

# Supporting the Scientists of Tomorrow

How the Beckman Coulter Foundation is helping young researchers learn their way around a lab

Sixteen promising young scientists experienced life in the lab this past summer through the American Cancer Society's 2010 Youth Science Fellowship Program, sponsored by the Beckman Coulter Foundation and the University of California, Irvine (UCI).

Established in 1991, the program provides high school juniors and seniors with a six-week hands-on lab experience under the supervision of the UCI Cancer Research Institute. With mentors as their guides, students are assigned to projects that help support research benefitting the treatment and/or eradication of cancer and other various diseases.



The group of young scientists visiting our world headquarters in Brea, California.

"The research I was doing is a new area of study by my lab and therefore the results were both unprecedented and unknown," says Alex Tran, a student from Los Alamitos High School in California, who studied the function of the CD40 protein in immunity to *Toxoplasma gondii*, a protozoan parasite that currently infects one third of humans worldwide and can cause severe neurological disease and even death in people with compromised immune systems.

Under the guidance of his mentor, graduate student Michael Chang, Tran conducted his research in the laboratory of Dr. Melissa Lodoen. His research included infecting Human B cells with three strains of *T. gondii* and once infected, staining the B cells with either a control antibody or anti-human CD40. He then used flow cytometry to examine levels of CD40 expressed by infected cells.

"The most surprising thing I found out was the amount of work it takes to run any particular assay or test. I now understand why it takes so long to develop cures and vaccines," says Tran.

Other student lab projects included engineering reagents to bind to specific targets, differentiating stem cells into muscle cells to treat muscular dystrophy, creating an open source of clones for 8 of the 19 known human Wnt genes, and testing the ability of a specific drug at different concentrations to inhibit cancer cell growth on Lewis lung cancer (3LL) and human prostate cancer (DU-145) cell lines.

"In the beginning, my mentor would always give me a list of things that needed to be done at the start of the day, and then I could work off of that," says Megan Messerly, a student from Villa Park High School in California, who worked under graduate student mentor Johnson Tran in the Dr. Naomi Morrissette lab. "I got to decide a lot of what I did and when, though. And as the time went on, Johnson gave me more and more freedom to work on my project and do what I saw needed to be done."

Like Tran, Messerly was assigned to conduct research on *T. gondii*, though her research was on the novel proteins SPM1 and SPM2 found in the parasite. "My work ended up being helpful in furthering Johnson's research in understanding how these proteins relate to the microtubules of the parasite," she says.

More than 100 students—all of whom were recommended by a science teacher—applied for the 2010 program, and the final 16 candidates were selected by a committee comprised of employees and volunteers from Beckman Coulter, the American Cancer Society and UCI. "We seek students who display a sincere interest in cancer research or related science careers," says Dr. Hung Fan, director of the UCI Cancer Research Institute, who has been part of the program since its inception.

This is the fourth year that the Beckman Coulter Foundation has sponsored the Fellowship Program and helped young researchers pursue their future goals. Messerly and Tran both expressed their sincere gratitude. "I would like to thank the Beckman Coulter Foundation for funding such a magnificent program; and I really do hope that they continue to support this program, in order to stimulate the minds of other young scientists," says Tran.

"We are a proud partner in the 2010 American Cancer Society Youth Science Fellowship Program," says Marci Raudez from the Foundation. "To be part of such a unique opportunity for these students who are so brilliant, confident and excited about science is a real honor. As the scientists of tomorrow, we know that each one of this year's participants will go on to achieve great things." ●



Alex and Megan learning their way around the lab at UCI.

