Press Release

Keio University

September 19, 2025
Keio University

Announcement of The Keio Medical Science Prize 2025

Keio University, Japan's oldest private university located in Tokyo, 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 12 laureates of this prize have later won the Nobel Prize. The 30th Keio Medical Science Prize is awarded to Clifford Paul Brangwynne, Ph.D., from Princeton University, and Akiko Iwasaki, Ph.D., from Yale School of Medicine.

1. Laureates

Clifford Paul Brangwynne, Ph.D.

June K. Wu '92 Professor of Chemical and Biological Engineering, Princeton University

Founding Director, Omenn-Darling Bioengineering Institute, Princeton University

Investigator, Howard Hughes Medical Institute

"Discovery of Liquid-Liquid Phase Separation in Cells"

Akiko Iwasaki, Ph.D.

Photo by Robert Lisak YSM

Sterling Professor of Immunobiology and Molecular, Cellular and Developmental Biology, Yale School of Medicine

Director of the Center for Infection & Immunity, Yale School of Medicine

Investigator, Howard Hughes Medical Institute

"Advancing Understanding of Human Immunity to COVID-19"

2. Award Events

The award ceremony and commemorative lectures will be held on November 4, 2025, at the Keio University School of Medicine, located on Keio University's Shinanomachi Campus.

Date & Time：Tuesday, November 4, 2025, 14:00-17:30
Venue：Kitasato Memorial Hall, Keio University School of Medicine, Shinanomachi Campus, Tokyo, Japan
Public Transit：2-minute walk from Shinanomachi Station (JR Sobu Line), 5-minute walk from Kokuritsu-kyogijo Station (Subway Oedo Line)
Admission：On-site participation is limited
Language：English

For more information, please visit the Keio Medical Science Prize website:
https://www.ms-fund.keio.ac.jp/en/prize/

The Keio Medical Science Prize 2025 Laureate

“Discovery of Liquid-Liquid Phase Separation in Cells”

Clifford Paul Brangwynne, Ph.D.

June K. Wu ’92 Professor of Chemical and Biological Engineering, Princeton University
Founding Director, Omenn-Darling Bioengineering Institute, Princeton University
Investigator, Howard Hughes Medical Institute, USA
URL：https://softlivingmatter.princeton.edu/people/cliff-brangwynne-phd/

When water and oil are placed together in a glass and stirred, they naturally fail to mix and quickly separate. A similar phenomenon occurs when two aqueous solutions of different concentrations are combined, with one forming droplets within the other. This phenomenon is known as “liquid–liquid phase separation” and has long been a fundamental concept in industrial and chemical fields. Dr. Brangwynne discovered that liquid–liquid phase separation also occurs within living cells. This groundbreaking finding overturned the conventional belief that all structures inside cells are enclosed by membranes, rewriting the very textbooks of biology. Furthermore, Dr. Brangwynne developed optoDroplet, a technique to manipulate liquid–liquid phase separation. Building on this technology, it has since been suggested that such phase separation may also be involved in intracellular signal transduction and the onset of neurodegenerative diseases. The impact of these achievements on medicine and the life sciences as a whole is immense, making Dr. Brangwynne truly deserving of the Keio Medical Science Prize.

Education

2001	Carnegie Mellon University（B.S. Materials Science & Engineering, minor in Physics, with University Honors）
2007	Harvard University（Ph.D. Applied Physics）

Professional Appointments

1997-1998	Carnegie Mellon University, Center for Light Microscope Imaging and Biotechnology
1998-1999, March	Harvard Medical School, Department of Pathology, Researched directional cell migration and tissue morphogenesis
1999, June-August	Harvard Medical School, Department of Pathology, using light microscopy and soft lithographic cell patterning
1999, December-2000	Harvard Medical School, Department of Pathology, laboratory of Prof. Donald Ingber
2002-2007	Harvard University, Doctoral research in the laboratory of Prof. David A. Weitz. Ph.D.
2007-2010	Max Planck Institute for Molecular Cell Biology and Genetics, & MPI for Physics of Complex Systems, Dresden, Germany, Postdoctoral training with Profs. Tony Hyman (MPI-CBG) and Frank Jülicher (MPI-PKS)
2011-2017	Princeton University, Assistant Professor, Chemical and Biological Engineering
2017-2019	Princeton University, Associate Professor, Chemical and Biological Engineering
2018-present	Howard Hughes Medical Institute, HHMI Investigator
2019-2020	Princeton University, Professor, Chemical and Biological Engineering
2020-2023	Princeton University, Professor, Director, Princeton Bioengineering Initiative
2020-present	Princeton University, - June K. Wu ’92 Professor of Chemical and Biological Engineering -Associated Faculty, Lewis Sigler Institute, Quant. & Comp. Biology Program -Associated Faculty, Molecular Biology -Associated Faculty, Princeton Institute for the Science & Technology of Materials -Associated Faculty, Princeton Institute for Computational Science & Engineering
2022-2023	Marine Biological Laboratory, Whitman Fellow

