Future Plans | Years of Research Experience
--- | ---
36% Graduate School | 37% 1-2 years
34% Medical School | 32% 2-3 years
15% Graduate and/or Medical School | 16% 3-4 years
9% Other Professional School | 8% 4-5 years
3% Other Combination | 2% <5 years

Research Focus

- 20% Cardiovascular
- 17% Cell & Molecular
- 11% Central Nervous System
- 4% Comparative & Evolutionary
- 8% Endocrinology & Metabolism
- 8% Environmental & Exercise
- 3% Gastrointestinal & Liver
- 9% Neural Control & Autonomic Regulation
- 5% Renal
- 6% Respiration
- 2% Water & Electrolyte Homeostasis
- 8% Other

Meet Our 2005 Undergraduate Researchers!

2005 APS Undergraduate Poster Session and David S. Bruce Award for Excellence in Undergraduate Research Reception

Bringing recognition to the undergraduate researcher

35th International Union of Physiological Sciences Meeting

Saturday, April 2, 2005
San Diego Convention Center Room 20 Lobby
APS Congratulates the 2005 Bruce Award Finalists

Curt R. Canine, University of Missouri-Columbia
Laura Duling, University of New Mexico
Harmon Fong, McMaster University
Eric Gee, York University
Elizabeth F. Gluck, Williams College
Crystal D. Little, Tuskegee Univ./Henry Ford Hospital
Trevor Luke, New Mexico St. Univ./Johns Hopkins Univ.
Jessica P. Otis, Bates College
Heidi N. Petersen, University of California, San Diego
Ross O. Smith, Williams College
Ryan Y.S. Suda, University of California, San Diego
Carmen M. Troncoso, University of New Mexico
Sophie E. Yeo, University of Birmingham, UK

APS Congratulates the 2005 Bruce Award Finalists

Curt R. Canine
University of Missouri-Columbia
8965 The effect of Cori Graminei Rhiz on the recovery of the cardiac muscle activity and proteome analysis.

Alderson, Kory L.
California Polytechnic State University
1125 Reduced tolerance to heat stress with age: are cytokines and endotoxin involved?

Aunan, Elizabeth Suzanne
University of Iowa
770 Gene transcription of steroidogenic enzymes across mid-gestation in the ovine fetal adrenal.

Benavidez, Kimberly M.
New Mexico State University
9316 Effects of hemorrhage in hypoxically preconditioned pigeons, Columba livia.

Bills, Meghan Lee
University of Delaware
1138 Spontaneous ovarian contraction in several fish species.

Bremseth, Derik
Naval Medical Center San Diego
10371 Decreased vascular reactivity in genetically hypertensive rats carrying a segment of chromosome 4 from normotensive Brown Norway rats.

Brown, Patrick J.
Brigham and Women's Hospital
1329 C5α versus C5b-9 in myocardial injury and gene expression following ischemia and reperfusion.

Bryant, Jessica M.
University of New Mexico
8438 Reduced vasodilatory influence of nitric oxide after chronic hypoxia in female rats.

Buzza, Colin David
Wartburg College
9688 The metabolic and cardiovascular effects of a low carbohydrate diet.

Canine, Curt R.
University of Missouri
1113 Capillary hydraulic conductivity and infection in August Rana pipiens.

Caron, Andrew
Winona State University
3205 Cholesterol lowering effects of low calorie cranberry juice in humans.

Chang, Marisol
University of Texas at Arlington
4763 The role of pH sensing receptor in mast cells migration and adhesion to ECM proteins.

Chotiwat, Christina M.
University of Georgia
3518 Inhibition of corticotropin-releasing factor receptors during repeated restraint reduces hyperresponsiveness to a subsequent stressor.

Christensen, Julia P.H.
Simon Fraser University
413 Cold shock response during sudden face immersion at lower water temperatures.

Clarke, Damian P.
University of South Florida
2473 Regulation of cholesterol synthesis in the central nervous system.

Darborg, Barbara Vasek
University of Copenhagen
4204 Causal relationship between NHE1, NKCC1, MAPKs and ERG proteins after osmotic shrinkage in Ehrlich Lettre mouse ascites tumor cells.

Demling, Nina
Technical University of Dresden
4602 RAGE a marker for human alveolar type I epithelial cells promotes cell adhesion.

