

Meet Our 2006 Undergraduate Researchers!

Majors

59% Biology (Includes cell biology/human biology/life sciences/physiology/neuroscience)
 13% Exercise Sci./Kinesiology/Health Sci.
 10% Biochemistry
 3% Medicine
 4% Biomedical Engineering
 2% Animal Science
 4% Other (Chemistry/Social Sciences)

Graduation year (Anticipated)

2005: 4%
 2006: 57%
 2007: 27%
 2008: 6%
 2009: 4%

Type of Institution

46% US Doctoral/Research Universities-Extensive
 9% US Doctoral/Research Universities-Intensive
 2% US Medical Schools/Medical Centers
 22% US Master's Colleges & Universities
 8% US Baccalaureate Colleges-Liberal Arts
 2% Canadian Universities
 11% International Universities

Future Plans

42% Graduate School only
 35% Medical School only
 17% Graduate and Medical School
 9% Other Professional School
 3% Other Combination

Years of Research Experience

39% 1-2 years
 41% 2-3 years
 10% 3-4 years
 8% 4-5 years
 2% >5 years

Research Focus

53% Cardiovascular
 46% Cell & Molecular
 37% Central Nervous System
 4% Comparative & Evolutionary
 39% Endocrinology & Metabolism
 14% Environmental & Exercise
 15% Gastrointestinal & Liver
 27% Neural Control & Autonomic Regulation
 12% Renal
 10% Respiration
 9% Water & Electrolyte Homeostasis
 13% Other (immunology, behavior, nutrition, etc.)

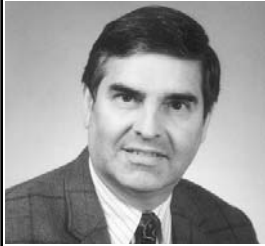
2006 APS Undergraduate Poster Session and David S. Bruce Award for Excellence in Undergraduate Research Reception



*Recognizing the
undergraduate researcher*

Experimental Biology 2006

Sunday, April 2, 2006
 Moscone Convention Center, Hall D
 San Francisco, 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 2006 Bruce Award Finalists

Manasi Bhate, Oberlin College/Vanderbilt University

Carol W.Y. Chan, University of Calgary

Jennifer M. Edwards, Michigan State University

Adrian A. Feijoo, Univ. of Maryland, Baltimore/Tripler Army Med. Ctr.

Jon C. Gonzales, Colorado State University

David G. Ingram, University of Missouri

Mary E. McCarty, Tulane University

Robert A. Overton, Jr., University of North Carolina at Charlotte

Kate E.R. Russell, Bates College

Julia C. Simons, Bates College

Marissa L. Smith, Radford University

Gillian L. Sowden, Williams College

2006 Undergraduate Presenters

AbdulRahman, Alya'a A.
University of Qatar
Carbohydrate metabolism during period of different diet types

Arant, Ryan J.
University of California, Davis
Age dependent neuroplasticity in the hamster hippocampus

Arteaga, Christophe
Barry University
Stromal derived factor (SDF)-1 alpha expression in glioma cells & human brain microvascular endothelial cells

Atkins, Scott Aaron
Pepperdine University
Potassium channel regulation of vasomotor responses in rat soleus feed arteries after short-term exercise training

Babcock, Lindy
Hope College
ICV galanin-like peptide increases metabolic rate in male rats

Barrick, Stacey Renee
University of Pittsburgh
Urothelial cell activation leads to afferent excitability: Effects of botulinum toxin A

Benavidez, Kimberly Marie
New Mexico State University
Effects of extreme hemorrhage in hypoxically preconditioned pigeons, *Columba livia*

Bhate, Manasi
Oberlin College/Vanderbilt University
GCK-3 induced phosphorylation alters CIC anion channel outer pore structure

Bonner, Angelina
Bradley University
Influence of pyrene on mitochondrial oxygen consumption and membrane potential in frogs

Bryant, Jessica M.
University of New Mexico Health Sciences Center
Role of gap junctions and K⁺ channels in endothelium-derived hyperpolarizing factor-mediated vasodilation following chronic hypoxia