2023-present	Princeton University, Founding Director, Omenn-Darling Bioengineering Institute
2024-present	Marine Biological Laboratory, co-Director of MBL Physiology Summer Course (7wk)

Major Honors/Awards

2018-2023	MacArthur Fellow
2020	Wiley Prize in Biomedical Sciences
2021	HFSP Nakasone Award
2023	Dickson Prize in Medicine
2023	Breakthrough Prize in Life Sciences

Comment from Clifford Paul Brangwynne, Ph.D.

I'm honored to receive the Keio Medical Science Prize in recognition for my contributions to elucidating phase separation as a fundamental mechanism underlying intracellular organization. Many dozens of different biological processes are now understood to be influenced by such phase transitions, and we're excited that efforts to modulate intracellular phase behavior are central to emerging therapeutics for treatment of devastating diseases.

The Keio Medical Science Prize 2025 Laureate

“Advancing Understanding of Human Immunity to COVID-19”

Akiko Iwasaki, Ph.D.

Sterling Professor of Immunobiology and Molecular, Cellular and Developmental Biology, Yale School of Medicine
Director of the Center for Infection & Immunity, Yale School of Medicine
Investigator, Howard Hughes Medical Institute, USA
URL：https://medicine.yale.edu/profile/akiko-iwasaki/

Dr. Akiko Iwasaki has long investigated the molecular mechanisms of antiviral immune responses at mucosal surfaces, clarifying how DNA and RNA viruses are recognized through TLR9 and TLR7 within endosomes. Building on these foundational discoveries, she played a leading role during the COVID-19 pandemic by rapidly establishing an international research consortium and applying big-data approaches to integrate clinical and immunological analyses. Her work revealed key determinants of immunity, including sex-based differences in T cell responses and molecular mechanisms underlying post-acute sequelae such as “brain fog.” These findings elucidated critical immune factors that determine the success or failure of viral control in humans. Dr. Iwasaki’s achievements have significantly advanced human immunology and provide valuable guidance for vaccine design, therapeutic development, and preparedness for future pandemics.

Education

1994	University of Toronto（B.Sc., major, Biochemistry Specialist Program; minor, Physics）
1998	University of Toronto（Ph.D., Immunology）

Professional Appointments

1992-1993	University of Toronto, Undergraduate Researcher, Department of Biochemistry
1993-1998	University of Toronto, Doctoral Student, Department of Immunology
1998-2000	National Institutes of Allergy and Infectious Disease, NIH, Postdoctoral Fellow, Mucosal Immunity Section
2000-2004	Yale School of Medicine, Assistant Professor, Department of Epidemiology and Public Health
2004-2006	Yale School of Medicine, Assistant Professor, Section of Immunobiology
2006-2009	Yale School of Medicine, Associate Professor, Department of Immunobiology
2009-2011	Yale School of Medicine, Associate Professor with Tenure, Department of Immunobiology and Department of Molecular, Cellular and Developmental Biology

2011-2016	Yale School of Medicine, Full Professor with Tenure, Department of Immunobiology and Department of Molecular, Cellular and Developmental Biology
2014-present	Yale School of Medicine, Investigator, Howard Hughes Medical Institute
2016-2022	Yale School of Medicine, Waldemar Von Zedtwitz Professor of Immunobiology; of Molecular, Cellular and Developmental Biology; of Dermatology; and of Epidemiology
2022-present	Yale School of Medicine, -Sterling Professor of Immunobiology; of Molecular, Cellular and Developmental Biology; of Dermatology; and of Epidemiology -Director of Yale Center for Infection & Immunity

Major Honors/Awards

2018	Thermo Fisher Meritorious Career Award/ American Association of Immunologists
2023	Howard Taylor Ricketts Prize
2023	Else Kröner Fresenius Prize for Medical Research
2024	TIME 100 Most Influential People
2024	Forbes 50 over 50

Comment from Akiko Iwasaki, Ph.D.

