Meet Our 2008 Undergraduate Researchers!

<table>
<thead>
<tr>
<th>Type of Institution</th>
<th>Graduation Year (Anticipated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40% US Doctoral/Research Universities-Extensive</td>
<td>2007: 4%</td>
</tr>
<tr>
<td>9% US Doctoral/Research Universities-Intensive</td>
<td>2008: 58%</td>
</tr>
<tr>
<td>9% US Medical Schools/Medical Centers</td>
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<tr>
<td>14% US Master’s Colleges &amp; Universities</td>
<td>2009: 22%</td>
</tr>
<tr>
<td>10% US Baccalaureate Colleges-Liberal Arts</td>
<td>2010: 7%</td>
</tr>
<tr>
<td>6% Canadian Universities</td>
<td>2011: 8%</td>
</tr>
<tr>
<td>13% International Universities</td>
<td>2014: 1%</td>
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<table>
<thead>
<tr>
<th>Majors</th>
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<tbody>
<tr>
<td>51% Biology (animal science, life sciences/physiology/nutrition/cell)</td>
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<tr>
<td>12% Exercise Science/Kinesiology</td>
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<tr>
<td>10% Medicine</td>
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<tr>
<td>8% Neuroscience</td>
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<tr>
<td>8% Biochemistry</td>
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<tr>
<td>6% Chemistry</td>
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<tr>
<td>3% Biomedical Engineering</td>
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<tr>
<td>3% Liberal Arts</td>
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<table>
<thead>
<tr>
<th>Research Focus</th>
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<tbody>
<tr>
<td>52% Cardiovascular</td>
</tr>
<tr>
<td>49% Cell &amp; Molecular</td>
</tr>
<tr>
<td>26% Central Nervous System</td>
</tr>
<tr>
<td>9% Comparative &amp; Evolutionary</td>
</tr>
<tr>
<td>30% Endocrinology &amp; Metabolism</td>
</tr>
<tr>
<td>28% Environmental &amp; Exercise</td>
</tr>
<tr>
<td>9% Gastrointestinal &amp; Liver</td>
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<tr>
<td>18% Neural Control/Autonom. Regul.</td>
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<tr>
<td>14% Renal</td>
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<tr>
<td>9% Respiration</td>
</tr>
<tr>
<td>11% Water &amp; Electrolyte Homeostasis</td>
</tr>
<tr>
<td>16% Other (oncology, immunology, etc.)</td>
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<table>
<thead>
<tr>
<th>Years of Research Experience</th>
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<tbody>
<tr>
<td>24% 1-2 years</td>
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<tr>
<td>41% 2-3 years</td>
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<tr>
<td>29% 3-4 years</td>
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<tr>
<td>4% 4-5 years</td>
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<tr>
<td>2% &gt;5 years</td>
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<table>
<thead>
<tr>
<th>Major</th>
<th>Graduation Year (Anticipated)</th>
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<tbody>
<tr>
<td>Biology (animal science,</td>
<td>2007: 4%</td>
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<tr>
<td>life sciences/physiology</td>
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<tr>
<td>nutrition/cell)</td>
<td>2008: 58%</td>
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<tr>
<td>Exercise Science/Kinesiology</td>
<td></td>
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<tr>
<td>Medicine</td>
<td></td>
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<tr>
<td>Neuroscience</td>
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<tr>
<td>Chemistry</td>
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<tr>
<td>Biomedical Engineering</td>
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<tr>
<td>Liberal Arts</td>
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<table>
<thead>
<tr>
<th>Future Plans</th>
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<tbody>
<tr>
<td>38% Graduate School only</td>
</tr>
<tr>
<td>33% Medical School only</td>
</tr>
<tr>
<td>14% Graduate and Medical School</td>
</tr>
<tr>
<td>16% Other Professional School</td>
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The American Physiological Society
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Dale J. Benos, Past President
Irving H. Zucker, President-Elect

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- Melinda Lowy, Higher Education Programs Coordinator

2008 APS
Undergraduate Poster Session
and
David S. Bruce Award for Excellence in Undergraduate Research Reception

Recognizing the Undergraduate Researcher

Experimental Biology 2008
Sunday, April 6, 2008
San Diego Convention Center, Sails Pavilion
San Diego, CA
David S. Bruce

David S. Bruce (1939 - 2000) served as Chair of the APS Teaching Section and as a professor of physiology at Wheaton College from 1978-2000. Dr. Bruce was a dedicated physiology educator who played active roles in both the APS and the Society for Integrative & Comparative Biology. As an undergraduate educator at Wheaton College, Dr. Bruce had a particular interest in engaging undergraduate students in scientific research. Dr. Bruce not only encouraged and supported his students in participating in research, but he also regularly brought undergraduate students to the Experimental Biology meeting, often to present their research findings. In 2000, Dr. Bruce died at the age of 61 of complications following a kidney transplant. This award honors Dr. Bruce’s commitment to promoting undergraduate involvement in research, in the APS annual meeting, and, ultimately, in research careers.

