

APS Presents Awards to Outstanding High School Students at the 59th Annual International Science and Engineering Fair

The 59th Annual Intel International Science and Engineering Fair (ISEF), presented by Agilent Technologies, was held in Atlanta, GA May 11-16, 2008. Nearly 1,500 students from 50 countries, and territories competed in the world's largest pre-college science competition. During the two evenings of ceremonies, over \$4 million in scholarships, prizes, and awards were distributed in categories ranging from behavioral science to engineering and medicine. More than 500 Intel ISEF participants received scholarships and prizes for their work. Prizes included scholarships, cash awards, scientific field trips to foreign countries and the grand prizes: three \$50,000 scholarships from Intel. Grand awards included 18 "Best of Category" winners who each received a \$5,000 Intel scholarship and a new laptop. Special Awards are presented by over 70 scientific, professional, and educational organizations.

For the 13th year, the APS presented four Special Awards in the form of cash prizes, certificates and student subscriptions for the best projects in the physiological sciences. This year's APS judging team included L. Britt Wilson, Robert Hester, Doug Eaton, Otto Froehlich, Peter Wenner, and Wylie Nichols.

The convention center was packed with poster projects ranging from physiology-based research done at home or at medical schools, to complex robotics with computer driven controls. Students spent two days being interviewed by judges, and participated in a panel discussion featuring Nobel Laureates. As judges, we previewed almost 100 proj-

ects to select 22 that best fit the category of "physiology." We interviewed each of these finalists to evaluate their involvement in the project and to determine their understanding of the science and experimental design behind the project. After two days of interviews, we chose the following projects to receive APS awards for excellence in physiological research.

Receiving \$1,000 and first place was Harrison Phu Nguyen, 17, Detroit Catholic Central High School, Novi, MI for his project entitled "Combating Muscle Atrophy: A Novel Study of Myofibril Turnover in *Sternopygus macrurus*." His work studied the behavior of the protein MuRF-1, which mediates atrophy. Harrison demonstrated that MuRF-1 is more prevalent in slow-twitch muscle fibers than in fast-twitch and is more abundant around the outside of cells. Harrison displayed the enthusiasm and desire of a young bench scientist. He was also awarded a best of category winner for Cellular & Molecular Biology receiving a fourth place award and \$500. He also received a \$1,500 second place award from the United States Air Force.

Second place and a \$500 award went to Diya Dwarakanath, 17, Westview High School, Portland, OR for her project entitled "Role of Calcium/Calmodulin-dependent Protein Kinases in BDNF-induced AMPA Receptor Surface Trafficking." Her work examined the pathway on how Brain Derived Neurotrophic Factor (BDNF) activates AMPA receptor trafficking. She proposes that this work will lead to a better understanding of diseases involving synaptic plasticity abnormalities.

Dallas Krentzel, 17, of Airline High School in Bossier City LA was awarded one of the two third place awards (\$500) for his project entitled "Is 4,4' Methylene-dianiline-Induced Vascular Toxicity a Model for Pulmonary Hypertension?" Dallas' work focused on 14,4'-Methylene-dianiline (DAPM) which is a compound used in the production of polyurethane. Dallas



APS members who served as Special Awards judges at the Intel ISEF. Pictured from left to right: Robert Hester, Otto Froehlich, Britt Wilson, Wylie Nichols and Peter Wenner. Doug Eaton not pictured.

demonstrated that exposure to DAPM resulted in smooth muscle proliferation in pulmonary arteries and veins.

Third place was also awarded to Jourdan Urbach, 16, of Roslyn High School in Roslyn Heights, NY. Jourdan's work, entitled "The Effect of Extracellular Signaling Molecules on Oligodendrocyte Differentiation, Morphology, Proliferation, and Survival." Jourdan analyzed the proliferation, survival, maturation, and morphology of oligodendrocytes exposed to laminin and various immunocytokines. He found that oligodendrocytes exposed to laminin and immunomodulators differentiated at a rate greater than interferon-Beta, a current treatment for Multiple Sclerosis. Jourdan was also awarded a Tuition Scholarship ranging from \$6,000-\$9000 from the University of the Sciences in Philadelphia. He also received a third place award of \$150 from the Patent and Trademark Office Society.

The winners also received an APS certificate, a t-shirt, and a one-year subscription to APS publications.

These winners are a small sample of the many outstanding projects we had the opportunity to judge. The finalists at the fair were outstanding students and were extremely knowledgeable about their projects. The Intel ISEF is a wonderful event and I was honored to represent APS at this celebration. ❖

Robert L. Hester
Univ. of Mississippi
APS Education Committee



The winners of the APS Special Awards at the 2008 Intel ISEF. Pictured from left to right: Jourdan Urbach, Dallas Krentzel, Harrison Phu Nguyen, and Diya Dwarakanath with Lead Judge, Robert Hester.

For more information on the APS annual awards at ISEF, visit: <http://www.the-aps.org/education/isef/>.