

VILCEK FOUNDATION

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Immigrant Scientists Lead Charge in Understanding Human Biology and Disease

\$250,000 in Vilcek Foundation Prizes awarded to Angelika Amon, Amit Choudhary, Jeanne Paz, and Mikhail Shapiro

New York, NY, February 4, 2019 — The Vilcek Foundation is pleased to announce the winners of the 2019 Vilcek Foundation Prizes for Biomedical Science, awarded to immigrants who have made significant contributions to the field. Dr. Angelika Amon will receive the \$100,000 Vilcek Prize, while Drs. Amit Choudhary, Jeanne Paz, and Mikhail Shapiro will each receive the \$50,000 Vilcek Prize for Creative Promise.

“Immigrant scientists are behind some of the most transformative discoveries made on American soil, as epitomized by the winners of the Vilcek Foundation Prizes,” says Jan Vilcek, Chairman and CEO of the Vilcek Foundation. “Their work has extraordinary implications for our understanding of human biology and our prospects for treating human disease.”

The Vilcek Prize, awarded to individuals with records of significant accomplishment, is bestowed to Austrian-born molecular and cell biologist **Angelika Amon**, the Kathleen and Curtis Marble Professor of cancer research and a Howard Hughes Medical Investigator at the Massachusetts Institute of Technology. Amon studies cell growth and division, and how errors in these processes contribute to birth defects and cancer. Her research has identified molecular, protein, and spatial signals crucial to triggering progression in cell division, as well as how certain errors in cell division, a state called aneuploidy, lead to disorders like Down syndrome. Amon has also illuminated the interplay between aneuploidy and cancer cells, increasing the potential for new treatments capable of selectively targeting cancer cells. Among other honors, Amon has been elected into the U.S. National Academy of Sciences and the European Molecular Biology Organization, and received the Breakthrough Prize in Life Sciences and the Ernst Jung Prize for Medicine.

The Vilcek Prizes for Creative Promise are awarded to emerging biomedical scientists who have shown exceptional promise early in their careers. The recipients are the following:

Amit Choudhary’s research lies at the intersection of physics, biology, and chemistry. He identified a fundamental force integral to the structures of biomolecules like proteins and nucleic acids, opening up avenues for new modes of drug design and delivery, as well as insight into molecules tied to the origin of life. He refined controls for the genome-editing enzyme CRISPR-Cas9 to minimize unintended effects, increasing its potential for treating genetic disorders and curbing vector-borne diseases. His research on binge-eating snakes led to insights on insulin-secreting pancreatic beta cells, suggesting possible therapeutic approaches for human diabetes. Choudhary, born in India, is an assistant professor of medicine at Harvard Medical School, a member of the Renal Division faculty at Brigham and Women’s Hospital, and an associate member of Broad Institute.

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Jeanne Paz uses optogenetics, a technique in which light is used to control genetically modified brain cells in living animals, to understand the brain mechanisms underlying epileptic seizures in rodent models. Her work revealed the role of the basal ganglia and thalamus in mediating seizures with a genetic underpinning, as well as those following stroke-induced brain damage. Her research forms the potential basis for predicting and arresting seizures, even in cases of intractable epilepsy, with implications for treating brain disorders such as dementia as well. Paz, born in Georgia (then part of the Soviet Union), is an assistant investigator at the Gladstone Institutes and assistant professor at the University of California, San Francisco.

Mikhail Shapiro developed a new class of noninvasive imaging tools to visualize molecules and structures in living organisms at high resolution. Shapiro fashioned sensors allowing magnetic resonance imaging to visualize clinically relevant molecules, like dopamine, which play a role in various brain disorders. Then, he coopted structures known as gas vesicles, a biological feature in certain bacteria, to serve as ultrasound sensors; Shapiro also demonstrated that these and other biomolecules could be used to monitor and manipulate genetically engineered microbes, allowing for their greater potential as therapeutic drugs. Shapiro was born in Russia (then the Soviet Union), and is a professor of chemical engineering at the California Institute of Technology.

The prizewinners were selected by independent panels of biomedical experts. In addition to biomedical science, the 2019 Vilcek Foundation Prizes also recognize immigrant contributions in culinary arts and art history. The prizewinners will be honored at a gala at the Mandarin Oriental in New York in spring 2019.

The Vilcek Foundation was established in 2000 by Jan and Marica Vilcek, immigrants from the former Czechoslovakia. The mission of the foundation, to honor the contributions of immigrants to the United States and to foster appreciation of the arts and sciences, was inspired by the couple's careers in biomedical science and art history, as well as their appreciation for the opportunities they received as newcomers to this country. The foundation awards annual prizes to immigrant biomedical scientists and artists, sponsors cultural programs, and manages the Vilcek Foundation Art Collections. To learn more about the Vilcek Foundation, please visit Vilcek.org.