APS Congratulates the 2008 Bruce Award Finalists

Blair S. Ashley, College of William & Mary
Rachael C. Cnich, Colorado State University
Matthew P. Dukes, University of Mississippi Medical Center
Sara M. Freiberg, University of Wisconsin, Madison
James Godfrey, Chapman University
Marisa Goo, University of California, Davis
Kristy M. Heppner, University of Illinois at Urbana-Champaign
Sarah J. Jefferson, Pennsylvania State University
Sumit Kar, Creighton University/University of Nebraska Med. Ctr.
Lindsay M. Koepper, Villa Julie College/Univ. of Maryland, Baltimore
Sarah K. Nelson, University of Arizona
Thais G.C. Oliveira, Federal University of São Paulo/UNIFESP
Jessica R. Priestley, Michigan State University
Kent A. Riemondy, University of Utah
Mark T. Sausen, University of Delaware
Richa Sharma, Indiana University
Ali Shawki, University of Cincinnati
A. Caitlynn Taylor, Asbury College/University of Kentucky
Jennifer von der Heiden, Medical University of South Carolina
Victoria Youngblood, University of New Mexico

2008 Undergraduate Presenters

Amos, Adam D.
Indiana University-Purdue University, Indianapolis
Changes in cell function and protein expression of mouse renal principal cells, mpkCCD, after carbon nanoparticle (CNP) exposure

Anand, Neelesh K.
University of Arizona
Investigating the nephron architecture between the outer and inner medulla of the rat kidney

Anthony, Claire M.
University of Arizona
The analysis of avian plasma for the glycation of serum albumin

Arai, Christina A.
College of William & Mary
Effects of resveratrol on endothelial nitric oxide synthase (eNOS) phosphorylation and interaction with regulatory proteins

Arntzen, Kaitlin
Union College
Effects of oviposition on jump performance in the American locust (Schistocerca americana)

Arthur, D’Ann E.
Trinity University
Recovery from oxidative stress: effects on the tight junction in epithelial cells

Ashley, Blair
College of William & Mary
Hyperhomocysteinemia impairs agonist-induced eNOS phosphorylation on S1179

Azevedo, Stefanie M.
New Mexico Tech
EDHF prevents endothelial dysfunction in response to a high-fat diet in the Wistar rat

Baran, Caitlin N.
Ithaca College
Remodeling of the guinea pig intracardiac plexus following pressure overload-induced cardiac hypertrophy

Bertagnolli, Mariane
Universidade Federal do Rio Grande do Sul
Angiotensin system is mediating cardiac oxidative stress and p38 expression in SHR

Bilyk, Olenna
Saint Mary’s College
Effects of benzocaine on vascular smooth muscle contractility of the sea lamprey dorsal aorta

Blum, Austin W.
Cornell University
Effects of aedeskinins and analogs on the basolateral membrane voltage (Vbas) of principal cells of Malpighian (renal) tubules of the adult yellow fever mosquito

Bowden, Christie N.
Radford University
Central a-melanocyte stimulating hormone causes more potent anorexigenic effect in a line of chickens containing anorexic individuals as compared to a line that is obese

Bowman, Heather R.
University of Michigan
Acetylcholine (ACH) release in rat trigeminal motor nucleus (MoV) is increased by microdialysis delivery of morphine

Brestoff, Jonathan R.
Skidmore College
The antioxidant MnTBAP induces weight loss and enhances insulin sensitivity in mice fed a normal chow diet or a high fat diet

Calchary, Wendy A.
Radford University
Effect on Callictonin gene-related peptide (CGRP) on avian appetite-related processes

Carta, Kerin M.
Syracuse University
Vasculature changes and blood pressure reductions following both resistance and aerobic training despite age or body fatness in hypertensive individuals

Cascino, Thomas M.
Henry Ford Hospital
Adventitial hydrogen peroxide (H2O2) impairs rat carotid artery relaxation via mediators p38 MAPK

Chen, Andrew
University of California - San Diego
Microvascular network restructuring associated with MMP inhibition in spontaneously hypertensive rats