Doobay, Marc F.
University of Iowa
3623 Differential expression of neuronal ACE2 in transgenic mice with overexpression of the brain renin-angiotensin system.

Duling, Laura
University of New Mexico
8515 Loss of α2B-adrenoceptors increases magnitude of NOS-inhibition hypertension.

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.
2005 Undergraduate Presenters

Dunn, Laurel K.
Medical College of Wisconsin
4262 Epoxideicosatrienoic acid-dependent dilatation in developing capillaries involved in gas exchange in the chick chorioallantoic membrane.

Farren, Matthew
Ohio University
4511 Inhibition of insect epithelial ion transport by an eddysteroid agonist.

Ferreira, Daniele Nunes
University of Sao Paulo
935 Tamoxifen prevents cardiac fibrosis in an experimental model of hypertension.

Finley, Lyda
John B. Pierce Laboratory
8347 Transient increase in PDH phosphorylation during recovery from exercise in skeletal muscle of rats.

Fong, Harmon
McMaster University
9734 MIP-2 expression in vivo: visualizing chemokine expression in the hepatic microcirculation.

Fukuhara, Shinji
University of Tsukuba
2967 Changes in coronary resistance related to NO dependency in the stages of the female life cycle.

Gee, Eric
York University
8433 Mitogen-activated protein kinase inhibition modulates endothelial cell network formation.

Giuliano, Patrick G.
University of California, San Diego
8873 Fifteen generations of selective breeding for endurance running capacity in rats is associated with enhanced lung structure and function not seen at generation 7.

Gluck, Elizabeth Francesca
Williams College
4596 Ghrelin acts through the arcuate nucleus to modulate torpor in mice.

Goss, Erin J.
Indiana University
770 Arterial reactivity to vasoactive oxidants appears to play a role in development of hypertension associated with the metabolic syndrome in the ZS rat.

Green, John J.
University of Michigan
9527 1,25 Dihydroxyvitamin D3 (Calcitriol) modulation of cardiac myocyte performance via protein kinase C.

Hance, John
University of Florida
10481 Hydrogen sulfide induces cell death both in vitro and in vivo in coelomocytes from a mudflat polychaete worm.

Hanes, Michael C.
University of Michigan
7836 Contractile properties of single permeabilized fibers from the levator veli palatini muscles of congenitally clefted and normal palates of Spanish goats.

Hemauer, Sarah J.
University of Wisconsin
9709 Exaggerated expiratory pressure production compromises cardiac function in health and CHF during exercise.

Hesker, Pamela Rose
Bradley University
7229 Mitochondrial oxygen consumption in Fischer rats following cocaine/hypoxic exposure.

Johnson, Alyssa E.
Hope College
8766 VACM-1, a culprit gene, regulates estrogen-dependent growth of T47D cancer cell line.

Johnson, Micah S.
University of Colorado
8524 Short-term exercise decreases infarct size in a sex-dependent manner and correlates with increased myocardial KATP channel protein.

Katwa, Pranita
University of Missouri
5227 Testosterone inhibits migration of porcine coronary smooth muscle cells via PKC.

Kautza, Ben C.
Winona State University
4265 Student physiological adaptations to high altitude in the Himalayas.

Kent, William
University of Liverpool
7588 H-89 decreases transient outward and inwardly rectifying potassium currents independently of PKA-mediated phosphorylation.

Kheradia, Priya M.
Indiana Univ.-Purdue Univ. at Indianapolis
5499 The role of PI3-kinase in ADH-mediated ion transport in a mouse cortical collecting duct cell line.

Krueger, Jennifer A.
Marquette University
9057 Abnormal renal function and salt sensitivity in a Drosophila bestrophin mutant.

Laurinec, Jennifer E.
Texas A&M University
10028 Heat increases microlymphatic pumping activity in vivo.

Lemieux, Andrew M.
University of Arizona
1690 Voluntary exercise training increases insulin action on glucose transport but not on upstream insulin signaling in skeletal muscle of hypertensive TG(mREN2)27 rats.

Li, Candice Yen
Williams College
4546 Cold-induced tachycardia in mice is not dependent on sympathetic nervous system activation.

Little, Crystal D.
Henry Ford Hospital
5172 Neuronal nitric oxide synthase partially mediates renal compensatory hypertrophy in response to unilateral nephrectomy.

