

September 13, 2018
Keio University

Announcement of The Keio Medical Science Prize 2018

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 7 laureates of this Prize have later won the Nobel Prize. The 23rd Keio Medical Science Prize is awarded to **Prof. Feng Zhang** and **Prof. Masashi Yanagisawa**.

1. Laureates

Feng Zhang, Ph.D.



- James and Patricia Poitras Professor of Neuroscience, Massachusetts Institute of Technology
- Core Institute Member, The Broad Institute of MIT and Harvard

“Development of CRISPR/Cas system in mammalian cells and application for medical science”

Masashi Yanagisawa, M.D., Ph.D.



- Director and Professor, International Institute for Integrative Sleep Medicine (WPI-IIIS), University of Tsukuba

“Elucidation of sleep control mechanisms and applications in drug discovery”

2. Award Ceremony and Events

The award ceremony and commemorative lectures will be held on December 18, 2018 at Keio University School of Medicine, located on Keio University's Shinanomachi Campus.

Award Ceremony and Commemorative Lectures

- Date & Time: December 18, 2018, 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

- Attachments:** (1) The Keio Medical Science Prize
 (2) The Keio Medical Science Prize Laureate 2018

Inquiries: Secretariat, Keio University Medical Science Fund

TEL: +81-3-5363-3609

FAX: +81-3-5363-3215

Publisher: Office of General Affairs, Keio University School of Medicine

TEL: +81-3-5363-3611

FAX: +81-3-5363-3612

URL: <http://www.ms-fund.keio.ac.jp/>

E-mail: k-msf@adst.keio.ac.jp

URL: <http://www.med.keio.ac.jp/en/>

E-mail: med-koho@adst.keio.ac.jp



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 Award
- 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. 2017 Prize Laureates

John E. Dick

Identification of cancer stem cells

Seiji Ogawa

Development of functional MRI

7. Nobel Prize Winning Laureates

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| 2015 | Yoshinori Ohsumi (The Nobel Prize in Physiology or Medicine 2016)
Discoveries of mechanisms for autophagy |
| 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 2018 Laureate

“Development of CRISPR/Cas system in mammalian cells and application for medical science”

Feng Zhang, Ph.D.

James and Patricia Poitras Professor of Neuroscience, Massachusetts Institute of Technology
Core Institute Member, The Broad Institute of MIT and Harvard

The CRISPR/Cas system has greatly facilitated our ability to make precise changes to the genomes of living cells, and has rapidly become one of the most powerful and indispensable functional genomics tools. Multiple research groups contributed to the elucidation of the molecular mechanisms underlying CRISPR/Cas systems. It was Dr. Feng Zhang who first used the CRISPR/Cas system to edit a mammalian genome in January 2013. Since that time, he has led the gene editing field in two critical directions: advancing our understanding of CRISPR/Cas biology, and developing a versatile CRISPR toolbox. Dr. Zhang’s contributions in these areas are immeasurable, as the ability to precisely edit the genome of a living cell holds enormous potential to accelerate life science research, improve biotechnology, and potentially treat human disease. Dr. Zhang has also trained many researchers in the use of CRISPR/Cas technology through direct education and by sharing CRISPR/Cas components with academic laboratories around the world to help accelerate global research aimed at benefiting human health.

Education

2000 – 2004 A.B., Chemistry and Physics, Harvard College, Cambridge, MA
2004 – 2009 Ph.D., Chemistry, Stanford University, Stanford, CA

Positions

1997 – 1999 Research Assistant with John P. Levy, Ph.D.
Human Gene Therapy Research Institute, Des Moines, IA
2000 – 2001 Research Assistant with Don C. Wiley, Ph.D.
Dept. of Molecular and Cellular Biology, Harvard University, Cambridge, MA
2002 – 2004 Research Assistant with Xiaowei Zhuang, Ph.D.
Dept. of Chemistry and Chemical Biology, Harvard University, Cambridge, MA
2004 – 2009 Graduate Student with Karl Deiseroth, Ph.D.
Department of Bioengineering, Stanford University, Stanford, CA
2009 – 2010 Junior Fellow, Harvard Society of Fellows, Cambridge, MA
2011 – Core Member, Broad Institute of MIT and Harvard
Investigator, McGovern Institute for Brain Research at MIT
W. M. Keck Career Development Professor in Biomedical Engineering,
Departments of Brain and Cognitive Sciences and Biological Engineering,
Massachusetts Institute of Technology, Cambridge, MA
2015 – Robertson Investigator, New York Stem Cell Foundation
2016 – Associate Professor (with tenure) of Neuroscience and Biological Engineering, MIT, Cambridge, MA
2017 – James and Patricia Poitras Professor in Neuroscience at MIT
2018 – Investigator, Howard Hughes Medical Institute

