### Meet Our 2007 Undergraduate Researchers!

#### Majors
- 45% Biology (Includes human biology/life sciences/physiology/medical biology/)
- 13% Neuroscience
- 9% Exercise Science/Kinesiology
- 8% Cell/Molecular Biology
- 8% Medicine (includes nursing)
- 6% Biochemistry
- 4% Biomedical Engineering
- 7% Other (Chemistry/Engineering)

#### Graduation year (Anticipated)
- 2006: 6%
- 2007: 54%
- 2008: 29%
- 2009: 9%
- 2010: 1%
- 2011: 1%

#### Type of Institution
- 33% US Doctoral/Research Universities-Extensive
- 13% US Doctoral/Research Universities-Intensive
- 15% US Medical Schools/Medical Centers
- 19% US Master's Colleges & Universities
- 11% US Baccalaureate Colleges-Liberal Arts
- 5% Canadian Universities
- 3% International Universities

#### Future Plans
- 26% Graduate School only
- 43% Medical School only
- 17% Graduate and Medical School
- 11% Other Professional School
- 3% Other Combination

#### Years of Research Experience
- 37% 1-2 years
- 35% 2-3 years
- 20% 3-4 years
- 7% 4-5 years
- 1% >5 years

#### Research Focus
- 54% Cardiovascular
- 48% Cell & Molecular
- 30% Central Nervous System
- 6% Comparative & Evolutionary
- 21% Endocrinology & Metabolism
- 19% Environmental & Exercise
- 8% Gastrointestinal & Liver
- 31% Neural Control & Autonomic Regulation
- 10% Renal
- 10% Respiration
- 6% Water & Electrolyte Homeostasis
- 9% Other (oncology, virology, etc.)
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 2007 Bruce Award Finalists

Lindsay Ambrecht, College of William & Mary
Janelle Billig, College of William & Mary
Monica Crary, Ursinus College
Raphael Freitas, Federal Univ. of Sao Paulo/UNIFESP
Jonelle George, Villa Julie College/Univ. of Maryland, Baltimore
Vladimir Glinskii, Harvard Univ./Univ. of Missouri, Columbia
Anthony Illing, Univ. of Cincinnati
Casey McCroskey, Alderson-Broaddus College/West Virginia Univ.
Andrew Miller, Skidmore College
Charles Norton, Univ. of New Mexico
Kevin Ogden, Michigan State Univ.
Michaela O'Rourke, Univ. of New England
Jason Pan, Washington Univ.
Jennifer Partridge, Medical College of Georgia
Rupak Shivakoti, DePauw Univ./Massachusetts General Hospital
Paul Wach, Medical College of Georgia
Victoria Youngblood, Univ. of New Mexico

Cipta, Stephanie Natalie
University of California, San Diego and VASDHS
Intracoronary delivery of adenovirus encoding adenylyl cyclase VI alters murine cardiac fibroblast function

Coughlin, Daniel J.
United States Military Academy
e-Research: a novel use of the Internet to perform live, remote animal research

Craig, Brian T.
University of Pittsburgh
Catecholamine afferents to the marginal layer of rat medulla

Crary, Monica
Ursinus College
Sex-based differences in the myocardial response to physiologic stress

Danish, Hasan H.
Robert Wood Johnson Medical School
Co-localization of heme oxygenase-2 and neuronal nitric oxide synthase (nNOS) in the pre-Bötzinger complex (pBoTc): does nNOS regulate the oxygen sensitivity of the pBoTc?

David, Alexandre
Texas Tech University Health Science Center
Response of the GFP-tagged rat Na,K-ATPase α1 isofrom to phorbol esters

Davis, Kylie
University of North Dakota
Alpha-2A adrenergic receptor activation inhibits rat hippocampal CA3 network activity

Decker, Corinne Elaine
University of Delaware
jB2-crystallin regulation of the lens cytoskeleton

Dominguez, Maria H.
Indiana University School of Medicine
Relationship of the oxidized low-density lipoprotein (OX-LDL) receptor, LOX1, to OX-LDL reactivity of various arterial muscles

Downing, Tyler
Murray State University
Enzymatic activities of renal H+-ATPase and H+-K+-ATPase in the hyperglycemic and hypokalemic mouse

Easton, Alice
Princeton University
Window current in voltage gated calcium channels
2007 Undergraduate Presenters

Elmore, Zac
Murray State University
Enzymatic activities of renal H^+-ATPase and H^+K^+-ATPase in the hyperglycemic and hypokalemic mice

El-Zabet, Ajda J.
York University
Elevated IMTGs in young streptozotocin-induced diabetic rats

Eovaldi, Benjamin
Grand Valley State University
The effect of dipyridamole on vascular reactivity in coronary and pulmonary arteries

Esfahianian, Mohammad
Michigan State University
6-Hydroxydopamine treatment depletes norepinephrine but does not reduce other markers of sympathetic neurons in the heart

