Hauptman- Woodward Medical Research Institute Launches 2007 Research Intern Summer Program

The Hauptman-Woodward Medical Research Institute (HWI) has launched the 2007 Research Intern Summer Program. Students from schools throughout the United States have been selected to participate in the summer program.

HWI is pleased to have received funding for the summer program from Citizen’s Bank, Erie County, the First Niagara Foundation, the Verizon Foundation and the Western New York Foundation. As a result of the generous gifts given by these businesses and organizations, the summer program has resulted in $97,000 in support.

The summer program is designed to help improve science literacy and to encourage young people to pursue science careers. HWI’s research scientists offer hands-on state-of-the-art experience in research. The experience helps the students make decisions about careers in health-related professions.

For the past 34 years, summer student apprentices have been selected from college student applicants who are permanent residents of Western New York. We are particularly interested in attracting talented students majoring in the sciences at the undergraduate, graduate or professional level, to complement their educational training with an experience in an HWI laboratory working under the supervision and guidance of a principal research scientist.

Dr. Herbert Hauptman, Buffalo’s only Nobel Laureate, also is available to meet with and share his knowledge of the sciences and career opportunities in biomedical research. Each intern is involved in a scientific project using state-of-the-art equipment in the fields of molecular biology, methods development, crystal growth, and x-ray diffraction to find ways to prevent and treat diseases such as cancer, breast cancer, diabetes, AIDS, thyroid disorders, SARS and Alzheimer’s disease. Students must present their work in front of their mentors, members of the scientific staff, and other peer participants at the end of the program.

The following students will participate in this internship during the summer of 2007:

Nicholas Furlani is working with Dr. Robert H. Blessing on a computational analysis of high precision data on the structures of amino acids and small peptides. Furlani is currently studying engineering at Case Western Reserve University.

David Lotterer and Rebecca Robilotto are assisting Dr. Barnali Chaudhuri in her lab. Lotterer, a student at Cornell studying biological sciences, is working on cloning experiments dealing with RNA modification
enzymes. Robilotto, a graduate of Canisius College, has been accepted into Yale University’s computational biology and bioinformatics Ph.D. program. She is working on a computational project dealing with protein assembly design in the lab.

Jonathan Langer and Jennifer Makin are assisting Dr. Vivian Cody in her lab. Langer, a neuroscience and anthropology student at Indiana University, is expressing, purifying and crystallizing a family of GTP cyclohydrolase proteins, whose effects are studied as a model for Parkinson’s Disease. Makin, who is studying biology at Canisius College, is cloning, purifying, crystallizing and making mutants of human dihydrofolate reductase enzymes, which are targets for drugs and chemotherapy.

Deborah Makin and Claire Smith are working with Dr. William L. Duax. Makin, a bioinformatics and computer science student at Canisius College, is working to group families of proteins based on sequences so that substrates can be predicted. Smith is studying computer science and engineering at the Massachusetts Institute of Technology and is working to identify substrates of short chain oxidoreductase enzymes by studying fingerprints.

Elizabeth Nowak and Keri Omphroy are assisting Dr. Debashis Ghosh in his lab. Nowak is studying African studies and biology at Harvard College. Omphroy is studying nuclear medicine at the University at Buffalo. Nowak and Omphroy are both working to clone, express and purify the aromatase enzyme system in the lab.

Mehwish Ghauri and Matt Varacallo are working in Dr. Andrew M. Gulick’s lab studying essential proteins from Pseudomonas aeruginosa, a bacterial pathogen that is prevalent in hospital-acquired infections and causes chronic infections in patients with Cystic Fibrosis. Ghauri is studying pharmaceutical sciences at the University at Buffalo. Varacallo is currently studying biochemistry at Washington & Jefferson College.

Robert Johnson is assisting Dr. Peter J. Horn in his lab developing a recombinant expression system to produce the fission yeast Rik1, Raf1 and Raf2 proteins, aimed eventually at studying their physical association with each other. Johnson is a pre-med student at D’Youville College.

Martha Clark and Ria Swanekamp are developing high-throughput crystallization methods in the laboratory of Dr. George DeTitta and Joseph Luft. Swanekamp is a student at Grove City College and is studying chemistry with a minor in business. She is preparing crystallization cocktail combinations of chemicals used for high-throughput identification of protein crystallization conditions. Additionally, both students are analyzing and interpreting data from thousands of crystallization experiments to quantify the impact of the methods they are helping to develop.

Andrew Luly, who is studying information technology at the Rochester Institute of Technology, is working with Max Thayer to develop a web-based interface to integrate data generated in the laboratories with a database. This will allow scientists to more efficiently track the thousands of experiments that are set up each day, permitting them to more rapidly analyze and interpret their results.

Melvin Parker is currently studying biomedical engineering at Brown University. He is working with Dr. Edward Snell and Joseph Luft. Parker is programming an Epson robot; enabling it to perform repetitive, laborious tasks, such as picking up and sorting thousands of small vials containing crystallization cocktails. Parker is also using software to design tools that a robot can use to perform these tasks. This work is integrated with the high-throughput crystallization laboratory.

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Namrita Mozumdar is assisting Dr. Mary Rosenblum in her lab. Mozumdar is a graduate of Boston College with a bachelor’s degree in English and a minor in Chemistry. This fall she will be attending Roswell Park entering the Masters in Natural and Biomedical Sciences program. She is working on the development of membrane protein crystallization screens in the lab.

Rebecca Pietrasik and Ryan Rimmer are assisting Dr. Wayne Schultz in his lab. Pietrasik, who is majoring in biology at SUNY Geneseo, is studying the SARS virus and is conducting stabilization and crystallization experiments on viral polyproteins. Rimmer, currently a student at Cornell University, is studying microbiology with a minor in economics and management, is using a fluorometer to quantitate the interaction of SARS virus non-structural proteins with RNA.

Ann Marie Wojtaszycyk and Martin Glose are assisting Dr. Edward H. Snell in his lab. Wojtaszycyk, a student at Canisius College studying biochemistry, is working to grow larger crystals for neutron diffraction. Glose is studying physics engineering at John Carroll University. Glose is currently imaging the rapid cooling of biochemicals and crystals- an important technique in crystallography.

Elaina Sendro is assisting Dr. Timothy C. Umland in his lab. Sendro currently is attending Washington & Jefferson College, where she is studying biochemistry and Spanish. She is working to clone, express and purify the DNA binding domain from the protein prep1, and then crystallize the protein-DNA complex.

Loknath Bharti, currently a computer engineering student at the University at Buffalo, is writing web-based interfaces for structure determination programs developed at HWI, under the direction of Dr. Charles M. Weeks.

ABOUT HWI

With more than 50 years of exceptional scientific research, HWI is an internationally-renowned independent, non-profit facility specializing in the area of fundamental biomedical research known as structural biology. HWI’s team of more than 75 staff members is committed to improving human health by studying the causes of diseases, as well as potential therapies, at their basic molecular level. HWI is located in the heart of the Buffalo Niagara Medical Campus in downtown Buffalo, New York, in a new state-of-the-art structural biology research center at 700 Ellicott Street. For more information, visit HWI’s website at www.hwi.buffalo.edu or call 716-898-8600.