### Meet Our 2011 Undergraduate Researchers!

#### Type of Institution
- 58% US Doctoral/Research Universities-Extensive
- 4% US Doctoral/Research Universities-Intensive
- 16% US Master’s Colleges & Universities
- 9% US Baccalaureate Colleges-Liberal Arts/General
- 13% International Universities

#### Research Focus
- 15% Cardiovascular
- 13% Cell & Molecular
- 11% Central Nervous System
- 2% Comparative & Evolutionary
- 11% Endocrinology & Metabolism
- 7% Environmental & Exercise
- 2% Gastrointestinal & Liver
- 12% Neural Control/Autonom. Regul.
- 5% Renal
- 4% Respiration
- 2% Water & Electrolyte Homeostasis
- 8% Anatomy
- 5% Stem Cells
- 6% Other (immunology, nutrition, etc.)

#### Graduation Year (Anticipated)
- 2010: 4%
- 2011: 51%
- 2012: 31%
- 2013: 12%
- 2014: 2%

#### Years of Research Experience
- 27% 1-2 years
- 40% 2-3 years
- 20% 3-4 years
- 9% 4-5 years
- 4% >5 years

#### Future Plans
- 35% Graduate School only
- 34% Medical School only
- 22% Graduate & Medical School
- 9% Other Professional School

#### Majors
- 53% Biology (animal science, life sciences/physiology/nutrition)
- 12% Neuroscience/psychology
- 10% Biochemistry/Chemistry
- 9% Health Sciences/Medicine
- 9% Exercise Science/Kinesiology
- 3% Cell/Molecular Biology
- 3% Liberal Arts
- 1% Biomed. Engineer./ Biotechnology

#### Experimental Biology 2011

Sunday, April 10, 2011
Washington Convention Center, Hall B
Washington, DC
APS Congratulates the 2011 Bruce Outstanding Abstract Awardees

Ashley J. Bauer, University of Minnesota, Duluth
Samantha J. Bilko, Oklahoma State University
Drew S. Colson, University of Mississippi
Stephanie V. Eldred, Pennsylvania State University
Julia V. Gorgone, University of California, Davis
Jonathan P. Gumucio, University of Michigan
Jarl M. Haggerty, University of Arizona
Robert Heler, University of Richmond
Joseph E. Jacobson, University of Wisconsin - Madison
Kyle W. Leggett, Johns Hopkins University
Carly J. Lewis, University of California, Davis
Molly E. MacDonald, Michigan State University
Beryl Manning-Geist, Williams College
Brittany L. Reinert, Wright State University
Ruben Rodriguez, University of California, Merced
Mehria Sayad-Shah, University of California, San Diego
John R.A. Shepherd, Mayo Clinic
Natalie N. Snider, University of Kentucky
Naina Soni, University of Maryland, College Park
Kyle M. Stang, University of Wisconsin - Madison
Michelle N. Sullivan, Colorado State University
Eliza S. van Heerden, Bates College
Sen Xu, Tulane University
Caitlin M. Zillner, University of Wisconsin - Madison

2011 AAA Undergraduate Presenters

Arbel, Vered
University of Illinois at Chicago
Improving understanding of human anatomy using haptic learning through clay modeling

Banks, Shaqulta
University of Central Oklahoma
The effects of indirubin on myofibroblast differentiation

Breuer, Danielle N.
University of Western Ontario
Use of a digital 3D brain model as an intermediate step in learning spatial anatomy

Cruz-Santana, Yanira
University of Puerto Rico, Cayey Campus
Group I metabotropic glutamate receptors within the basolateral amygdala modulate adaptive defensive responses in male rats

Das, Tanmoy L.
DePaul University
Light and transmission electron microscopy evidence of cardiac myocyte cell cycle activity in regenerating giant Danio heart

de Asis, Marc Aristaeus
University of British Columbia
Spectrin and plectin are present at apical tubulobulbar complexes in the seminiferous epithelium

Devlin, Matt J.
University of Western Ontario
Interdisciplinary media study of anatomical education via virtual worlds

Drennan, Rachel
Westminster College
Undergraduate student-led cadaveric dissection: An interdisciplinary approach to connecting pathological findings to health conditions

ElHajj, Milad C.
Loyola University
Identification and characterization of neurosensory structures in intact and regenerating sea urchins

Hughes, Lindsay N.
University of Central Oklahoma
TGF-Beta permits invasion of pre-cancerous keratinocytes in de-epidermized dermis

James, Anne E.
Creighton University
Effect of TIMP-2 in trunk neural crest pathfinding