Ewert, Timothy Jarred
Spring Arbor University
Regulation of galanin expression by postinfarct cardiac sympathetic hyperactivity

Failing, Christopher J.
Minnesota State University Moorhead
Gonadectomy of adult male Dark Agouti and Copenhagen rats abolishes phenotypic differences in cardiovascular regulation

Feng, Joseph Joshua
University of Delaware
Protein kinase C-mediated actin disruption regulates [Ca^{2+}], responses to mechanical load in osteoblasts

Freitas, Raphael Ribeiro de Aquino
Federal University of São Paulo
Effects of sucrose feeding on renal sodium and water transporter abundance and systemic blood pressure

George, Jonelle G.
Baltimore VA Medical Center
Carminic palmitoyltransferase-1 activity and sensitivity to malonyl-CoA in insulin-sensitive and insulin-resistant rhesus monkeys

Glinski, Vladimir
University of Missouri, Columbia
Estrogen receptor beta controls meningeal microvascular network architecture: potential basis for altered hemodynamics and peripheral resistance

Godlove, David Christian
Radford University
Central neuropeptide S decreases feed intake and locomotor activity while increasing plasma corticosterone in chicks

Green, Kristen
Cankdeska Cikana Community College
Actions of alpha adrenergic receptor agonists on rat hippocampal CA3 network activity

Han, Jaqueline Souksavong
Winona State University
Use of a step test to characterize acclimation to high altitude in the Himalayas

Harrell, Nicholas B.
University of Arizona
Essential role of p38 MAPK in the stimulation by lithium of glucose transport in type I mammalian skeletal muscle

Hoffman, Trenton
Texas Tech University Health Sciences Center
Role of src-family tyrosine kinases in excitotoxicity of the rat cerebellum

Howard, Tessa E.
Bethany College
Characterization of thromboxane receptor expression in cultured sensory neurons

Illing, Anthony C.
University of Cincinnati
Substrate profile and metal-ion selectivity of the human divalent metal-ion transporter DMT1

Irdmusa, Mitra S.
College of William and Mary
The effects of cirazoline on the firing rates of thermally classified neurons in the anterior hypothalamus of the rat

Jennings, Michelle May
University of California, San Diego
Caveolin-1 knockout mice have decreased enrichment of redox-sensitive enzymes in renal coveal fractions

Johnson, Christopher
University of Wisconsin - Stevens Point
Improved mitochondrial Ca^{2+} handling and functional recovery after ischemia reperfusion injury in hearts from old versus young guinea pigs

Kander, Elizabeth M.
Georgetown University
Early time course of PAX3, PAX7, and MyoD protein content in the functionality overloaded rat plantaris muscle

Kelly, Matthew W.
Radford University
Central amylin induces anxiety related behaviors while decreasing nutrient absorption in chicks

Kinnaird, Adam
University of Alberta
Cloning and functional characterization of Xenopus laevis facilitated hexose transporters GLUT2 and GLUT4

Kosloski, Lisa M.
University of Kansas
2-APB attenuates thromboxane A2-induced arrhythmias

Lyecki, Paul J.
McMaster University
Bolus l-arginine supplementation in the fed state at rest and following resistance exercise does not affect bulk muscle blood flow

Madden, Gregory Russell
University of Delaware
Parathyroid hormone reduces the elastic modulus of osteoblasts through disruption of the actin cytoskeleton

Mansouri, Bobbak
Texas Tech University Health Sciences Center
Involvement of calpain in AMPA-induced toxicity to rat cerebellar Purkinje neurons

Marbach, Christine S.
University of California, Davis
Calorie restriction reduces superoxide production of aging mouse hypothalamus

McCloskey, Colin
University of Pittsburgh
Origin of catecholamine afferents to rat rostral ventrolateral medulla

McCroskey, Casey
Alderson-Broaddus College
Endothelium-dependent and -independent vasodilation in cerebral resistance arteries: effects of age and estrogen status

Miller, Andrew M.
Skidmore College
Acute rapamycin treatment does not improve in vivo insulin action in Ob/Ob or high fat-fed mice

Miller, Brooke M.
Bates College
Respiratory plasticity after perinatal hyperoxia is not prevented by antioxidant supplementation

Miller, Megan M.
University of Texas, Amarillo
Evaluation of neuromuscular electronic stimulation on dysphagia

Moses, Justin
University of Delaware
Effect of calibration method on estimation of central pressure at rest and during cold pressor testing

Nandar, Wint
Radford University
Neuropeptide FF, via opioid receptors, decreases feed intake and activates the ventromedial hypothalamus while decreasing gastrointestinal transit time in chucks

Norton, Charles Elbert
University of New Mexico
Hypercapnia attenuates intermittent hypoxia-induced pulmonary hypertension

Oblechina, Adora
Texas Southern University
Effect of clofibrate in the regulation of blood pressure in spontaneously hypertensive rats

Ogden, Kevin Kimball
Michigan State University
Ketoconazole potentiates 5-HT1-induced contraction in rat aorta: is nitric oxide the culprit?