Cardinale, Jeffrey P.
Louisiana State Univ. Sch. Veterinary Medicine
Regulation of the equine IL-8 gene in normal horses compared to horses acutely affected by laminitis

Cassady, Bridget A.
Winona State University
Effect of polyunsaturated and saturated fat intake as part of a low-carbohydrate diet for weight loss

Chan, Carol W.Y.
University of Calgary
Insulin resistance induced elevations in cardiac glycogen are not attenuated by regular exercise

Cress, Karen E.
Colorado State University
The hunger switch

da Silva, Liana Gouveia
UNIFESP-EPM
Inhibition of the neuronal nitric oxide synthase (nNOS) reduces cardiovascular responses elicited by acetylcholine (ACh) microinjection within the nucleus of the solitary tract (NTS) of conscious rats

Davis, Vernita J.
California State University Northridge
Neuroprotective effects of 17- β -estradiol in the *spastic* Han Wistar rats

Dawkins, Marshall
West Texas A&M University
Evaluation of validity for novel biomedical instrument measuring fatigue, sleep deprivation and performance capacity

Diedrich, Collin R.
Bradley University
Volume changes in hippocampal neurons following cocaine/hypoxic exposure

Dillard, Melissa
West Texas A&M University
Evaluation of reliability of monofilaments to determine peripheral sensitivity and neuropathy

Douglass, Stephen
Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center
Rho Kinase Modulates Platelet Activating Factor (PAF) Binding to Membrane Receptors in Pulmonary Vascular Smooth Muscle Cells (PVSMC)

Dudowicz, Kara A.
Trinity University
Modulation of epithelial barrier function by tumor necrosis factor- α and interferon- γ in Madin-Darby canine kidney cells is mediated through mitogen activated protein kinase signaling

2006 Undergraduate Presenters

Duling, Laura C.
University of New Mexico
Regulation of $\alpha 2B$ -AR expression in an in vitro system

Edwards, Jennifer M.
Michigan State University
Is there a relationship between the AT-1 receptor and O_2^- in renal wrap hypertension?

Fain, Aaron
University of Kentucky
Blood pressure and sodium chloride intake regulation in borderline neurogenic hypertensive BN/SHR backcross rats

Farinha, Rodrigo
Universidade Católica Portuguesa
Seminiferous tubules areas in an experimental model of intoxication

Feijoo, Adrian A.
University of Maryland/Tripler Army Medical Center
Vasopressin V2 receptor expression during different phases of the estrous cycle in Sprague Dawley rats

Forbes-Lorman, Robin
Earlham College
Induction phases of the Atkins diet and South Beach diet decrease exercise capacity

Franklin, Tina Carla
Barry University
Changes in leptin and insulin blood concentration in short term and long term fasting

Freitas, Raphael Ribeiro de Aquino
UNIFESP-EPM
Chronic effects of sucrose ingestion on metabolic and hemodynamic parameters in rats

Giordano, Fernanda C. L.
Dental School of Piracicaba - UNICAMP
Anaerobic training and nandrolone treatment induce cardiac hypertrophy and increase left ventricle collagen content

Glinskii, Vladimir V.
University of Missouri-Columbia
Software development for microvascular network analysis

Gonzales, Jon Christopher
Colorado State University
Endoplasmic reticulum stress increases glucose production in vivo via effects on liver glycogenolysis and glucose-6-phosphatase activity

Hack, Laura
College of William and Mary
Effects of leptin on the firing rates of thermoregulatory neurons in the anterior hypothalamus

Hall, Jessica Ann
University of Delaware
Analysis of hepatic gene expression in chickens with hormonally-induced lean and fat phenotypes

Hammerberg, Bailey
The University of Iowa
Myogenic vascular function selectively affects low frequency blood pressure variability while sympathetic modulation of vascular tone selectively affects mid frequency blood pressure variability

Hanes, Michael C.
University of Michigan
The effect of repair on contractile properties of single permeabilized muscle fibers from congenitally-clefted goat palates

Hanke, Justin J.
University of Kansas
Cultured nodose ganglia neurons co-express thromboxane A_2 receptor and TRPV1 mRNA

