



DEPARTMENT OF CELLULAR & INTEGRATIVE PHYSIOLOGY

INDIANA UNIVERSITY

School of Medicine

NEWS

Statewide Physiology Retreat

The Annual Departmental Retreat for 2008, was held Friday, October 17, 2008 at Brown County State Park, Abe Lincoln Lodge, on a glorious day. Light fog in the morning covered low lying areas to set off the developing Fall foliage and then gave way to a sunny, warm day. Within the lodge, Dr. Sturek opened the retreat, by telling us about the many accomplishments of the department, in terms of improving grant funding, a large number of publications, a decent score on the recent Program Project Grant related to vascular complications of obesity, very good success in teaching, particularly student performance across the state on the shelf exam in Physiology that mirrors the Part I National Boards, and the successful recruitment of two new Faculty members. The Departmental affairs are clearly looking up, we received Departmental water bottles this year rather than worry balls. As is our custom, Dr. Sturek gave out “fabulous prizes” for various Faculty accomplishments. Later in the day, Paul Herring and Simon Rhoades gave an overview of the Graduate Students and named the recipients of this year’s various student awards, Guru Pattar – 2008 Moenkhaus Award and Gregory Payne – 2008 Stier Award. The majority of the retreat was devoted to, the eight oral presentations by post-doctoral fellows and graduate students, as well as viewing posters during lunch. The most important accomplishment of the day was the obvious camaraderie of our Faculty and Students. Whenever there was a quiet moment, the room was a buzz with conversation and interaction. The Retreat clearly accomplished its goals – our mutual interaction and renewal for the coming year. Special thanks to Tracy, for help with picking out the water bottles.

– H. Glenn Bohlen

[Slide show can be viewed at <http://medicine.iu.edu/body.cfm?id=4651&oTopID=4652> or from our Physiology Web page]

Selkurt Lectureship

The Selkurt Lectureship, was established at Indiana University School of Medicine in 1993 by Dr. Claire Selkurt and friends of Dr. Ewald E. Selkurt, Distinguished Professor of Physiology and Biophysics, to support a lectureship given by distinguished scientists in the fundamental medical sciences. Hosted by graduate students: Ryan Widau and Zach Neeb. The lecture was held



Thursday, October 16, 2008, distinguished guest Robert L. Wilensky, M.D. Director, Experimental Interventional Cardiology, Hospital of the University of Pennsylvania,

Professor of Medicine, University of Pennsylvania School of Medicine. Titled "Differentiating the effects of cholesterol and inflammation in the genesis of high risk coronary artery lesions: Role of Lipoprotein-Associated Phospholipase A2."

DO YOU HAVE DIABETES?

Ask the Experts about diabetes on November 8

WHAT: Ask The Experts: a patient education program of the American Diabetes Association ** *Free and open to the public; pre-registration recommended*

WHEN: Saturday, November 8, 2008, 8:30 a.m. - Noon

EVENT SUMMARY:

In recognition of November as American Diabetes Month, the American Diabetes Association, Indiana Area, hosted Ask the Experts, a free patient education program for individuals with diabetes and their families on Saturday, November 8. Registration begins at 8:30 a.m. at the University of Indianapolis in Good Hall, Room 105. The program is designed to provide an update on diabetes research and give the audience a chance to ask Questions of a panel of diabetes care experts. Guests will be able to participate in a Question-and-**Answer** session with the following panelists:

Keynote Speaker Jeffrey Elmendorf, PhD, diabetes researcher, Indiana University School of Medicine

Academy of Surgical Research 24th Annual Meeting November 6-8, 2008 – Hyatt Regency Indianapolis

The **Academy of Surgical Research Annual Meeting** was held November 6-8, 2008, at the Indianapolis Hyatt Hotel. The program includes presentations on: pain management, cardiovascular surgery, interventional radiology, management of surgical staff, and original surgical research; and the popular Technician Roundtable; as well as workshops and a choice of wet labs. For full program information (including guidelines on submitting an abstract to become a part of the program), registration form, and hotel information, go to the Academy's Website: <www.surgicalresearch.org>

Keynote Presentation by Dr. Michael Sturek "Ossabaw miniature swine model for vascular and surgical interventions". A forum addressing Metabolic Syndrome in Ossabaw Miniature Swine featuring complications and therapies with coronary artery stenting, non-alcoholic steatohepatitis, organ transplantation, bariatric surgery and peripheral arterial disease.

Best Places to Work 2008

This year Indiana University - Purdue University are ranked #20, up 4 from last year as one of the Top US Academic Institutions to work. Read about it. The Scientist Vol. 22., No. 11 | November, 2008.