Oliver III, Robert Earl
Louisiana State University Health Sciences Center
P-ERK activation by extracellular or intracellular acidosis slows NHE3-mediated acid extrusion and activates amniogenesis in LLC-PK1-F+ cells

O'Rourke, Michaela
University of New England
AMP-activated protein kinase affects temperature tolerance in the rock crab, Cancer irroratus

Ousley, Dominique D.
Western Michigan University
Nerve growth factor expression and innervation in arteries and veins with involuntary exercise

Pallister, Zachary S.
Texas Tech University Health Sciences Center
Role of src-family tyrosine kinases in excitotoxicity of the rat cerebellum

Parikh, Ravi
University of California, Davis
Evaluation of neuromuscular electronic stimulation on dysphagia

Pardieck, Jennifer Lynn
Medical College of Georgia
Sex differences in fractalkine responses in spontaneously hypertensive rats

Parker, Sarah D.
Barnes-Jewish College
Role of PKG in the hypoxia-induced activation of cardiac KATP channels in goldfish

Pearson, Linnea E.
Colorado State University
Effects of short-term hypoxia on the metabolism of unstimulated muscle cells
Pepper, Priscilla D.
Texas A&M University
Isoflurane produces edema in the bat wing via arteriolar dilation and lymphatic pump inhibition

Phelps, Cole
Murray State University
Enzymatic activities of renal H+-ATPase and H+-K+-ATPase in the hyperglyceremic and hypokalemic mice

Platt, Laura K.
Indiana University - Purdue University at Indianapolis
Dietary flavonoids and renal ion transport

Priestley, Jessica Ruth
Michigan State University
Endogenous serotonin potentiates norepinephrine-induced contraction of the superior mesenteric artery

Reho, John Joseph
University of Akron
Intra-male group stress increases blood pressure and myogenicity in WKY males but not in SHR males

Ring, Aaron M.
Yale University School of Medicine
A mutation in WNK4 that causes human hypertension activates the epithelial Na+ channel in vivo

Rosano, Jenna M.
Temple University
Microvascular network on a PDMS chip: endothelial cell growth and microsphere adhesion

Sann, Basharath
University of North Carolina at Charlotte
Mitochondrial aconitase is sensitive to oxidative stress induced by cadmium and elevated temperatures but not protected by uncoupling proteins in eastern oysters Crassostrea virginica

Shivakoti, Rupak
DePauw University
Salmonella typhimurium bind specific glycoconjugate receptors on human intestinal epithelium during infection

Slack, Kristen N.
College of William & Mary
Resistance training improves age-associated endothelial dysfunction in rat femoral arteries independent of eNOS expression and phosphorylation

Sudharsan, Sangita
Washington University in St. Louis
Overexpression of Cx43 and NF200 in the ground squirrel Citellus undulatus heart during the hibernation state

Taruno, Akiyuki
Kyoto Prefectural University of Medicine
Genomic effect of hypertonic stress on Na+ reabsorption through Ca2+/calmodulin-dependent SGK1 induction in renal epithelial A6 cells

Troupe, Joseph H.
University of Pittsburgh
Can the sympathetic nervous system independently control blood flow to left and right hindlimb muscles of rats?

Van Houten, Curtis
West Texas A&M University
A human factor evaluation of stethoscopes

Vetter, Julia Ann
Saint Louis University School of Medicine
The paraventricular nucleus mediates hemodynamic response variability to stress in conscious rats

Wach, Paul F.
Medical College of Georgia
Renal vasoconstricor responses to norepinephrine and angiotensin II: gender-specific effects of extracellular superoxide dismutase deletion

Walker, Corrine E.
University of Arizona
Complement gene expression is upregulated in the type 2 diabetic heart following myocardial ischemia and reperfusion

West, Daniel W.
McMaster University
Sex-based comparisons in skeletal muscle fatigue and twitch potentiation

Wildfire, Nolan Michael
Elon University
Impedance cardiography test: comparing cardiac function in Division 1 collegiate athletes

Wolf, Michelle R.
College of William & Mary
Changes in cardiovascular disease risk factors and C-reactive protein following a 500-mile, 30-day pilgrimage: El Camino de Santiago

Wolfert, Madeline
College of William & Mary
Shear stress-induced vasodilation does not increase eNOS phosphorylation at ser1179

Wright, Jaime
West Texas A&M University
Characterization of four medical nebulizer systems

Xu, Ke
University of North Dakota
Adrenergic receptor characterization of rat hippocampal neurons using real time single cell RT-PCR

Youngblood, Victoria M.
University of New Mexico
Reactive oxygen species contribute to sleep apnea-induced hypertension in rats

Zhang, Monica
Children's Hospital of Philadelphia
In vivo functions of heme oxygenase-1 in postnatal lung development