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Bioengineering Professor Christian Metallo Receives 2017 Camille Dreyfus Teacher-Scholar Award

Christian Metallo, a bioengineering professor at the University of California San Diego, has been named a Camille Dreyfus Teacher-Scholar. Metallo is one of 13 faculty members nationwide to receive the honor from the Camille and Henry Dreyfus Foundation.

Christian Metallo

The Camille Dreyfus Teacher-Scholar Awards Program supports the research and teaching careers of talented young faculty in the chemical sciences, including biochemistry, materials chemistry and chemical engineering. These faculty are within the first five years of their academic careers, have created an outstanding independent body of scholarship and are deeply committed to education.

The award provides an unrestricted research grant of $75,000. Metallo received the award for his research project “Metabolic Regulation of Lipid Diversity.” The project focuses on understanding how changes in cell and whole-body metabolism — the process of converting nutrients into body mass and energy — impact the production of lipids and fat in the body.

“This work will help us understand why certain diets cause obesity and diabetes, while others influence cancer progression or other disease processes,” Metallo said.

Metabolism gets re-wired in many diseases, said Metallo, including cancer, diabetes and rare genetic diseases, for example. By reverse engineering this “wiring,” he envisions that researchers will be able to trace metabolic pathways back to the roots of these diseases and in

turn discover new potential drug targets.

Metallo's approach is to track how individual atoms and molecules in food are used in the body and within cells. To do this, his lab incorporates stable isotopes — the kinds that are safe and not radioactive, like carbon-13 — into food sources and then locates where these isotopes end up by measuring how much of them are present in various cells, tissues and body fluids. So far, Metallo's research group has discovered that in some cases, metabolism of proteins and amino acids leads to production of fat in the body.

In addition to research, a focus of this project that is important to Metallo is education. His group participates in outreach programs aimed at sparking interest in engineering and science among high school students. Last year, Metallo and his team spent a week on the San Ysidro High campus during spring quarter, conducting hands-on activities and lectures to teach concepts related to his research to more than 140 students in five classes.

"I want to foster a better understanding of biochemistry and metabolism in students, from the high school to college and graduate school levels," he said.

Camille and Henry Dreyfus Foundation

Since its inception in 1970, the Teacher-Scholar program has awarded more than $47 million to support emerging young leaders in the chemical sciences.

"The Camille Dreyfus Teacher-Scholar Award is the Dreyfus Foundation's flagship program," said Mark Cardillo, executive director of The Camille and Henry Dreyfus Foundation. "The award supports exceptional young academic researchers at an early and crucial stage of their careers. They are selected based on their independent contributions to both research in the chemical sciences and education."

The Camille and Henry Dreyfus Foundation is a leading non-profit organization devoted to the advancement of the chemical sciences. It was established in 1946 by chemist, inventor and businessman Camille Dreyfus in honor of his brother Henry. The Foundation's purpose is "to advance the science of chemistry, chemical engineering and related sciences as a means of improving human relations and circumstances around the world."

For more information about the program and the Camille and Henry Dreyfus Foundation, visit http://www.dreyfus.org

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