Knight, Kendall
Louisiana State University
Effect of drop-dead mutations on fertility and embryogenesis in Drosophila

Koba, Alexandra
San Francisco State University
Art and science of anatomy: Hemisection of the head and neck

Livdahl, Nicholas S.
University of Utah
Using radiological imaging to improve anatomical relationships in a gross anatomy setting

Lowe, Dylan A.
University of Delaware
Effect of Perlecan/Hspg2 endoplasmic reticulum retention on cellular stress during cartilage development

Lu, Zhen A.
Johns Hopkins University
The effect of extracellular calcium on cellular adhesion of mesenchymal stem cells to substrates

Macks, Samantha
University of Tampa
Morphology of invasion: 3D cranial morphology of Florida's Nile monitor population

Moore, Alicia C.
University of Virginia
Characterizing the nature of the Xst199 mutation and the normal function of the TANGO1 protein in trophoblast cells

Noronna, Anne Marie M.
Johns Hopkins University
Effect of Toxoplasma infection on the methylome of human neural cells

Paisen, Sarah
George Washington University
Syndecan peptides alter cell migration and fibronectin fibrillogenesis of syndecan 1 null dermal fibroblasts

Peterson, Meredith C.
Pennsylvania State University
Early gene interactions that discriminate among the four ectodermal domains in the embryonic head

Salas-Vega, Sebastian
Johns Hopkins University
Running coordinately upregulates hippocampal BDNF and GAD67 expression in Long-Evans rats

Stewart, Jillian
Michigan State University
A tale of two compartments: A case study of a bilateral anomalous flexor muscle of the forearm

Thara, Elizabeth H.
St. Xavier University
Gonadal steroid treatment reduces recovery time in a murine model of nerve injury: Effects of testosterone and its metabolites estradiol and dihydrotestosterone

Xu, Yiran
Pennsylvania State University
Early gene interactions that discriminate among the four ectodermal domains in the embryonic head

Zimering, Jeffrey H.
Cornell University
Dihydrokainate restores recall of olfactory reward-based associative learning following impairment by isoflurane

Support for the Bruce Awards is provided by
APS, Dr. Isis, SEED Magazine, CNS Section,
and APS Members Marlowe W. Eldridge,
Ida J. Llewellyn-Smith, and Linda C. Samuelson

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.
Nicotinamide adenine dinucleotide hydrate (NAD) contributes to the regulation of O-linked-N-acetylglucosamine (O-GlcNAc) levels on cardiomyocyte proteins.

Sánchez, Elizabeth
La Universidad Michoacana de San Nicolás de Hidalgo
Effect of the opener Diazoide and the inhibitor 5-Hidroxidecanoate of the mitochondrial KATP channel in the fatigue of slow skeletal muscle.

Sanford, Jillian L.
Towson University
Gustatory habituation to selected alkaloids by gypsy moth larvae

Sayyad-Shah, Mehria
University of California, San Diego
Blood flow and oxygenation are modulated by external pressure during isometric muscle contraction

Schertzer, Megan D.
Lee University
Blockade of the renin-angiotensin system suggests p38 as a cross-talk mechanism between the renin-angiotensin system and the insulin signaling pathway

Seidel, Saskia
University of Southern California
Localization and signaling of FPR2 in the kidney

Shepherd, John R.A.
Mayo Clinic
Nitric oxide but not prostaglandins is obligatory to the blood flow response during recovery following forebrain exercise in humans

Snider, Natalie N.
University of Kentucky
Rat extracellular muscles use lactate as mitochondrial substrate

Sonoda, Mayra
Univesidade Federal do aB
KLOTHO KL-VS genotype is associated with cardiovascular disease risk factors and adaptations to exercise training

Souleik, Jaron
Oklahoma State University
PLGF expression in coronary artery smooth muscle cells is sensitive to changes in shear stress

Stang, Kyle M.
University of Wisconsin - Madison
GABAA receptor plasticity on respiratory neurons during pregnancy produces barbiturate insensitivity

Su, Zheng
Grinnell College
PGE2-glycerol, a metabolite of the endocannabinoid 2-arachidonoyl glycerol, enhances neurotransmitter release at the vertebrate neuromuscular junction via activation of the TRPV1 receptor

Sullivan, Michelle N.
Colorado State University
Detection of unitary TRPV4 channel activity in primary human cerebral artery microvascular endothelial cells using TIRF microscopy

Trac, David
Emory University
Guanine nucleotide exchange factors regulate epithelial sodium channel (ENaC) activity in alveolar epithelial cells

