminars are designed for students and the general public, and experts in the related fields explain in plain language. Over 200 seminars have been held across Japan since the first seminar was held over 20 years ago.

### Stockholm International Youth Science Seminar (SIYSS)



The Japan Prize Foundation sends two Japanese students to the annual Stockholm International Youth Science Seminar, which is held under the auspices of the Swedish Federation of Young Scientists and with the support of the Nobel Foundation. Since the program started in 1987, about 50 students from Japan have participated in this event.



## Fields for the 2012 (28th) Japan Prize

The fields eligible for the 2012 (28th) Japan Prizes are "Environment, Energy and Infrastructure" and "Healthcare and Medical Technology." The Foundation called for over 13,000 official nominators to nominate the candidates through the web by JPNS(Japan Prize Nomination System). The nominated candidates are now under rigorous evaluation by the Japan Prize Selection Committee. The results will be announced in January 2012. The presentation ceremony will take place in Tokyo in April 2012.

#### Area of Studies I: mathematics, physics, chemistry and engineering Fields eligible for the award: Environment, Energy and Infrastructure

#### **Background and rationale:**

In recent years, the increase in resource and energy consumption and the destruction of the natural environment caused by various human activities have reached a level that is no longer ignorable, prompting negotiations for environmental protection measures on a global scale.

A strong need has thus been reaffirmed for innovation in fundamental technologies that profoundly influences the global environment. They include technologies for energy production and utilization, material production, water resource management, urban development, physical distribution and transportation. Particular importance lies in the promotion of energy saving across civil life and industry, exploitation of alternative energy resources and new production technology under resource and environmental constrains. Moreover, scientific advancement and innovation in disaster mitigation and safety measures is another important target for the development of the social infrastructure.

#### Achievement eligible:

The 2012 Japan Prize in the fields of "Environment, Energy, and Infrastructure" is awarded to individuals who have made significant contributions to society by achieving momentous scientific and technological breakthroughs in creation, innovation and propagation of technologies that are related to environmental protection, energy, environmentally benign production and social infrastructure, thereby improving and protecting the global environment.

#### rea of Studies II: biology, agriculture and medical science Fields eligible for the award: Healthcare and Medical Technology

#### **Background and rationale:**

Over the past few decades, dramatic progress has been made in diagnostic accuracy of diseases and physical functions. This has been due to the advancements of science and technology in the field of diagnostic imaging instrument, information based medical technology, and moreover, the medical diagnostic technology and biochemical-based diagnosis methods based upon the study of genetics.

In addition to the advancements in diagnosis technology, innovations in medical treatment technique including minimally invasive surgery and radiation therapy have improved the curability rate of many diseases, thereby significantly contributing to the well-being of people. Furthermore, even greater developments are being anticipated in the field of medicine, such as diagnostic technology for early detection of diseases, epoch-making drug discovery and regenerative medicine.

With a rapidly aging population, maintaining and improving health and disease prevention has become increasingly important for the preservation of social vitality. As a result, there are high expectations for further development and advancement of the science and technology in this field.

#### Achievement eligible:

The 2012 Japan Prize in the fields of "Healthcare and Medical Technology" is awarded to individuals who have made significant contributions to society by achieving momentous scientific and technological breakthroughs in creating and promoting new technologies for medical diagnosis and treatment, and those contributing to maintenance and furtherance of our health and disease prevention.

### Schedule (2013-2015)

The fields eligible for the Japan Prize (2013 to 2015) have been decided for the two research areas, respectively. These fields rotate every three years, basically.

Every year the Fields Selection Committee announces the fields eligible for the next three years.

Areas of Physics, Chemistry and Engineering		Areas of Life Science, Agriculture and Medicine	
Year	Fields Eligible	Year	Fields Eligible
2013	Materials, Production	2013	Biological Production, Biological Environment
2014	Electronics, Information, Communication	2014	Life Science
2015	Resources, Energy, Social Infrastructure	2015	Medical Science, Medicinal Science
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