

W.M. Keck Foundation Awards \$1 Million to UC San Diego Researchers Studying Pioneering Breakthrough for Pharmaceutical Sciences

To date, Keck has given \$16.8 million in grants to UC San Diego faculty members to support high risk/high reward research projects with global impact



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At the University of California, San Diego, scientists have received a \$1 million grant from the W.M. Keck Foundation to fund research into exploring a molecular approach to delivering drugs that could change the pharmaceutical industry worldwide. The W.M. Keck Foundation of Los Angeles supports “high risk/high reward” pioneering discoveries in groundbreaking studies that enable researchers to translate their innovative ideas into real world impact.

Steve Dowdy, a professor in the department of cellular and molecular medicine at UC San Diego School of Medicine, is collaborating with Yitzhak Tor, UC San Diego professor of chemistry and biochemistry, to develop a novel type of therapeutic platform that taps into the natural cellular process of RNA Interference (RNAi) and has the potential to target many of the undruggable disease genes involved in cancer, pandemic flu and Alzheimer's disease, plus many other genes.

“We greatly appreciate that the W.M. Keck Foundation decided to fund this project, which will allow us to complete the synthesis and in vivo proof of concept studies. Success here with this core technology will fundamentally change how RNAi therapeutics are developed,” says Dowdy.

Dowdy and Tor were the first UC San Diego scientists to be awarded funding in the Foundation's highly competitive Medical Research Program category for pioneering biological research, including the development of promising new technologies, instruction or methodologies. This program seeks to advance the frontiers of the life sciences by supporting basic research that is high-risk and has the potential to transform its field. As stated by the foundation, "Successful projects are distinct and novel in their approach of problems, push the edge of their field or question the prevailing paradigm."

Every Sunday afternoon, molecular biologist Dowdy grabs his surfboard and tries to catch a wave. It's a ritual that clears his mind and sparks his creativity.

"The waves are constantly changing," he says. "And when you are on the face of a 10- or 12-foot wave you are constantly adapting what you are doing. I find it freshens the mind and allows me to think in different ways."

That ability to find new approaches to problems has resulted in a career that has included deciphering critical aspects of the cell cycle, exploring tumor suppressors, and developing unique drug delivery systems.

Tor, a professor of chemistry and Traylor Scholar in Organic Chemistry, has been on the faculty at UC San Diego, for about 18 years. His research interests are diverse and range from RNA—small molecule interactions to the development and implementation of new drug delivery vehicles. Music is also a passion—he has been playing guitar for more than 40 years. Although not a professional musician, several years ago Tor finally fulfilled a 25-year-old dream and built a recording studio at home. Since then he has been regularly recording and producing his own CDs. "I find the creative process of composing, arranging and recording music to be liberating; it clearly enhances my scientific creativity" says Tor.

At higher education institutions, there is much excitement surrounding private support for scientific projects such as the research being conducted by Dowdy and Tor, providing the substantial and unrestricted funding that enables scientists to establish laboratories and pursue these types of discoveries. To date, Keck has given \$16.8 million in grants to UC San Diego faculty members to further their research, revolutionizing the impact of science from a simple case study to a discovery that with potential global impact.



Yitzhak Tor

With Keck Foundation funding, research oceanographer Jules Jaffe is designing, building and will deploy the world's first sophisticated underwater three-dimensional video microscope which will hopefully open a new field in biology through the study of marine micro-organisms using state-of-the-art hardware and software.

A grant from the Foundation helped support the cutting-edge genetic and neural system research of Ralph Greenspan, PhD. lead research scientist and associate director at The Kavli Institute for Brain and Mind at UC San Diego. Finding that there is a fundamental, unifying principle for the operation of biological networks, one that cuts across phylogeny and type of network, would revolutionize the natural sciences. This Keck project will utilize a research strategy to identify this principle.

The W.M. Keck Foundation is one of the nation's leading philanthropic organizations. Established in 1954, it is known for supporting pioneering research in medicine, science, and engineering. In addition to its research grants in the physical and life sciences, its giving includes major support for the Keck Observatory in Hawaii, the Distinguished Young Scholars in Medical Research Awards, and grants for early learning programs.

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