Hayes, Ben
West Texas A&M University
Reliability of bioelectrical impedance analyzers

Herman, Amanda M.
Marquette University
Identification of the tyramine receptor in the *Drosophila* Malpighian tubule

Howell, Raelina
University of Maryland School of Medicine
Development of a kinetic ELISA for xenon-antibodies

Illing, Anthony C.
University of Cincinnati College of Medicine
Cysteinylnyl residues participate in regulation of SVCT1-mediated L-ascorbic acid transport

Ingram, D. G.
University of Missouri
Chronic L-NAME treatment affects vasomotor reactivity of coronary arteries

Jowhar, Sadeem Hussein
Qatar University
The effect of different diets on the behavior of adult Sprague Dawley rats

2006 Undergraduate Presenters

Kohl, Zac Flynn
Portland State University
Factors determining entry into diapause in the annual killifish, *Austrofundulus limnaeus*.

Kolb, Brittany
The University of Iowa
Dynamic autoregulation of cerebral blood flow is limited to frequencies below 0.1 Hz in rats

Kong, Robert Li-Chung
University of California - San Diego
Spatial and temporal variations of cell-free layer in arterioles

Kosloski, Lisa M.
University of Kansas
Further investigation of thromboxane- A_2 induced arrhythmias

Kuczmariski, James M.
University of Delaware
Lack of association between body mass index and acute hypertonic saline induced increases in blood pressure

Lee, Susan James
University of California - San Diego
A symbiotic upregulates MCT1 expression and butyrate transport in intestinal epithelial cells

MacLauchlan, Susan
Smith College
MAPK responses to a repeated exercise bout in skeletal muscle

Mason, Kwynn
Case Western Reserve University
Measuring rates of biochemical flux in mice following a modified glucose tolerance test

McCarty, Mary E.
Tulane University Health Sciences Center
Inhibitors of endogenously-formed carbon monoxide arrest bleeding and confer protection in a model of severe hepatic injury

McClure, Joseph M.
Wayne State University
Vasoconstrictor factors in hindlimb vascular responses to stimulation of adenosine A1 receptors in the nucleus of the solitary tract (NTS)

McPeak, Amy M.
Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center
Rho kinase modulates platelet activating factor (PAF) binding to membrane receptors in pulmonary vascular smooth muscle cells (PVSMC)

McShane, Matt
University of Central Arkansas
2-Methoxyestradiol mediates a greater coronary arterial relaxation response than 17 β -estradiol in old female pigs

Misra, Sunil P.
University of Pittsburgh
Effects of vestibular lesions on blood flow to the head of conscious felines

Nandar, Wint
Radford University
Xenin decreases food intake but not water intake without effecting food transit time in 4-day post hatch chicks

Nicholson, Alan
West Texas A&M University
Evaluation of the reliability of the Bio-Thesimeter for peripheral sensitivity

Oliver III, Robert
Louisiana State Univ. Health Sciences Center
Rosiglitazone induces renal cellular acidosis

Onishi, Kentaro
Pepperdine University
Short term exercise training and potassium channel regulation of myogenic tone in skeletal muscle

Ousley, Dominique Danpier
Western Michigan University
Age-related changes in nerve growth factor (NGF) expression and innervation in arteries and veins

Overton, Jr., Robert A.
University of North Carolina at Charlotte
Mechanisms of cadmium-induced production of reactive oxygen species (ROS) by mitochondria of a model marine mollusk, *Crassostrea virginica*

Pacheco, Garrett Shane
University of Arizona
Rosiglitazone reduces platelet aggregation in type 2 diabetes mellitus

Peacock, Hunter Lewis
Radford University
Central enterostatin decreases feed while peripheral enterostatin stimulates feed intake in chicks

Pecora, Beth S.
College of William and Mary
Thermoregulatory projections to the dorsomedial hypothalamus of the rat

2006 Undergraduate Presenters

Piersol, Megan Christine
University of North Florida
Absorption of TEA⁺ by intestine of the American lobster, *Homarus americanus*

