

September 12, 2016
Keio University

Announcement of The Keio Medical Science Prize 2016

Keio University annually awards The Keio Medical Science Prize to recognize researchers who have made an outstanding contribution to the fields of medicine or the life sciences. It is the only prize of its kind awarded by a Japanese university, and 6 laureates of this Prize have later won the Nobel Prize. The 21st Keio Medical Science Prize is awarded to **Prof. Svante Pääbo** and **Prof. Tasuku Honjo**.

1. Laureates

Svante Pääbo, Ph.D., Drs. *h.c.*

Professor of Genetics and Evolutionary Biology
Director, MPI-EVA
Max Planck Institute for Evolutionary Anthropology
“Molecular Elucidation of Human Origin”

Tasuku Honjo, M.D., Ph.D.

Professor, Graduate School of Medicine and Faculty of Medicine, Kyoto University
“Identification of PD-1 and Establishment of Cancer Immunotherapy Principle by PD-1 Blockade”

2. Prize

Laureates receive a certificate of merit, medal, and a monetary award of 10 million yen. The award ceremony and commemorative lectures are held at Keio University.

3. Award Ceremony and Events

The award ceremony and commemorative lectures will be held on December 1, 2016 at Keio University School of Medicine, located on Keio University's Shinanomachi Campus.

Award Ceremony and Commemorative Lectures

Date & Time: December 1, 2016, 14:00-17:30

Venue: Kitasato Memorial Hall, Keio University School of Medicine, Shinanomachi Campus, Tokyo, Japan

Language: English and Japanese

Simultaneous translation available (English-Japanese/Japanese-English)

Admission: Open to the public

For more details, please visit our website at: <http://www.ms-fund.keio.ac.jp/prize>

Attachments: (1) The Keio Medical Science Prize
(2) The Keio Medical Science Prize Laureate 2016

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The Keio Medical Science Prize

1. Background

In the fall of 1994, Dr. Mitsunada Sakaguchi, a 1940 alumnus of the School of Medicine, donated five billion yen to Keio University with the expressed desire that it be used to commend outstanding researchers, to encourage medical research and its creative progress at Keio through grants, and to promote worldwide medical advances. In keeping with Dr. Sakaguchi's commitment, Keio launched The Keio University Medical Science Fund on April 1, 1995. Dr. Sakaguchi made an additional donation of two billion yen in July 1999, bringing the fund to a total of seven billion yen.

2. Initiatives

- The Keio Medical Science Prize
- Grants for International Activities in Medicine and the Life Sciences
- Medical School Faculty and Alumni Grants
- Research Grants for Medicine and the Life Sciences
- Sakaguchi Laboratory

3. Objective

The Keio Medical Science Prize gives recognition to the outstanding and creative achievements of researchers in the fields of medicine and the life sciences, in particular those contributing to scientific developments in medicine. It aims to promote worldwide advances in medicine and the life sciences, encourage the expansion of researcher networks throughout the world, and contribute to the well-being of humankind.

4. Prize

Laureates receive a certificate of merit, medal, and a monetary award of 10 million yen. The award ceremony and commemorative lectures are held at Keio University.

5. Nomination and Selection

The Keio Medical Science Prize is an international award, and each year academics and researchers from around the world are invited to nominate a candidate. Laureates are then selected through a rigorous review process by about ninety Japanese academics from both within and outside of Keio University.