Urtly, Vinco B.
University of Arizona
Three-dimensional architecture of nephrons and vessels in the human renal medulla

Van Beuseum, Justin P.
Walsh University
Arterial-derived relaxin inhibits myogenic behavior in small renal arteries isolated from relaxin knockout mice

Van Heerden, Eliza S.
Bates College
Cardiorespiratory effects of chronic hypoxia in neonatal rats

Vernilli, Gretchen M.
University of Virginia
Circulating cytokines as biomarkers for early stages of type 2 diabetes in the db/db mouse

Wiener, Adam
University of California, Merced
Decreased protein expression of lipoprotein lipase in fasting elephant seals

Wright, Breanne N.
University of Maryland, Baltimore County
The effect of transgenic manipulation of the BK channel on circadian rhythmicity in mice

Xu, Sen
Louisiana State University Health Sciences Center
Reduced renal vascular ACE activity in diabetes

Ziltnner, Caitlin M.
University of Wisconsin - Madison
Prostaglandin-mediated vasodilation in metabolic syndrome: Role in oxidative stress

Zou, Chenhang
University of Alabama at Birmingham
Nicotinamide adenine dinucleotide hydrate (NAD) contributes to the regulation of O-linked-N-acetylglucosamine (O-GlcNac) levels on cardiomyocyte proteins

Zou, Ali
University of California, Merced
Blockade of angiotensin receptor ameliorates insulin resistance and suppresses plasma leptin in OLETF rats supplemented with high glucose

Alicew, Ayed M.
Purdue University
Contractile properties of the lateral rectus in starlings and house sparrows using supramaximal electrical stimulation

Alvin, Joseph W.
James Madison University
Effects of cerium oxide nanoparticles on wild-type and superoxide dismutase-2 deletion mutant strains of Caenorhabditis elegans

Argali, Arthur J.
University of Pennsylvania
Stretch-induced ATP release from optic nerve astrocytes

Arnts, Christopher M.
Queen’s University
Leptin influences the excitability of neurons in the area postrema

Askir, Cyrus A.
College of William and Mary
The effects of leptin on thermoregulatory responses in the anterior hypothalamus of the rat

Banek, Christopher T.
University of Minnesota
Leptin training attenuates placental ischemia induced hypertrophy and angiogenic imbalance in the rat

Barfell, Andrew
Case Western Reserve University
Modulation of hepatic G6Pase by Mg2+ and EtOH

Bauer, Ashley J.
University of Minnesota
Exercise training attenuates placental ischemia-induced hypertrophy in the rat

Bektas, Kaitelyn F.
Towson University
Visual orientation behavior of gypsy moth larvae to emissive colors

Biko, Samantha J.
Oklahoma State University
VEGF family growth factor ratio is abnormal in bronchopulmonary dysplasia

Bruhl, Allison R.
Colorado State University
Enriched expression of TRPV4 channels in myoendothelial projections of rat posterior cerebral and superior cerebellar arteries

Burkholder, David
Mayo Clinic
Cigarette smoke enhances TRPC and CD38 expression in human airway smooth muscle

Calhary, Wendy A.
Virginia Commonwealth University
A model for fluid secretion and absorption in the gastrointestinal system

Campbell, Colin
University of California, Irvine
Pressure overload surgery does not induce cardiac fibrosis in the American alligator

Choi, Joshua S.
University of Arizona
Three-dimensional organization of the desert quail medullary cone

Colson, Drew S.
University of Mississippi
Heme oxygenase-1 attenuates hypoxia-induced superoxide production in placental villi

Cuellar, Jacquelyn N.
University of Texas at Brownsville
Effect of ghrelin on the regulation of dendritic spines in the rat hippocampus

Dahmus, Jessica
The Pennsylvania State University
Platelet inhibition with clopidogrel augments cutaneous reactive hyperemia

DeStefano, Vincent J.
University of Pittsburgh
Responses of neurons in the rostral ventrolateral medulla (RVLM) to moderate-amplitude tilts: comparisons in conscious and decerebrate cats

Eldred, Stephanie V.
Pennsylvania State University
Platelet inhibition with clopidogrel augments cutaneous reactive hyperemia

Farhad, Ramin
California State University
Characteristics of uptake systems for copper delivered to cells as copper-histidine (Cu-his) and on plasma proteins

Feinberg, Philip A.
Ithaca College
Chronic heart disease increases neuronal and inducible nitric oxide synthase expression within the intrinsic cardiac plexus of the guinea pig

Ferras, Michael
James Madison University
Serotonin in the raphe pallidus mediates the thermoregulatory response to hypoxic stress