Long, Justin M.
Indiana University
681 Non-adrenergic, non-cholinergic contractions in rat and human urinary bladder.

Luke, Trevor
Johns Hopkins
7640 Protein kinase C and Rho kinase mediate ET-1-induced increases in intracellular Ca2+ concentration in pulmonary arterial smooth muscle cells from rats exposed to chronic hypoxia.

Majid, D.S. Adnan
Tulane University
4856 Hemorrhagic loss induces heme oxygenase-mediated endothelial dysfunction in rat arteries.

McCabe, Brittany
University of Washington
Acetazolamide does not inhibit thrombosis in vivo

McCabe, Everlee H.
University of Kansas
5076 Association of ACE gene I/D polymorphism with body mass index.

McClure, Joseph M.
Wayne State University
2564 Adrenal modulation of hindlimb vascular responses to stimulation of adenosine A1 receptors in the nucleus of the solitary tract.

Meisner, Joshua K.
Texas A&M University
8287 Lymphatic myogenic response decreases pumping.

Miller, Kimberly A.
University of Delaware
7441 A role for H1atp1 in murine fertilization.

Miller, Lance
West Texas A&M University
302.14 Correlation between the Biothesiometer and Von Frey monofilaments.

Neece, James David
Texas State University-San Marcos
7648 Isolation and sequencing of fugu muscarinic acetylcholine receptor genes.

Nguyen, Tammy Tran
National Heart, Lung, Blood Insitute - NIH
2397 Correlation between reactive oxygen species and iron levels in NYHA class I hereditary hemochromatosis patients.

Ogden, Kevin
Michigan State University
The cytochrome P4503A4 inhibitor ketoconazole does not reveal 5-HT-stimulated superoxide in rat aorta.

Oropenza, Melinda
California State U Fullerton
10484 Effects of hypoxia on the dorsal blood vessel of the California blackworm, Lumbricus variegatus.

Oti, Jessica P.
Bates College
3153 Respiratory plasticity after perinatal hypercapnic hypoxia in rats.

Parish, Lauren
Texas Tech University
6730 Differential regulation of the Na,K-ATPase in human metastatic prostate cell lines.

Pedersen, Shari
University of California, San Diego
8873 Fifteen generations of selective breeding for endurance running capacity in rats is associated with enhanced lung structure and function not seen at generation 7.

West Texas A&M University
302.14 Correlation between the Biothesiometer and Von Frey monofilaments.

2005 Undergraduate Presenters

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5172 Neuronal nitric oxide synthase partially mediates renal compensatory hypertrophy in response to unilateral nephrectomy.

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### Meet Our 2005 Undergraduate Researchers!

#### Majors

<table>
<thead>
<tr>
<th>Majors</th>
<th>Graduation year (Anticipated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>57% Biology (Includes cell biology/human biology/life sciences/microbiology/neuroscience/physiology)</td>
<td>2004: 5%</td>
</tr>
<tr>
<td>8% Exercise Sci./Kinesiology/Health Sci.</td>
<td>2005: 55%</td>
</tr>
<tr>
<td>7% Medicine</td>
<td>2006: 26%</td>
</tr>
<tr>
<td>6% Biochemistry</td>
<td>2007: 10%</td>
</tr>
<tr>
<td>6% Chemistry</td>
<td>2008: 2%</td>
</tr>
<tr>
<td>5% Biomedical Engineering</td>
<td>2010: 1%</td>
</tr>
<tr>
<td>8% Other (Psychology/Animal Science/Social Sciences)</td>
<td></td>
</tr>
</tbody>
</table>

#### Type of Institution

<table>
<thead>
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<tbody>
<tr>
<td>43% Doctoral/Research Universities-Extensive</td>
<td></td>
</tr>
<tr>
<td>5% Doctoral/Research Universities-Intensive</td>
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</tr>
<tr>
<td>17% Medical Schools/Medical Centers</td>
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<tr>
<td>15% Master’s Colleges &amp; Universities</td>
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<tr>
<td>15% Baccalaureate Colleges-Liberal Arts</td>
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</tr>
<tr>
<td>1% Baccalaureate Colleges-General</td>
<td></td>
</tr>
<tr>
<td>14% International Universities</td>
<td></td>
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</tbody>
</table>

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#### 2005 Undergraduate Presenters