Pittman, Bryan Hosken
Radford University
Central amylin decreases appetite and total food transit rate in 4-day post hatch chicks

Primo, P.
University of Porto
Urinary 8-hydroxydeoxy-2'-guanosine evaluation in a paediatric Portuguese population with Down Syndrome

Ramalingam, Nirmala
Rutgers University
Single-cell electrophysiology in macaque inferior parietal lobule during visually guided reach

Roden, William H.
Saint Louis University
Ca²⁺-evoked transmitter release is inhibited in PC12 cells that have synaptotagmin I silenced by RNAi

Rosenbaum, Kaylee M.
Bradley University
Rodent brain neurotrophic factors are altered by cocaine/hypoxic exposure

Rullo, Jacob
McMaster University
The role of liver CD1-restricted NK T cells in a model of recurrent colitis

Russell, Kate E.R.
Bates College
Chronic intermittent hypercapnia does not alter ventilatory responses of newborn or adult rats

Saadat, Siavash
Georgetown University
Sympathetic neuronal-megakaryocyte axis: a key to stress-induced amplification of atherosclerotic-like lesions

Sabir, Sadiha
University of California, Davis
Seasonal cues & hibernation alter expression of uncoupling proteins in the golden hamster

Schaffer, Bethany E.
College of William and Mary
Functional identification of thermally classified neurons in the preoptic and anterior hypothalamus

Shawki, Ali
University of Cincinnati College of Medicine
Molecular impact of human divalent metal-ion transporter DMT1 mutations associated with disease phenotypes

Silva, Haroldo Souza
Florida International University
A mathematical model of plasma membrane electrophysiology and calcium dynamics in rat mesenteric endothelial cells

Simons, Julia C.
Bates College
Hypoxic ventilatory response of rats after intermittent hypercapnic hyperoxia and intermittent hyperoxia

Smith, Marissa L.
Radford University
Central alpha-melanocyte stimulating hormone induces increased locomotion and decreased sleep and pecking in *Gallus gallus*

Sowden, Gillian Louise
Williams College
Peripheral oxyntomodulin increases heart rate in mice, independent of insulin and catecholamines

Taruno, Akiyuki
Kyoto Prefectural University of Medicine
Receptor tyrosine kinases-mediated mechanism in hypotonicity-provoked Na⁺ reabsorption in renal epithelial A6 cells

Tehel, Michelle M.
University of Kansas
Lack of association of a 5-HT_{1B} promoter polymorphism with body mass index

Tobaldini, Eleonora
University of Milan
Assessment of blood pressure variability by means of spectral and symbolic analysis in normal and congestive heart failure rats

Tomicek, Nanette J.
Westminster College
Effects of amphotericin B on gill water permeability

Tormos, Kathryn
Benedictine University
Cyr61 is upregulated in pre-osteoclastic cells by low-level cadmium exposure

van den Berg, Irene P.
University of California, San Diego
Effect of acetazolamide on pulmonary and muscle gas exchange during hypoxic exercise

2006 Undergraduate Presenters

Vogler, Sabine
University of California, San Diego
WISE-2005: The relation between standing balance and orthostatic tolerance in women

Winikor, Jared
University of Florida
The ontogeny of steroid sulfatase expression in the ovine fetal brain

Wolff, H.
University of Southern Denmark
Renal nerves and nNOS: Roles in natriuresis of acute sodium loading

Woodman, Ryan
Naval Medical Center, San Diego
Chlorthalidone inhibits angiotensin-induced apoptosis in vascular smooth muscle

Wyatt, Erin A.
University of Kentucky
Expression of hypertension during development of an Okamoto SHR/Brown Norway congenic rat strain

Zaidan, Noora
University of Qatar
Effect of a high carbohydrate and a high protein diets on liver function

Zhen, Janet
University of California San Diego
Collision frequency of erythrocytes in postcapillary venules

Zuleta, Andres
University of South Alabama
Depletion of the DNA repair enzyme, Ogg1, increases rat pulmonary endothelial cell (PAEC) vulnerability to xanthine oxidase (XO)-induced cytotoxicity

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