

UT Southwestern Medical Center

Zhijian “James” Chen, Ph.D., selected to receive Breakthrough Prize

October 17, 2018

To the UT Southwestern Community:

Please join me in celebrating Dr. Zhijian “James” Chen, whose research accomplishments are being recognized with the 2019 Breakthrough Prize in Life Sciences, considered one of the most prestigious international honors in the biomedical field. The Breakthrough Prize honors fundamental discoveries in the life sciences, physics, and mathematics that are transforming our world.

Dr. Chen was selected for his achievements in elucidating how DNA triggers immune and autoimmune responses from the interior of a cell through the discovery of the DNA-sensing enzyme cGAS.

He discovered several molecular pathways that detect pathogens inside cells and trigger the body’s immune response. One enzyme, cGAS, detects invading or misplaced DNA and has been linked to cancer and autoimmune diseases. cGAS senses the presence of DNA outside the nucleus, which is a sign that cellular functions have gone awry, and recruits cGAMP, starting a cascade of signals that ends up triggering an immune response. Dr. Chen began his distinguished career by revealing the critical workings of the protein ubiquitin, which is fundamental to identifying proteins inside cells for destruction and recycling processes to keep cells functioning. He later revealed that ubiquitin also played a crucial role in another protein, which he called MAVS in honor of the Dallas Mavericks, that sits on the outer membrane of the mitochondria. MAVS proved crucial in immune defense against viruses like influenza and Ebola.

Dr. Chen, Professor of Molecular Biology with the Center for the Genetics of Host Defense, has been engaged in exceptional scientific discovery at UT Southwestern since joining our faculty in 1997 after postdoctoral work at the Salk Institute in California. A Howard Hughes Medical Institute Investigator, he is also Director of the Center for Inflammation Research at UT Southwestern and holds the George L. MacGregor Distinguished Chair in Biomedical Science.

UT Southwestern is now honored to have two recipients of this prestigious award since the Breakthrough Prize in Life Sciences was launched in 2013. Dr. Helen Hobbs, Director of the Eugene McDermott Center for Human Growth and Development at UT Southwestern and a Howard Hughes Medical Institute Investigator, was recognized with the 2016 Breakthrough Prize for her transformative genetics research that she developed and used to identify key genes involved in lipid metabolism and fatty liver disease.

Dr. Chen’s 2019 Breakthrough Prize will be presented during a live, globally televised awards ceremony Nov. 4.

Daniel K. Podolsky, M.D.
President, UT Southwestern Medical Center