Harvey Prize Recipients Announced

The Technion will award the Harvey Prize to Professors Katalin Karikó, Drew Weissman, Pieter R. Cullis and Helen Quinn

The Harvey Prize, the most prestigious award bestowed by the Technion - Israel Institute of Technology, will be presented this year in two fields:

In Science and Technology, the prize will be awarded to Professor Emerita **Helen Quinn** from SLAC National Accelerator Laboratory. In the field of Human Health, the prize will be awarded to Professors **Katalin Karikó** and **Drew Weissman** from the University of Pennsylvania, and to Professor **Pieter R. Cullis** from the University of British Columbia.

Human Health

The research of Profs. Karikó, Weissman and Cullis enabled the rapid development and delivery of effective COVID-19 vaccines. Their fundamental discoveries revolutionized the delivery of effective and safe vaccines, bringing about new types of therapeutics, as well as potential genetic therapies that contributed to the well-being of humans.

Professor Karikó is a biochemist focused on RNA biology. She earned her Ph.D. from the University of Szeged. For the past 24 years, she has worked at the University of Pennsylvania as a professor of neurosurgery. Prof. Karikó was noted for her exceptional persistence in working on mRNA, despite the academic establishment not seeing the potential of the field at the time. For her groundbreaking work, she has received numerous awards, including the Japan Prize, the Horwitz Prize, the Paul Ehrlich Prize, the Benjamin Franklin Medal, the Kovalenko Medal, the Tang Prize, the Warren Alpert Prize and the Lasker-DeBakey Clinical Medical Research Award.

Professor Weissman is an immunologist focused on RNA biology. He received his MD and Ph.D. from Boston University. He opened his lab 1997 at the University of Pennsylvania, focusing on RNA and vaccines. Currently, he is developing methods to replace genetically deficient proteins, edit the genome, and specifically target cells and organs, all relying on RNA. He is the recipient of multiple awards, including the Rosenstiel Award, the Lasker-DeBakey Clinical Medical Research Award, and the VinFuture Prize. Together with Prof. Karikó, he is recognized for his pioneering work in developing nucleoside-modified mRNA, thereby successfully suppressing the inflammatory response to mRNA molecules and opening the door to RNA-based therapeutics.

Professor Cullis, of the Department of Biochemistry and Molecular Biology at the University of British Columbia, has made fundamental advances in the development of nanomedicines employing lipid nanoparticle (LNP) technology for cancer therapies, gene therapies and vaccines. He developed unique lipid nanoparticles that protect and deliver mRNA into cells – the platform that was later adapted for RNA-based vaccines.

Prof. Cullis received his Ph.D. in physics from the University of British Columbia, where he later established his own lab. He co-founded two Canadian National Centre of Excellence networks, the Centre for Drug Research and Development (now AdMare) and the NanoMedicines Innovation Network. He has received many awards, including the Order of Canada, the Prince Mahidol Award,

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the Canada Gairdner International Award, and the Tang Prize. In 2023, he was elected a Fellow of the Royal Society.

Science and Technology

Professor Quinn is a particle physicist and an educator. Together with the late Roberto Peccei, she introduced the Peccei–Quinn Symmetry, which explains the invariance of the strong interactions under the combination of parity and charge-conjugation. The particles predicted by this symmetry, known as axions, may furthermore constitute the dark matter, which makes up most of the matter in the Universe according to gravitational measurements. Prof. Quinn also showed, together with Howard Georgi and the late Steven Weinberg, that despite their different strengths at low energies, the strong, weak, and electromagnetic interactions may originate from a single force at high energies, leading to the theoretical framework known as grand unification. Her scientific discoveries broke new ground in theoretical physics, generated new research paths in both theoretical and experimental physics and may constitute a major advancement in understanding the basic structure of the universe.

Prof. Quinn received her Ph.D. from Stanford University. She was a professor of physics at SLAC and President of the American Physical Society. She is a member of the U.S. National Academy of Sciences. Her list of awards includes the Dirac Medal, the Oskar Klein Medal, the Karl Taylor Compton Medal, the Benjamin Franklin Medal, and the J. J. Sakurai Prize.

The $75,000 Harvey Prize was established in 1971 by Leo Harvey (1887-1973), an industrialist and inventor, and an ardent friend and supporter of the Technion and the State of Israel. It is awarded by the Technion each year for outstanding achievements in science and technology, human health, and significant contributions to humankind. Over the years, the Harvey Prize has become a predictor of the Nobel Prize, with more than 30% of Harvey laureates ultimately receiving the Nobel. The most recent Harvey Laureates to receive the Nobel Prize were Professors Emmanuelle Charpentier, Jennifer Doudna, and Reinhard Genzel, in 2020.

The prizes will be awarded in June 2024 at a festive event as part of the Technion Board of Governors meeting during Technion's Centennial Year.

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Captions:

1. Professor Katalin Karikó. Courtesy of István Sahin-Tóth
2. Professor Drew Weissman. Photo credit: University of Pennsylvania School of Medicine
3. Professor Pieter R. Cullis. Photo credit: The University of British Columbia
4. Professor Emerita Helen Quinn. Photo credit: Dan Quinn

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