



science café

UCSF Program Encourages Breakthrough Biomedical Research

By Robin Hindery on November 2, 2009

UCSF scientists have begun to benefit from new federal grants supporting high-risk research. But long before such opportunities existed, UCSF formed its own program to encourage faculty and postdoctoral fellows to think boldly.

The Program for Breakthrough Biomedical Research (PBBR) currently awards about \$6 million every year to projects of potentially high impact that are substantially more creative or risky than projects supported by the National Institutes of Health (NIH) and other traditional funding mechanisms.

Despite its relatively small size, the 13-year-old program, formerly known as the Sandler Program in Basic Science, has generated more than \$300 million in subsequent grant funding, according to a 2008 retrospective review. In addition, the funded projects and their derivatives have resulted in more than 900 publications and about 50 patents, the review found.

“This is an example of a program that is a tiny fraction of UCSF’s research budget, but has proven itself over the years to have had an enormous impact,” said Keith Yamamoto, PhD, PBBR director and executive vice dean of the UCSF School of Medicine.

“Work that gets proposed under NIH grants is relatively linear and focuses on taking the next logical step,” he said at an Oct. 22 event hosted by the School of Medicine and the UCSF Office of Gift and Endowment Planning. “PBBR proposals seek to take quantum leaps.”

Appearing before a group of San Francisco investment and estate planning advisors, Yamamoto was joined by three UCSF faculty members who have received PBBR grants and who said their innovative work would not have been possible without the program.

Critical Support

“Quite honestly, there’s no way that the NIH would have funded this research,” said Wallace Marshall, PhD, an associate professor of biochemistry and biophysics, who is studying the engineering design principles behind the architecture of cells. “PBBR is really critical for starting something new.”

Wendell Lim, PhD, a professor of cellular and molecular pharmacology, said his lab’s PBBR grant enabled him to advance his research to the point where the NIH started to take notice. He has since received direct NIH funding for his efforts to engineer “smart cells” that are programmed to carry out novel therapeutic functions in cancer and regenerative medicine.

The PBBR also has opened doors for Allison Doupe, MD, PhD, whose pioneering and somewhat quirky research into songbird learning has revealed clues that may improve our understanding of human brain development and disorders such as autism, schizophrenia and Parkinson's disease.

Doupe, a professor of psychiatry and physiology and a member of the Keck Center for Integrative Neuroscience at UCSF, has found that songbirds, like humans, have specialized areas of the brain devoted to learning. By altering the part of the brain known as the basal ganglia, Doupe and her colleagues effectively eliminated variability in the birds' song, which in turn interfered with their ability to learn.

Since receiving her PBBR grant, Doupe has also obtained funding from the NIH, the National Alliance for Research on Schizophrenia and Depression (NARSAD), and the Research Network on Early Experience and Brain Development.

The PBBR, which is funded entirely by philanthropy, "is the kind of thing that makes UCSF a distinctive place to work," Yamamoto said. "The message to our researchers is: We so value the kind of thinking you do, and we want to support it and promote it."

A faculty committee oversees the allocation of PBBR funds in the form of seven different types of awards, including those aimed at faculty members who are just starting their careers; teams of researchers from widely disparate fields; and investigators seeking to invent and develop new technologies.

In addition, the PBBR provides unique research opportunities for postdoctoral fellows looking to explore research directions beyond the scope of their assigned lab, as well as for new PhD or MD recipients who are seeking to bypass the traditional postdoctoral traineeship or assistant professorship and focus entirely on independent research.

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