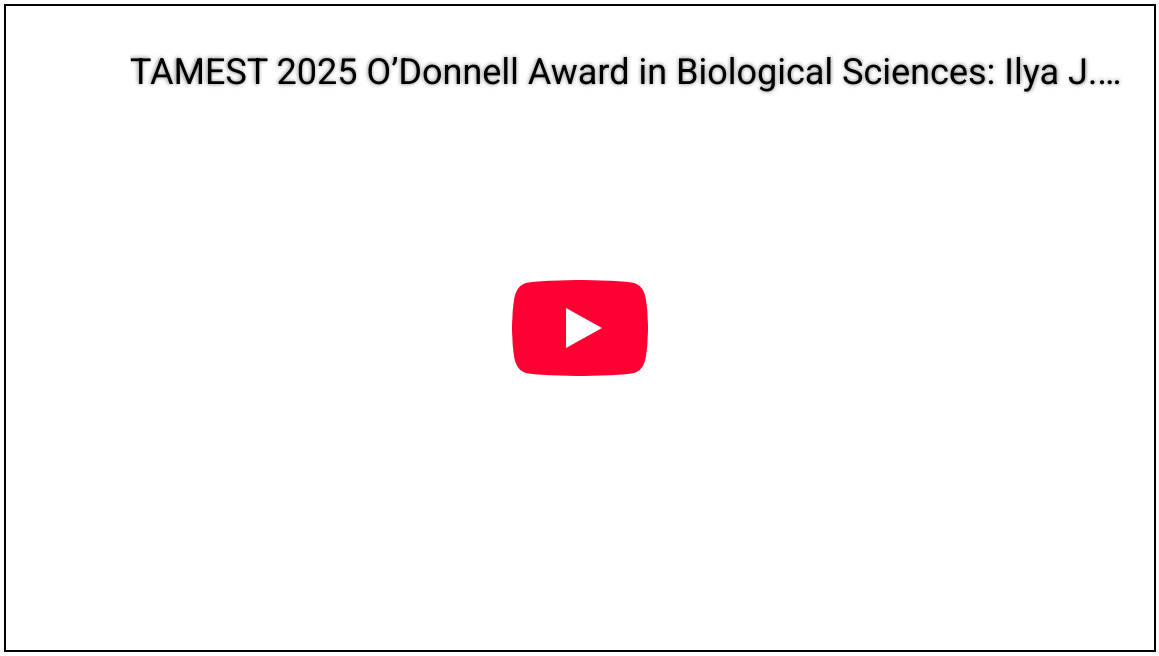
2025 O'Donnell Award in Biological Sciences: Ilya J. Finkelstein, Ph.D.



Pioneering molecular biologist Ilya J. Finkelstein, Ph.D., Associate Professor at The University of Texas at Austin, is the recipient of the 2025 Edith and Peter O'Donnell Award in Biological Sciences from TAMEST. He was chosen for his work improving the safety and efficacy of gene editing and understanding the mechanisms of DNA repair to potentially cure diseases.

Imagine being able to cure diseases, such as cancer, by fixing mistakes in your own DNA. Dr. Finkelstein and his team are aiming to do exactly that by studying how our cells maintain their genetic information, and how we can edit it safely.

The human genome is made up of billions of letters of DNA. Every individual cell, as it divides, must make an exact copy of its DNA and package it into the nucleus. If something goes wrong, much like a hard drive in a computer, it can corrupt the whole system, and the cell can turn cancerous. While some genome damage is natural, and special caretaker proteins can fix them on their own, cancers and other

diseases arise after the accumulation of too much DNA damage. Dr. Finkelstein is discovering how these caretaker proteins repair the genome, and how their dysregulation ultimately results in cancer. These studies can lead to future therapies that bolster our natural defenses against DNA damage.

Dr. Finkelstein and his team are also developing safe and effective ways to remove disease-causing errors by editing the genome. To do so, his laboratory has developed new approaches to study gene editing CRISPR enzymes and has discovered new types of gene editor proteins. These efforts have provided fundamental insights into how proteins interact with nucleic acids to shape our genomes. Ultimately, Dr. Finkelstein hopes to create safer and more effective gene therapies.