6. 2015 Prize Laureates

Jeffrey I. Gordon

Human gut microbiome and its impact on health and disease

Yoshinori Ohsumi

Elucidation of molecular mechanism of autophagy

7. Nobel Prize Winning Laureates

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| 2010 | Jules A. Hoffmann (The Nobel Prize in Physiology or Medicine 2011)
Discovery of Insect-innate Immune System and Toll Receptors |
| 2006 | Thomas A. Steitz (The Nobel Prize in Chemistry 2009)
Structural Basis of Large Ribosomal Subunit Function and Drug Development |
| 2004 | Roger Y. Tsien (The Nobel Prize in Chemistry 2008)
Visualization and Control of Molecules within Living Cells |
| 2002 | Barry J. Marshall (The Nobel Prize in Physiology or Medicine 2005)
Establishment of Diagnostic Techniques and Treatment for Helicobacter Pylori |
| 1999 | Elizabeth Helen Blackburn (The Nobel Prize in Physiology or Medicine 2009)
Telomeres and Telomerase |
| 1996 | Stanley B. Prusiner (The Nobel Prize in Physiology or Medicine 1997)
Discovery of Prions and Prion Diseases |



The Keio Medical Science Prize 2016 Laureate

“Molecular Elucidation of Human Origin”

Svante Pääbo, Ph.D., Drs. *h.c.*

Professor of Genetics and Evolutionary Biology

Director, MPI-EVA

Max Planck Institute for Evolutionary Anthropology

A scientific discipline that deals with the origins of human beings dates back to 1856 when a skull of "Neanderthal man" was discovered. Neanderthals disappeared in Europe 30,000 years ago. After 30 years of passionate pursuit that was both creative and innovative, Professor Pääbo succeeded in obtaining the whole genome sequence of the Neanderthals from bone remains using extremely sensitive methods to extract ancient DNA. Detailed analysis of the highly accurate whole genome sequence uncovered that Neanderthals contributed ~2% of the genomic DNA of present-day humans by interbreeding with humans (*Homo sapiens*) when they came out of Africa.

Comparison of Neanderthal and present-day human genomes has identified a number of genomic regions that may have been affected by positive selection in ancestral modern humans, including genes involved in metabolism and in cognitive function.

Professor Pääbo also successfully determined the whole genome sequence of a presumably hominin-derived finger bone discovered in a cave in Denisova in Russia. The genomic sequence represented a hitherto unknown type of hominin DNA, and the novel type of hominin is now referred to as Denisovan. Professor Pääbo's pioneering work in paleogenetics represents a truly monumental achievement in the biomedical sciences and beyond, in that Professor Pääbo has shed entirely new light on one of the most captivating topics for scholars throughout the ages.

1955	Born in Stockholm, Sweden
1975-1976	School of Interpreters, Swedish Defense Forces
1975-1981	Studies at the Faculty of Humanities, University of Uppsala, including History of Science, Egyptology, and Russian
1977-1980	Medical studies at the University of Uppsala, Sweden
1979-1980	Part time research and teaching at the Department of Cell Biology, Uppsala, and the Roche Institute for Molecular Biology, Nutley, NJ, USA
1981-1986	Full time research as Ph.D. student at the Department of Cell Research, University of Uppsala
1986	Awarded Ph.D. degree at University of Uppsala, Sweden
1986-1987	Postdoctoral research at the Institute for Molecular Biology II, University of Zürich, Switzerland
1987	Short period of work at Imperial Cancer Research Fund, London, UK
1987-1990	Postdoctoral research at the Department of Biochemistry, University of California, Berkeley, USA
1990	Docent (habilitation) in Medical Genetics, University of Uppsala, Sweden
1990-1998	Full Professor (C4) of General Biology, University of Munich, Germany
1997-Present	Director, Max-Planck-Institute for Evolutionary Anthropology, Leipzig, Germany
1999-Present	Honorary Professor of Genetics and Evolutionary Biology, University of Leipzig, Germany
2003-2015	Guest Professor of Comparative Genomics, University of Uppsala, Sweden
2016-Present	Honorary Research Fellow, Natural History Museum, London, UK

Comments from Prof. Pääbo

I am greatly honored to receive the The Keio Medical Science Prize. For more than 30 years I have worked on the retrieval of DNA from long dead organisms. It has now become possible to go back in time and study the genomes of extinct hominins, past human populations, ancient pathogens and extinct animals. Many talented collaborators both in my lab and elsewhere have helped make this dream come true. I thank them all.