Cheng, Joyce
McMaster University
Prevalence of premedical syndrome in the Bachelor of Health Sciences and Arts & Sciences Programs at McMaster University

Chu, Kevin
Mayo Clinic College of Medicine
Biological nanoparticles and platelet activation

Cotter, David G.
University of Nevada
Dysregulation of SUMOylation during hibernation

Creason, Lacey B.
Indiana University - Purdue University at Indianapolis
Effect of dietary flavonoids on hormone-stimulated ion transport in renal principal cells

Cnich, Rachael C.
Colorado State University
Membrane trafficking of TRPM4 in smooth muscle cells
Penn State Erie
The effects of growth factors on hIK1 protein expression levels in transfected HEK293 cells
O'Rourke, Kellie L.
Winona State University
Polyphenol content and antioxidant capacity of eggplant skin
Olson, Rachel M.
Federal University of São Paulo
Vitamin C administration reverses blood pressure increase induced by sucrose feeding
Reactive oxygen species attenuate endothelium-dependent pulmonary vasodilation following intermittent hypoxia
University of New Mexico
Endothelial to mesenchymal transition and circulating cells contribute to fibroblast formation following renal ischemia reperfusion
Friedrich, J.
Indiana University
Immunocytochemical distribution of H-K-ATPase beta-subunit in the hyperglycemic mice
Elmore, Zachary C.
Trinity University
Metalloproteinase action on the tight junction in epithelial cells
Ebers, Andrew M.
Schistocera americana
Growth within an instar reduces jumping performance in American locusts
Duffy, Bridget M.
University of North Dakota
Alpha-1 adrenergic receptor regulation of seizures and neurodegeneration
Luger, Elizabeth
University of California, San Diego
A grid service-based workflow for in-silico screening of chemical inhibitors of phosphatases
Yonsei University College of Medicine
Role of the T-type calcium channel in the spontaneous phasic contraction of pregnant rat uterine smooth muscle
Lee, Si-eun
University of North Dakota
Alpha2A adrenergic receptor-mediated inhibition of mouse hippocampal CA3 network activity
Lakin, Lindsay M.
University of Maryland, Baltimore
Mitochondrial Acetyl-CoA synthase activity is related to intramyocellular triglyceride and oxidative capacity in lean and obese rhesus monkeys
Koehler, Missia
University of Georgia
Flurbiprofen inhibits glioblastoma proliferation and migration by a COX-independent mechanism
Kowalewska, Paulina M.
McMaster University
Characterization of the hepatic endothelial glycoalyx of sialidase deficient mice in response to TNFα
Kubica, Agnieszka
University of Wisconsin-Madison School of Veterinary Medicine
The role of neonatal testosterone in the development of carotid body morphology in male rats
Lark, Daniel S.
University of Wisconsin-Madison
The effectiveness of novel anti-nociceptive compounds targeting transient receptor potential vanilloid 1 (TRPV1) channels
May, Kelsi J.
West Texas A&M University
Evaluation of a novel vibration perception threshold instrument
McGeachy, Matthew
Louisiana State University
Alterations in toll-like receptor regulation in the liver from horses with laminitis
Mendes, Roberta H.
Federal University of Rio Grande do Sul
Baroreflexive impairment is correlated with high superoxide dismutase activity in methionine-treated rats.
Mendes, Vanda
University of Porto Faculty of Medicine
Adipocyte effects of xanthohumol
Misiak, Kristen
University of Florida
Tolerance of a chanooffagellate to environmental stresses
Moeser, Adam E.
University of Wisconsin
Exercise-induced plasticity in the hypoglossal nucleus of young and old rats
Moredock, Kaitlin M.
University of Dayton
Aquaporin-4 expression is altered along the lateral ventricle in correlation with beta-amyloid plaque expression in a transgenic mouse model of Alzheimer's Disease
North, Matthew K.
University of Arizona
Long term vasopressin regulation of renal AQP2 and urea transporters in mice with a reduced urinary concentrating ability
Nguyen, Dan
University of Mississippi School of Pharmacy
Acetycholine receptor-mediated contractility of ovine pulmonary arteries: changes with maturation and chronic hypoxia
Norton, Charles E.
Federal University of São Paulo
Reactive oxygen species attenuate endothelium-dependent pulmonary vasodilation following intermittent hypoxia
Oliveira, Thais G. C.
Winona State University
Polyphenol content and antioxidant capacity of eggplant skin
O'Rourke, Kellie L.
Penn State Erie
The effects of growth factors on hIK1 protein expression levels in transfected HEK293 cells
Pantherophis guttatus
Neuromuscular junctions are more sensitive to onset of aging than myofibers.