Major Honors/Awards

2016 Canada Gairdner International Award
2016 Tang Prize
2017 Blavatnik Award for Young Scientists – National Award Winner
2017 Albany Medical Center Prize in Medicine and Biomedical Research
2017 Lemelson-MIT Prize

Comments from Professor Zhang

I am greatly honored and humbled to receive the Keio Medical Science Prize, which has been awarded to many brilliant scientists over the years. Having the work that my team and I have done to develop genome editing tools recognized in this way is an incredible distinction, and it inspires us to do even more to find ways to improve human health. On behalf of all the scientists that have contributed to this discovery, thank you.



The Keio Medical Science Prize 2018 Laureate

“Elucidation of sleep control mechanisms and applications in drug discovery”

Masashi Yanagisawa, M.D., Ph.D.

Director and Professor, International Institute for Integrative Sleep Medicine (WPI-IIIS),
University of Tsukuba

Dr. Masashi Yanagisawa has made pioneering advances in understanding the mechanisms that control sleep, and his research has contributed to the discovery of new drugs. In 1991, Dr. Yanagisawa discovered the novel neurotransmitter orexin, an endogenous ligand for orphan G protein-coupled receptors. On further study, he found that orexin controls the sleep/wake cycle; mice with the orexin gene deleted exhibited symptoms of sleeping disorders, such as narcolepsy. Orexin receptor antagonists have since been developed and marketed by pharmaceutical companies as anti-insomnia medicines. Dr. Yanagisawa has also identified new sleep control genes using mouse forward genetics methods. A deeper understanding of the molecular basis of sleep control, may lead to new breakthroughs in the development of treatments for sleep disorders, and the contribution of Dr. Yanagisawa to this field merits international recognition.

Education and Professional Appointments

1960	Born in Tokyo, Japan
1985	M.D. (summa cum laude), University of Tsukuba
1988	Ph.D. in Medical Sciences, University of Tsukuba
1988 – 1989	Postdoctoral fellow, Department of Pharmacology, University of Tsukuba
1989 – 1991	Assistant Professor of Pharmacology, University of Tsukuba
1991 – 1991	Assistant Professor of Pharmacology, Kyoto University School of Medicine
1991 – 1996	Associate Professor of Molecular Genetics; Associate Investigator, Howard Hughes Medical Institute University of Texas Southwestern Medical Center at Dallas (UTSW)
1996 – 2014	Professor of Molecular Genetics, UTSW; Investigator, HHMI
1998 – 2014	The Patrick E. Haggerty Distinguished Chair in Basic Biomedical Science, UTSW
2001 – 2007	Director, Yanagisawa Orphan Receptor Project (JST/ERATO)
2010 – 2014	Professor and Director, FIRST program, University of Tsukuba
2012 – Present	Professor and Director, International Institute for Integrative Sleep Medicine (WPI-IIIS), University of Tsukuba
2014 – Present	Adjunct Professor of Molecular Genetics, UTSW

Major Honors/Awards

2000	The Tsukahara Memorial Award, The Brain Science Foundation
2003	Elected Member, National Academy of Sciences
2006	Outstanding Scientific Achievement Award, Sleep Research Society
2016	Medal with Purple Ribbon, Government of Japan
2018	The Asahi Prize, Asahi Shimbun Foundation

Comments from Professor Yanagisawa

I am truly honored to receive the prestigious Keio Medical Science Award and feel humbled going through the prominent list of previous laureates. My achievements would not have been possible without the teamwork of my lab members and esteemed collaborators and I would like to accept this award on behalf of my entire team. Looking back, I realize that exploratory research has always been my style ever since the start of my career. I went into the field of sleep research not because of my own planning but through simple observations of experimental phenomena. From here on out, I plan to remain free and unbiased, asking hard questions and exploring the scientific mysteries that lie before us.