

Dr. Reginald Halaby, from the Biology and Molecular Biology Department, received the National Institutes of Health's MARC Undergraduate Student Training in Academic Research (U*STAR) Award on June 1, 2007. This award is for approximately \$2 Million worth of funding for five years. Dr. Halaby is the principal investigator of this grant, MARC Program Director, and a faculty mentor. The MARC Program provides support for students who are members of minority groups that are underrepresented in the biomedical sciences to improve their preparation for graduate training in biomedical research. These minority groups include African Americans, Hispanic Americans, Native Americans, and natives of the U.S. Pacific Islands. Trainees must be honors students majoring in the sciences in the College of Science and Mathematics (CSAM) who have an expressed interest in a biomedical research career and who intend to pursue postgraduate education leading to the Ph.D., M.D./Ph.D., or other combined professional degree/Ph.D. The period of appointment to the MARC U*STAR Program is two years starting at the junior year.

The selection process for the MARC Program is highly competitive. Students are chosen by the MARC Steering Committee based on several criteria. The application requests students to write a 300-word essay describing their future aspirations, research experience(s), and research interest(s). Students must have completed the freshmen required courses in his or her major. The committee carefully reviews the grades that the applicants have received in their science courses.

Four students (Marcel Castor, Deanna De Vore, Anise Elie, and Vanessa Espinosa) are in the MARC Program in the first year of the grant and are currently engaged in the Summer Research Experience phase. There are six phases to the MARC Program: two summer periods (one each before junior and senior years) and the four semesters between junior and senior years. The MARC scholars are participating in very diverse and interesting research projects. Marcel Castor is conducting research in Lille, France, under the supervision of Dr. Michel Salzet, studying the leech *Hirudo medicinalis* because of its ability to regenerate neurons after lesions. He is performing high performance liquid chromatography (HPLC) and mass spectrometry on *Hirudo* tissue samples. Deanna De Vore is working with Dr. Halaby to elucidate the mechanisms that regulate apoptosis of human breast carcinoma cells, MCF-7 cells. She is studying the role played by caspases, cysteine proteases, in the initiation and execution of cell death, triggered by a Chinese herb, in MCF-7 cells and MCF-7 tumors growing in nude mice. Anise Elie is working with Dr. AnnMarie DiLorenzo to conduct mutagenesis assays on dust collected from the World Trade Center. She is performing karyotype analyses to determine if chromosome breakage and micronuclei number increase with exposure to the

WTC material. Vanessa Espinosa is working with Dr. Kirsten Monsen and performing PCR analyses on the Internal Transcribed Spacers 1 and 2 (ITS1 and ITS2) in a group of declining West Coast frogs. The ITS1 and ITS2 regions will be used in phylogeny reconstruction.

MARC students will continue working on their projects throughout their participation in the program during the academic year for at least 8 hours per week. Also during the academic year, trainees must attend departmental/College colloquia series and biweekly MARC Workshops on various topics (including data collection, interpretation, and presentation, manuscript preparation, writing a thesis, and GRE preparation, among others). MARC students receive financial support from the grant as follows: health insurance, payment of 60% of their tuition and fees, and a stipend of \$10,956. MARC scholars must maintain a minimum grade point average of 3.0 in their science courses in order to continue being supported by the MARC grant.

Dr. Halaby and members of the MARC Steering Committee are presently recruiting freshmen and sophomore students for the Pre-MARC Program. The Pre-MARC Program is designed to increase the retention of minority freshmen and sophomore students in the sciences and to bring the academic level of Pre-MARC students to MARC U*STAR eligibility.

The MARC Program will provide underrepresented minority students from CSAM, majoring in programs from the Departments of Biology and Molecular Biology, Chemistry and Biochemistry, and Earth and Environmental Studies, with the research experience and guidance they need to ensure their success in doctoral studies. Next year, we plan to accept six new students into the MARC Program, bringing the total number of students to ten by year 2 of the grant.

For additional information about the NIH MARC or Pre-MARC Program at Montclair State University contact Dr. Halaby at halabyr@montclair.edu.