Roby, Mackenzie A.

Biomedical Science Graduate Program

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2008 Undergraduate Presenters

Ortega, Jocelynn M.
University of Florida

H2S toxicity via oxidative damage in erythrocytes of a sulfide-tolerant marine invertebrate

Ortega, Jessica A.
University of Florida

Hypotaurine protects against H2S-induced oxidative stress and cell death in erythrocytes from an H2S-tolerant marine worm

Palacios, Mariana Y.
Amherst College

Nonlinear analysis of breathing patterns in development of acute and chronic lung injury

Peebles, Evan R.
Linfield College

Inhalation of dry, normobaric hypoxic air impairs thermal conditioning of nasal air in humans: potential role of nitric oxide

Phipps, Charlie
Skidmore College

Dietary induced insulin resistance is independent of mammalian target of rapamycin complex 1 (mTORC1) activity in skeletal muscle of mice

Prall, Brian C.
Radford University

Stresscopin causes anorexigenic effects in chicks

Prall, Brian C.
Radford University

Central and peripheral alytesin cause short-term anorexigenic effects in neonatal chicks

Pribula, Jacqueline
University of North Dakota

Alpha-2A adrenergic receptor activation inhibits rat hippocampal CA3 network activity

Priesley, Jessica R.
Michigan State University

Determination of energy requirements for P-glycoprotein function in eastern oysters, Crassostrea virginica

Rice, Cory D.
University of Pittsburgh

Mapping of spinal cord and brainstem inputs to phrenic motoneurons using transneuronal transport of rabies virus N2C in the cat

Riemondy, Kent
University of Utah

Inactivation of GATA3 in Principal Cells Leads to a Concentrating Defect

Roby, Mackenzie A.
College of William and Mary

Neuromuscular junctions are more sensitive to onset of aging than myofibers

Rowan, Sharon
University of Calgary

Long term exercise training exacerbates sarcopenia and only modestly attenuates apoptosis

Sandoval, Christopher L.
University of Wisconsin-Milwaukee

670 nm LED treatment affects hyperglycemia-induced oxidative stress in skeletal muscle in diabetic rats

Sausen, Mark T.
University of Delaware

The exercise pressor reflex in hypertensive humans

Shah, Ashini
University of California, Riverside

Perinatal exposure to PBDEs elevate systolic blood pressure in response to hyperosmotic stimulation in aged adult rats

Shah, Maltreyee
University of Florida College of Medicine

Cerebral hyperperfusion increases neuronal nitric oxide synthase abundance in the ovine fetal brainstem

Sharma, Richa
Indiana University School of Medicine

Detrusor muscle contractility and compliance are impacted by diet in Ossabaw miniature pigs with metabolic syndrome (MetS)

Shawki, Ali
University of Cincinnati College of Medicine

Molecular impact of divalent metal-ion transporter (DMT1) mutations (V114del and G212V) found in a compound heterozygote with microcytic anemia and hepatic iron overload

Suzuki, Tomoharu
University of Tsukuba

Preservation of endothelial cell/pericyte adhesion by cilostazol in ischemic limb of diabetic mouse

Tai, Kaniza
Brigham & Womens Hospital

Thiol reducing agents provide protection and rescue for gastric glands following monochoramin-induced injury

Taylor, Anna C.
Asbury College

Role of forebrain TRPV1 receptors in body fluid homeostasis

Thornton, Doug K.
University of Nevada, Las Vegas

Natural versus induced arousal from torpor: differences in fuel utilization and rewarming dynamics

Tsai, Min-Chien
National Defense Medical Center

Shearstress induces synthetic-to-contractile phenotypic change of smooth muscle cells via paracrine effect of prostacyclin from endothelial cells and the PPAR-α/d pathways

University of Alabama at Birmingham

Determination of MLSS: two tests are better than one

Yahiro, Atsuco
Cornell University

Identification of Na-driven anion exchanger (NDAE) splice variants from Malpighian (renal) tubules of the adult yellow-fever mosquito

Yeh, Yi-Ting
National Tsing-Hua University

The mechanism of phenotypic modulation of vascular smooth muscle cells: role of extracellular matrix and PDGF-BB/IL-1b

Youngblood, Victoria M.
University of New Mexico

Intermittent hypoxia in rats inhibits endothelium-dependent vaso dilatation, and hibernation

APS thanks the sponsors of the Undergraduate Poster Session

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