The Keio Medical Science Prize 2016 Laureate

“Identification of PD-1 and Establishment of Cancer Immunotherapy Principle by PD-1 Blockade”

Tasuku Honjo, M.D., Ph.D.

Professor, Graduate School of Medicine and Faculty of Medicine Kyoto University

In 1992, Dr. Tasuku Honjo first discovered PD-1 as an inducible gene on activated T-lymphocytes. Then he demonstrated that PD-1-deficient mice develop autoimmune diseases and that PD-1 inhibits T cell activation by binding to ligands of PD-1. Thus, he revealed that PD-1 is a negative regulator of immune responses. Furthermore, Dr. Honjo and his co-workers showed that anti-PD-1 and anti-PD-L1 antibodies inhibit tumor growth in mice, thus he discovered that inhibition of the immune-regulatory system is effective for anti-cancer immunotherapy. Based on his discovery, clinical trials of the human anti-PD-1 antibody nivolumab have been performed, and it has been actually proven that PD-1 blockade is effective for a number of human tumors including melanoma and lung cancer. As a result of this trial, nivolumab has been approved and introduced to the market. The blockade of the PD-1 signal, in addition to the CTLA-4 blockade, is currently referred to as “immune checkpoint therapy”. Dr. Honjo brought a paradigm shift in the field of cancer immunotherapy. He accomplished translational research from basic to clinical applications, and his discovery of the PD-1/PD-L1 system makes him well deserving of The Keio Medical Science Prize.

1962-1966	Medical Course, Faculty of Medicine, Kyoto University, Kyoto, Japan
1966	M.D. (Kyoto University)
1967-1971	Graduate School (Medical Chemistry), Kyoto University, Kyoto, Japan
1975	Ph.D. (Kyoto University)
1971-1973	Fellow of Carnegie Institution of Washington, Department of Embryology, Baltimore, Maryland
1973-1974	Visiting Fellow and Associate, Laboratory of Molecular Genetics, National Institute of Child Health and Human Development, NIH, Bethesda, Maryland
1974-1979	Assistant Professor, Department of Physiological Chemistry and Nutrition, Faculty of Medicine, University of Tokyo, Tokyo, Japan
1979-1984	Professor, Department of Genetics, School of Medicine, Osaka University, Osaka, Japan
1984-2005	Professor, Department of Medical Chemistry, Faculty of Medicine, Kyoto University, Kyoto, Japan
1988-1997	Director, Center for Molecular Biology and Genetics, Kyoto University, Kyoto, Japan
1996-2000	Dean, Faculty of Medicine, Kyoto University, Kyoto, Japan
1999-2004	Science Adviser, Ministry of Education, Culture, Sports, Science and Technology (MEXT)
2002-2004	Dean, Faculty of Medicine, Kyoto University
2004-2006	Director, Japan Society for the Promotion of Science, Research Center for Science Systems, Tokyo, Japan
2005-present	Professor, Department of Immunology and Genomic Medicine, Graduate School of Medicine, Kyoto University, Kyoto, Japan
2005-present	Council Member, Science Council of Japan, Tokyo, Japan
2006-2012	Executive Member, Council for Science and Technology Policy, Cabinet Office, Tokyo, Japan
2012-present	Chairman, Board of Directors, Shizuoka Prefectural University Corporation, Shizuoka, Japan
2015-present	President, Foundation for Biomedical Research and Innovation, Kobe, Japan

Comments from Prof. Honjo

It is my great honor to receive The Keio Medical Science Prize 2016, which has been awarded to many excellent medical scientists. I encountered the PD-1 molecule and found that PD-1 serves as a brake in the immune system. Based on the findings in animal models, the PD-1 blockade cancer therapy became available 22 years after its discovery. I deeply appreciate the active investment in basic research in Japan about 20 years ago, which made this innovative application possible.