

Science for Life

Summer 2008 Provost Scholars

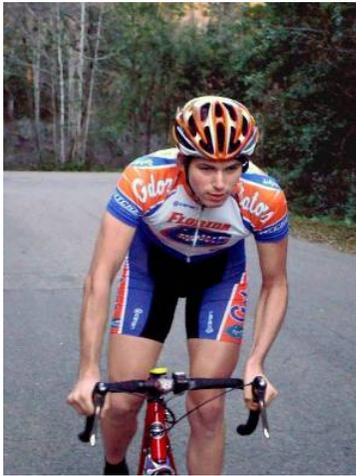
The purpose of the Provost Scholars Program is to introduce students who have shown research and academic success with mentors at the University of Florida (UF) campus to the exciting opportunities of working closely with faculty at other locations. Two distinctive features of this award are that competition challenges the students to seek *inspiration driven* research at any location in the world under the condition that they spend an *extended period* of at least a summer plus semester (seven months). Their research plan must be endorsed by their UF mentor and they must have a plan to continue with research upon their return. The following five students are the 2008 awardees.



Amy An is currently a junior majoring in Microbiology and Psychology, pre-med track. She has been in Dr. Connie Mulligan's lab, Department of Anthropology, since Spring, 2007. Her research involves using molecular methods, namely polymorphic *Alu* insertions, to study human migration out of Africa. She is currently working on two papers as a co-author: one on reconstructing human migrations out of Africa and the other on the identification of most informative *Alu* markers in mapping human migration. She is a co-author on an abstract accepted for the American Association of Physical Anthropology (AAPA) meeting Spring, 2008. With the Provost Award, she will have the opportunity to do research at Harvard University with Dr. Noreen Tuross, Department of Anthropology, for Summer and Fall, 2008. There, she will learn new methods of reconstructing migration events using stable isotopes. This opportunity will add a new and interesting dimension to her current work, and will result in a third paper as her senior honors thesis and a chance to present at the AAPA meeting in Spring, 2009.

Thomas Frederick is a third year undergraduate student pursuing a Bachelor's Degree in Chemistry along with a minor in Physics. He joined the research group of Dr. Gail E. Fanucci, an Assistant Professor of Chemistry at the University of Florida, in the Spring term of 2006 where he has utilized nuclear magnetic resonance and electron paramagnetic resonance to study the membrane morphology and biophysical properties of the unique phospholipid Bis(monoacylglycero)phosphate (BMP). Since beginning his research with Dr. Fanucci, Thomas has presented poster presentations of his findings at the Rocky Mountain Conference on Analytical Chemistry and at the Southeastern Magnetic Resonance Conference. Additionally he will be attending two national conferences that include the joint 52nd Biophysical Society, 16th IUPAB International Biophysics Congress in California and the ACS 235th National Meeting in New Orleans in Spring, 2008 to present his most recent data. Currently two manuscripts are in preparation for submission to the *Journal of Physical Chemistry B* and the *Biophysical Journal* of which Thomas is tentatively co-author and first author respectively. His Provost Scholar opportunity entails working with Dr. Ka Yee Lee, an Associate Professor of Chemistry at the University of Chicago, during the Summer and Fall semesters of 2008 to further characterize the lipid-lipid interactions of BMP on model membrane morphology and to study the protein-membrane interactions of the GM2 Activator Protein utilizing atomic force microscopy (AFM), cryo electron microscopy (cryo EM), langmuir-monolayer studies, and x-ray diffraction. These studies will result in two publications; one on the lipid-lipid interactions of BMP and another on the protein-membrane interactions of the GM2 Activator Protein.





Beck Frydenborg is a sophomore in the Honors program, double majoring in Biology and Microbiology and Cell Science, with a current GPA of 3.8. In the Spring of 2007, he began studying the genetics of maize pollen cells under the guidance of Professor Maria Gallo. After receiving a Howard Hughes Medical Institute research award, Beck spent the summer working in Dr. Gallo's laboratory, and in October 2007, he presented a poster at the Museum of Florida Natural History entitled "*Investigating Programmed Cell Death of Maize Pollen Cells Resulting in Cytoplasmically Inherited Male Sterility, Using Arabidopsis thaliana*". He is hoping to publish these results soon. As a recipient of the Provost Scholar award, Beck will spend eight months at Utrecht University, the Netherlands, to study developmental processes in animals (the nematode, *C. elegans*). At Utrecht, Beck will focus on emergent cures for cancer and other maladies under the direction of Dr. Sander van den Huevel. As an added benefit, Beck, who is an avid competitive cyclist, will have an opportunity to compete with the European bike racers. He hopes to proudly represent Team Florida on the road, and the Gator Nation in the laboratory.

Steven Robinette is a sophomore in the interdisciplinary Biochemistry and Molecular Biology program at the University of Florida. The first son of Colonel and Mrs. Timothy Robinette, military relocations moved Steven around the country and to Japan before he graduated from Niceville High School in 2006. A National Merit Scholar, Steven began at the University of Florida in Fall, 2006 and began working with the group of Dr. Art Edison that September. Since then, Steven has been awarded UF's Wentworth Scholarship, HHMI Undergraduate and Extramural awards, and has maintained a 4.0 GPA. Steven's work with the Edison group at UF and the group of Rafael Brüscheweiler at FSU has been presented at the 16th International *C. Elegans* Meeting and in a publication in the *Journal of Chemical Physics* currently in press. For the duration of his Provost Scholar Award, Steven will go to the Imperial College of London to work with the group of Dr. Jeremy Nicholson. His work will apply the analytical NMR techniques he helped develop with Dr. Brüscheweiler to active experiments in Metabonomics with Dr. Nicholson. Steven is shown with his father at the ruins of Hachioji Castle near Colonel Robinette's duty station at Yokota AFB, Japan.



Yong (Andy) Bin Tan is a sophomore in the Chemistry Department in the College of Liberal Arts and Sciences. Andy graduated from Pine View School for the Gifted, which is the #6 high school in the nation according to *U.S. News & World Report* rankings. In college, he plans on triple majoring in Biochemistry, Microbiology and Life Sciences, and Classical Civilization with a Pre-Medicine pre-professional track. Andy has a long-standing fascination with organelle biology. At the University of Florida, he currently works with HHMI Distinguished Mentor, Dr. Christine Chase in her plant mitochondrial lab. Andy's project involves molecular-genetic analysis of mitochondrial genes associated with pollen cell death in male-sterile maize. One aspect of his project involves the expression of a small hydrophobic protein in *E. Coli*. Due to this project, Andy has developed various research skills: PCR Reactions, DNA gels, protein extractions, protein gels, western-blotting, reverse transcriptase-PCR and routine cloning in *E. Coli*. Andy plans on presenting his project at the 50th Annual Maize Genetics Conferences, followed by publication of an article this year. After winning the Provost Scholar Award, he is going to work with Dr. Simon in the Department of Neurology at Beth Israel Deaconess Medical Center from May to December of '08. Andy will compare somatic mtDNA mutation levels in neurons and

glia from different brain regions at very early stages and at late stages of Parkinson's Disease. He is involved in various clubs, mostly centered on community services and medicine. During his free time, Andy enjoys reading novels and textbooks, and when the environment allows, snowboarding.