"Dr. Finkelstein is incredibly creative and able to pull things out of multiple disciplines to develop his work. There are thousands of people working on gene editing, but what sets Ilya apart is his ability to bring in approaches that nobody else has worked on," **said nominator Alan M. Lambowitz, Ph.D. (NAS), Professor of Molecular Biosciences and Oncology and Mr. and Mrs. A. Frank Smith, Jr. Regents Chair in Molecular Biology, The University of Texas at Austin.** "It's his ability to think outside the box and his diligence to follow his ideas through to completion and overcome all problems along the way that truly makes him unique. What he is doing will revolutionize the future of genetic disease therapeutics."

Dr. Finkelstein is one of five Texas-based researchers receiving the TAMEST 2025 Edith and Peter O'Donnell Awards. Recipients are chosen for their individual contributions addressing the essential role that science and technology play in society, and whose work meets the highest standards of exemplary professional performance, creativity and resourcefulness.

Dr. Finkelstein will be recognized at the 2025 Edith and Peter O'Donnell Awards Ceremony on **Wednesday, February 5, 2025**, and will give a presentation on his research preceding the award ceremony at the TAMEST 2025 Annual Conference: Transformational Breakthroughs in Irving, Texas, at the Westin Irving Convention Center at Las Colinas.

***About the O'Donnell Awards*:**

The Edith and Peter O'Donnell Awards annually recognize rising star Texas researchers who are addressing the essential role that science and technology play in society, and whose work meets the highest standards of exemplary professional performance, creativity and resourcefulness.

Thanks to a $1.15 million gift from the O'Donnell Foundation in 2022, the O'Donnell Awards have expanded to include an additional science award. The awards now recognize recipients in the categories of Medicine, Engineering, Biological Sciences, Physical Sciences and Technology Innovation. (Previously, the TAMEST O'Donnell Awards rotated its science award between physical and biological sciences every year.)

The Edith and Peter O'Donnell Awards are made possible by the O'Donnell Awards Endowment, established in 2005 through the generous support of several individuals and organizations. View a full list of supporters here.

***About TAMEST*:**

TAMEST was co-founded in 2004 by the Honorable Kay Bailey Hutchison and Nobel Laureates Michael S. Brown, M.D., and Richard E. Smalley, Ph.D. With more than 345 members, eight Nobel Laureates and 23 member institutions, TAMEST is composed of the Texas-based members of the three National Academies (National Academy of Medicine, National Academy of Engineering and National Academy of Sciences) and other honorific organizations. We bring together the state's brightest minds in medicine, engineering, science and technology to foster collaboration, and to advance research, innovation and business in Texas.

TAMEST's unique interdisciplinary model has become an effective recruitment tool for top research and development centers across Texas. Since our founding, more than 300 TAMEST members have been inducted into the National Academies or relocated to Texas.

TAMEST
3925 W. Braker Lane
Suite 3.8018, MS D8800
Austin, Texas 78759

(512) 471-3823
tamest@austin.utexas.edu

About TAMEST

TAMEST (Texas Academy of Medicine, Engineering, Science and Technology) was co-founded in 2004 by the Honorable Kay Bailey Hutchison and Nobel Laureates Michael S. Brown, M.D., and Richard E. Smalley, Ph.D. With more than 360 members, eight Nobel Laureates and 23 member institutions, TAMEST is composed of the Texas-based members of the three National Academies (National Academy of Medicine, National Academy of Engineering and National Academy of Sciences) and other honorific organizations. TAMEST brings together the state's brightest minds in medicine, engineering, science and technology to foster collaboration, and to advance research, innovation and business in Texas.

TAMEST's unique interdisciplinary model has become an effective recruitment tool for top research and development centers across Texas. Since their founding, more than 325 TAMEST members have been inducted into the National Academies or relocated to Texas.

Support TAMEST