

PRESS RELEASE

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Vilcek Foundation awards \$100,000 prize to Dr. Katalin Karikó, immigrant scientist who pioneered mRNA vaccine technology

Dr. Katalin Karikó receives the 2022 Vilcek Prize for Excellence in Biotechnology for her scientific contributions that led to the development of mRNA vaccines for COVID-19

NEW YORK, June 8, 2021—Dr. Katalin Karikó is the recipient of the 2022 Vilcek Prize for Excellence in Biotechnology recognizing her research work that directly led to the development of the mRNA vaccines to combat COVID-19.

The Vilcek Prize for Excellence is awarded to immigrants to the United States who have had a significant impact on both American society and world culture, and to individuals who are dedicated champions of immigrant causes. The award was introduced in 2019 as part of the Vilcek Foundation Prizes program to honor outstanding individuals whose work exemplifies the Vilcek Foundation's mission.

Born in Szolnok, Hungary, Karikó moved to the United States in 1985 to pursue postdoctoral studies at Temple University in Philadelphia. She is the senior vice president at BioNTech RNA Pharmaceuticals and an adjunct associate professor of neurosurgery at the University of Pennsylvania.

“Dr. Karikó’s pioneering work is responsible for the development of novel vaccines against COVID-19,” says Vilcek Foundation Cofounder, Chairman and CEO Jan Vilcek. “This formidable accomplishment, based on four decades of her research on the therapeutic use of messenger RNA, promises to stop the worldwide spread of COVID-19 and save millions of lives.”

In the mid-2000s, working with immunologist Drew Weissman, Karikó demonstrated that modifying nucleosides—the building blocks of messenger RNA (mRNA)—renders mRNA safe for use in vaccination against infectious agents. At the time, researchers were pessimistic about the prospect of mRNA vaccines; synthetic mRNA that has not been modified is inherently fragile, and can trigger a serious inflammatory response when introduced to the human immune system. In groundbreaking studies, Karikó showed that using the pseudouridine instead of uridine to create synthetic mRNA not only averts adverse immune reactions but also boosts the molecule’s stability and protein yield.

Karikó's breakthrough on the stabilizing effect of modifying nucleosides in mRNA enabled scientists to develop mRNA vaccines for COVID-19, most notably those developed by Pfizer and Moderna. The vaccines have shown more than 94% efficacy in preventing symptomatic disease in clinical trials and are now being deployed across the United States to turn the tide on the pandemic.

"The Vilcek Prize for Excellence was conceived to honor individuals whose contributions benefit society on a broad level," says Marica Vilcek, Vilcek Foundation Cofounder, Vice Chairman and Secretary. "Dr. Karikó's work has obviously had a tremendous impact on science and medicine—but the development of mRNA vaccines based on her research also has a profound humanitarian significance. In enabling people and communities to return to normal activities and to connect with one another in person, her work has had a direct positive impact on global society."

The Vilcek Prize for Excellence is awarded as part of the Vilcek Foundation Prizes program. Recipients of the prize receive a cash award of \$100,000 and a commemorative diploma. In recognition of the profound impact of Karikó's work at the current moment, the Vilcek Foundation made the decision to announce the 2022 Vilcek Prize for Excellence in advance of the rest of the 2022 Vilcek Foundation Prizes. The recipients of the 2022 Vilcek Foundation Prizes in Biomedical Science and Dance will be announced on September 7, 2021.

The Vilcek Foundation

The Vilcek Foundation raises awareness of immigrant contributions in the United States and fosters appreciation for the arts and sciences. The foundation was established in 2000 by Jan and Marica Vilcek, immigrants from the former Czechoslovakia. The mission of the foundation was inspired by the couple's respective careers in biomedical science and art history. Since 2000, the foundation has awarded over \$5.9 million in prizes to foreign-born individuals and has supported organizations with over \$5.3 million in grants.

The Vilcek Foundation is a private operating foundation, a federally tax-exempt nonprofit organization under IRS Section 501(c)(3).