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<th>University/Majors</th>
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<tr>
<td>Petersen, Heidi Nicole</td>
<td>University of California, San Diego - 4729 Expression and distribution of caveolin-1,-2, and -3 in adult rat and mouse cardiac myocytes.</td>
</tr>
<tr>
<td>Ponnappa, Kavita M.</td>
<td>University of North Carolina at Charlotte - 5580 Cadmium exposure affects mitochondrial bioenergetics and expression of key mitochondrial genes in the eastern oyster Crassostrea virginica.</td>
</tr>
<tr>
<td>Ramírez, Victoria</td>
<td>UNAM/ Instituto Nacional de Ciencias Médicas - 6498 Kidney injury molecule (Kim-1) as sensitive biomarker of acute renal failure.</td>
</tr>
<tr>
<td>Reese, Kristen Lee</td>
<td>University of Delaware - 3594 The characterization of Hya13 in murine testicular cells.</td>
</tr>
<tr>
<td>Roberts, Jordan E.</td>
<td>University of Kansas - 6994 Association of the 5HT2A and 5HT2C promoter polymorphisms with body mass index.</td>
</tr>
<tr>
<td>Roberts, Lindsay</td>
<td>University of Mississippi - 3407 TNF alpha-induced endothelin production by endothelial cells: influence of estrogen and progesterone.</td>
</tr>
<tr>
<td>Rullo, Jacob</td>
<td>McMaster University - 2571 Recurrent DSS colitis induces hepatic inflammation similar to sclerosing cholangitis.</td>
</tr>
<tr>
<td>Sadacca, Brian F.</td>
<td>University of Pittsburgh - 3798 Vestibular inputs to premotor respiratory interneurons in the feline C1 spinal cord.</td>
</tr>
<tr>
<td>Sanzo, Antonio</td>
<td>Mayo Clinic - 1675 Effects of estrogen treatment on PPARγ, CD40 and CD40L expression in platelets.</td>
</tr>
<tr>
<td>Scanland, Nicole L.</td>
<td>Western Michigan University - 2052 Glial cell line-derived neurotrophic factor is found in cholinergic neurons in rat heart.</td>
</tr>
<tr>
<td>Schulte, Crystal Lynn</td>
<td>Bradley University - 7104 The influence of pyrene on muscle metabolism and contractile ability in Rana pipiens.</td>
</tr>
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<td>Shafer, Geoffrey</td>
<td>Case Western Reserve University - 9086 D-Serine facilitates inspiratory drive in the in vitro rat medullary slice preparation.</td>
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<td>Shen, Fang</td>
<td>Zhejiang University - 8885 Intracerebral administration of NS1619 diminishes ischemia and reperfusion-induced brain injury.</td>
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<td>UMDNJ-Robert Wood Johnson Medical School - 3508 Co-localization of heme oxygenase-2 and TASK-1 potassium channel in pre-Böttinger complex.</td>
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<td>National Autonomous University of Mexico - 7216 Systemic blockade of NMDA receptors impairs odor but not flavor aversion learning in rats.</td>
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<td>Suda, Ryan Y.S.</td>
<td>University of California, San Diego - 4844 Increased phosphodiesterase expression in human pulmonary artery smooth muscle cells from patients with secondary pulmonary hypertension.</td>
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<td>Texas Tech University - 5057 perchlorate inhibition of iodide transport in skin and intestine from the African clawed frog Xenopus laevis.</td>
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<td>Torres, Samantha Nicole</td>
<td>University of New Mexico - 9212 Differential effects of chronic and intermittent hypoxia on pulmonary arterial eNOS expression.</td>
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<td>University of New Mexico - 10163 Reactive oxygen species contribute to sleep apnea-induced hypertension in rats.</td>
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<td>Queen's University - 4911 Loss of the transient receptor potential vanilloid 1 receptor abolishes the pulmonary chemoreflex response to anandamide in the mouse.</td>
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<td>Wang, Huan</td>
<td>New York Medical College - 5902 Alteration of the phosphorylation of endothelial nitric oxide synthase in canine coronary microvessels during heart failure.</td>
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<td>Wells, Erika</td>
<td>California State University, San Bernardino - 10443 Acclimation in an unstirred environment: effects on sodium uptake across the skin of Rana pipiens.</td>
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