I am deeply honored to receive the Keio Medical Science Prize. As an immunologist, my lab has worked with many collaborators to study how SARS-CoV-2, the virus causing COVID-19, affects people. From Yale New Haven Hospital's first COVID-19 patient, we have analyzed immune factors linked to disease outcomes and continue investigating Long COVID, which affects about 10% of those infected. I am grateful to my lab members and the many patients whose lived experiences have greatly enriched our research.

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
- Keio Medical Science Rising Star 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. 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 thirteen Japanese academics from both within and outside of Keio University. Laureates receive a certificate of merit, medal, and a monetary award of 10 million yen.

Selection Committee 2025

Toshiro Sato	Chairperson of the Committee Professor, Department of Biochemistry, Keio University School of Medicine
Shizuo Akira	Director, Center for Advanced Modalities and Drug Delivery System, Osaka University
Masayuki Amagai	Professor, Department of Dermatology, Keio University School of Medicine
Kenjiro Hanaoka	Professor, Division of Analytical Chemistry for Drug Discovery, Faculty of Pharmacy, Keio University
Kaori Hayashi	Professor, Department of Internal Medicine (Nephrology, Endocrinology and Metabolism), Keio University School of Medicine
Masaki Ieda	Professor, Department of Internal Medicine (Cardiology), Keio University School of Medicine
Yoshiaki Kubota	Professor, Department of Anatomy, Keio University School of Medicine
Hiroaki Mitsuya	Director General, National Institute of Global Health and Medicine, Japan Institute for Health Security
Mitinori Saitou	Professor, Kyoto University Institute for Advanced Study Director, Institute for the Advanced Study of Human Biology (WPI-ASHBi)
Yoshiko Takahashi	Professor, Department of Zoology, Graduate School of Science, Kyoto University
Kenji Tanaka	Professor, Division of Brain Sciences, Institute for Advanced Medical Research, Keio University School of Medicine
Masashi Yanagisawa	Director, International Institute for Integrative Sleep Medicine (WPI-IIIS), University of Tsukuba
Motoko Yanagita	Professor, Department of Nephrology, Graduate School of Medicine, Kyoto University

5. Nobel Prize Winners from the Keio Medical Science Prize Laureates

1996	Stanley B. Prusiner (The Nobel Prize in Physiology or Medicine 1997) “Discovery of Prions and Prion Diseases”
1999	Elizabeth Helen Blackburn (The Nobel Prize in Physiology or Medicine 2009) “Telomeres and Telomerase”
2002	Barry J. Marshall (The Nobel Prize in Physiology or Medicine 2005) “Isolation and cultivation of Helicobacter pylori - pioneering work in diagnosis and treatment -”
2004	Roger Y. Tsien (The Nobel Prize in Chemistry 2008) “Visualization and Control of Molecules within Living Cells”
2006	Thomas A. Steitz (The Nobel Prize in Chemistry 2009) “Structural Basis of Large Ribosomal Subunit Function and Drug Development”
2010	Jules A. Hoffmann (The Nobel Prize in Physiology or Medicine 2011) “Discovery of Insect-innate Immune System and Toll Receptors”
2013	Victor R. Ambros (The Nobel Prize in Physiology or Medicine 2024) “Discovery of microRNAs as a new class of gene regulators”
2015	Yoshinori Ohsumi (The Nobel Prize in Physiology or Medicine 2016) “Discoveries of Mechanisms for Autophagy”
2016	Tasuku Honjo (The Nobel Prize in Physiology or Medicine 2018) “Identification of PD-1 and Establishment of Cancer Immunotherapy Principle by PD-1 Blockade”
2016	Svante Pääbo (The Nobel Prize in Physiology or Medicine 2022) “Molecular Elucidation of Human Origin”
2022	Katalin Karikó (The Nobel Prize in Physiology or Medicine 2023) “Discovery of Specific RNA Modification Leading to mRNA Vaccine Development”
2024	Demis Hassabis (The Nobel Prize in Chemistry 2024) “Innovation in Biomedical Research through Brain-inspired Artificial Intelligence”

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