



BIOSPHERE

The Weekly Bulletin of Biology

Biology Colloquium: Friday, 7 September 2012, 2:00 pm in CR 5125

“Early Signaling in Plant Immunity”

Tenai Equen, Ph.D.

Department of Biological Sciences, University of California, San Diego

Dr. Jonathan Kelber Joins Faculty

This fall, **Dr. Jonathan Kelber** has joined the Department of Biology. He will be teaching Cell Biology (BIOL 380) both fall and spring, Biology of Cancer (BIOL 285) in the fall, and a Grad Seminar in Cell Biology (BIOL 565) in spring.

Kelber is a Southern California native who was born and raised in the Upland/Claremont area. He received a B.S. in Chemistry from Cal Poly Pomona, where he studied the relationship between amino acid structure and cell membrane perturbing functions of the HIV fusion peptide (gp41). Following completion of his undergraduate studies, he took a faculty appointment at the Webb Schools (a private, college-preparatory high school in Claremont), where he taught Chemistry, AP Biology, and Algebra II, while coaching the water polo and swim teams.

Kelber says, “It was both my experience in the research lab at Cal Poly Pomona and my time as a high school teacher and coach that solidified my passion for a combination of research and teaching.”

After earning an M.S. in Biochemistry at Cal Poly Pomona, Kelber moved to San Diego where he completed his Ph.D. in Biochemistry at UC San Diego. There he



studied under Dr. Wylie Vale at the Salk Institute for Biological Studies. Vale is best known for his seminal work on the hormone pathways that control the body’s responses to stress. As a graduate student, Kelber characterized the mechanisms of action for a more recently identified protein known as Cripto, which regulates both normal development and cancer.

“It was this body of work that guided me toward a passion for studying the underlying mechanisms that cause and regulate cancer,” he says.

For the past four years, Kelber has been studying the role of a novel non-receptor tyrosine kinase (PEAK1) during tumor initiation, growth, and metastasis at UC San Diego’s School of Medicine in the Department of Pathology.

His work with Drs. Richard Klemke, Andrew Lowy, and Michael Bouvet has led to two noteworthy publications. The first, in the *Proceedings of the National Academy of Sciences*, identified PEAK1 as a critical regulator of cellular motility and tumor cell migration through its ability to bind and

regulate the cytoskeleton. The second, published in *Cancer Research*, characterized the essential role for PEAK1 during pancreatic cancer initiation, growth, metastasis, and therapy resistance.

Kelber's lab at CSUN will have two research programs: (1) normal vertebrate development and (2) cancer biology.

- At the molecular level, they will continue to focus on Cripto and PEAK1 with an interest in the biochemical mechanisms by which these two developmental oncogenes promote healthy development, yet can be co-opted into inducing various malignancies. Developmentally, the initial focus will be on understanding the role that the Cripto co-receptor, GRP78, plays in development of zebrafish embryos. Thus, students will have the opportunity to learn techniques in zebrafish husbandry and how to characterize various stages of vertebrate development in genetic variants of this model organism.

- On the cancer side, Kelber and his students will focus on understanding the role of PEAK1 during ErbB2-induced tumorigenesis in mammary glands and the role that PEAK1 plays in resistance to ErbB2-targeted therapies. The chicken embryo provides an elegant system for studying tumor growth and metastasis *in vivo*, and students working on these projects will have the opportunity to learn the ins and outs of this model system.

Common cell biology, biochemical, and molecular biology methods will be used to address these topics. This fall, Kelber will be setting up his research lab with the help of a few undergraduates, and he plans to accept research students in spring 2013.

EDITORIAL: Past BIOL 106/L and 107/L Grades Stopping You Out?

It's a hard thing to tell a person, "The Biology major is not for everyone." That's what the faculty were saying when they

instituted the prerequisite of C or better in BIOL 106/L and 107/L for upper division classes in the major.

As students signed up for classes this fall, those who had done poorly in 106/L or 107/L in the past could not get into classes like Genetics and Evolutionary Biology.

Students are allowed to retake a class they did poorly in, but your chances of earning a satisfactory grade the second time will not improve unless the barriers to success are removed (spending more time studying effectively, reducing outside work and other responsibilities, etc.).

There is a strong statistical pattern: those who have done poorly in 106/L and 107/L very rarely graduate with a Biology major. Ultimately, we want you to finish college and be in a major that will allow you to flourish.

Different people have different types of intelligence and learn in different ways. There's no point in clinging to a major that is not going to work for you. Realizing that in your fourth year is much worse than in your second, particularly given a new University policy that creates obstacles for changing your major after 90 units.

New Publication

Mark Harris, Gabriele Meyer, Dr. Thomas Vandergon, and Dr. Virginia Vandergon have a new paper out in *Plant Molecular Biology Reporter*: "Loss of the acetyl-CoA carboxylase (*accD*) gene in Poales." Poales is the taxonomic order of grasses.

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Department of Biology
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