Award Winning Trio: Three UCSF Grad Students Named Weintraub Awardees

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The Fred Hutchinson Cancer Research Center has announced the 2018 Harold M. Weintraub Graduate Student Award recipients. Among them are three PhD candidates at UC San Francisco — Eric Dang, Kamena Kostova, and Adam Larson.

Nominations for the prestigious award are solicited internationally. In all, 13 Weintraub Award recipients were named, representing 10 top research-intensive universities, including Harvard, MIT, Scripps, and Stanford. Only UCSF has three Weintraub awardees this year.

The Weintraub award and related symposium honor the late Harold M. Weintraub, PhD, a founding member of the Basic Sciences Division at the Hutchinson Center and a leader in the field of molecular biology.

"Hal was one of the most outstanding scientists of his generation, as well as one of the most unpretentious," said Dr. Mark Groudine, molecular biologist and special adviser to the Director's Office at Fred Hutch. "Hal had the knack of identifying the important questions in biology and designing experimental approaches that were creative, simple and elegant. The Weintraub Award not only honors Hal's scientific leadership but also his passion for supporting scientists at the very beginning of their careers."

All awardees will present their research findings in a scientific symposium on May 4 at the Hutchinson Center in Seattle.

The Graduate Division asked each of our Weintraub Award recipients to describe their
research.

Adam Larson is a PhD candidate in UCSF’s Tetrad Program.

"The human genome is tightly regulated such that some genes are active, while others are maintained in a silent state. Control of gene silencing is achieved, in part, by a specialized group of proteins that compact large areas of the genome. Once activated, a subset of these proteins form assemblies that can spool giant lengths of DNA into selective microenvironments. While still not fully understood, the emergent properties of these microstructures could change the way we think about organizing and maintaining our genome," Larson said.

Eric Dang is a PhD candidate in the Biomedical Sciences, Immunology Program.

Dang describes his research this way: "A critical question in metabolism is how mammalian cells maintain beneficial membrane cholesterol levels while preventing toxic cholesterol buildup. One mechanism to achieve sterol homeostasis involves classic biochemical end-product inhibition, whereby cholesterol itself can act to inhibit its own synthesis. Using mouse genetics and biochemistry, I studied a class of metabolites called oxysterols that are expressed by cells of the immune system and act to repress cholesterol production after pathogen encounter. This work led to new insights into how control of cholesterol metabolism promotes the proper balance between sterilizing immunity and pathological inflammation."

Kamena Kostova is a PhD candidate in the Biomedical Sciences Program and the Chuan Lyu Discovery Fellow.

"Protein biosynthesis is the most energy-consuming process in our cells. However, translation does not always go smoothly and occasionally a translating ribosome can get stuck on a message. The partially synthesized proteins that these broken ribosomes carry could cause numerous problems in the cell if not properly degraded. It has been recently appreciated that cells have a surveillance mechanism, provided by the ribosome quality control complex (RQC), to counter the threat posed by translation failure. Mechanistic characterization of the RQC had demonstrated that the RQC tags partially synthesized polypeptides with a short tag (called ?CAT-tail?). However, the biological significance of the addition of CAT tails had remained poorly understood. For my thesis work, I showed that the CAT tails serve as a fail-safe mechanism that ensures the degradation of the partially synthesize protein," Kostova said.

Read more about the Weintraub Award, the 2018 recipients, and the great work of the Hutchinson Center on the "Fred Hutch" website [1].

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