Publications from PubMed (June 2007- present)

Leonard EC, Friedrich JL, Basile DP. VEGF121 preserves renal microvascular structure and ameliorates secondary renal disease following acute kidney injury. *Am J Physiol Renal Physiol*. 2008 Sep 17. [Epub ahead of print] PMID: 18799550 [PubMed - as supplied by publisher]

Tune JD, Considine RV. EFFECTS OF LEPTIN ON CARDIOVASCULAR PHYSIOLOGY. *J Am Soc Hypertens*. 2007 Aug;1(4):231-241. No abstract available. PMID: 18670590 [PubMed - author manuscript in PMC]

Basile DP. Challenges of targeting vascular stability in acute kidney injury. *Kidney Int*. 2008 Aug;74(3):257-8. PMID: 18626492 [PubMed - indexed for MEDLINE]

Zhou X, Bohlen HG, Miller SJ, Unthank JL. NAD(P)H oxidase-derived peroxide mediates elevated basal and impaired flow-induced NO production in SHR mesenteric arteries in vivo. *Am J Physiol Heart Circ Physiol*. 2008 Sep;295(3):H1008-H1016. Epub 2008 Jul 3. PMID: 18599598 [PubMed - indexed for MEDLINE]

Payne GA, Borbouse L, Bratz IN, Roell WC, Bohlen HG, Dick GM, Tune JD. Endogenous adipose-derived factors diminish coronary endothelial function via inhibition of nitric oxide synthase. *Microcirculation*. 2008 Jul;15(5):417-26. PMID: 18574744 [PubMed - indexed for MEDLINE]

Horvath EM, Tackett L, Elmendorf JS. A novel membrane-based anti-diabetic action of atorvastatin. *Biochem Biophys Res Commun*. 2008 Aug 8;372(4):639-43. Epub 2008 Jun 2. PMID: 18514061 [PubMed - indexed for MEDLINE]

Richardson MR, Liu S, Ringham HN, Chan V, Witzmann FA. Sample complexity reduction for two-dimensional electrophoresis using solution isoelectric focusing prefractionation. *Electrophoresis*. 2008 Jun;29(12):2637-44. PMID: 18494027 [PubMed - indexed for MEDLINE]

Kempson SA, Edwards JM, Osborn A, Sturek M. Acute inhibition of the betaine transporter by ATP and adenosine in renal MDCK cells. *Am J Physiol Renal Physiol*. 2008 Jul;295(1):F108-17. Epub 2008 Apr 30. PMID: 18448594 [PubMed - indexed for MEDLINE]

Bratz IN, Dick GM, Tune JD, Edwards JM, Neeb ZP, Dincer UD, Sturek M. Impaired capsaicin-induced relaxation of coronary arteries in a porcine model of the metabolic syndrome. *Am J Physiol Heart Circ Physiol*. 2008 Jun;294(6):H2489-96. Epub 2008 Apr 4. PMID: 18390821 [PubMed - indexed for MEDLINE]

Bauser-Heaton HD, Song J, Bohlen HG. Cerebral microvascular nNOS responds to lowered oxygen tension through a bumetanide-sensitive cotransporter and sodium-calcium exchanger. *Am J Physiol Heart Circ Physiol*. 2008 May; 294(5):H2166-73. Epub 2008 Mar 7. PMID: 18326806 [PubMed - indexed for MEDLINE]

Pezzuto L, Bohlen HG. Extracellular arginine rapidly dilates in vivo intestinal arteries and arterioles through a nitric oxide mechanism. *Microcirculation*. 2008 Feb;15(2):123-35. PMID: 18260003 [PubMed - indexed for MEDLINE]

Horvath EM, Tackett L, McCarthy AM, Raman P, Brozinick JT, Elmendorf JS. Antidiabetogenic effects of chromium mitigate hyperinsulinemia-induced cellular insulin resistance via correction of plasma membrane cholesterol imbalance. *Mol Endocrinol*. 2008 Apr;22(4):937-50. Epub 2007 Dec 28.

PMID: 18165437 [PubMed - indexed for MEDLINE]

Dominguez JH, Mehta JL, Li D, Wu P, Kelly KJ, Packer CS, Temm C, Goss E, Cheng L, Zhang S, Patterson CE, Hawes JW, Peterson R.

Anti-LOX-1 therapy in rats with diabetes and dyslipidemia: ablation of renal vascular and epithelial manifestations. *Am J Physiol Renal Physiol*. 2008 Jan;294(1):F110-9. Epub 2007 Nov 7. PMID: 17989113 [PubMed - indexed for MEDLINE]

Sheridan KM, Ferguson MJ, Distasi MR, Witzmann FA, Dalsing MC, Miller SJ, Unthank JL. Impact of genetic background and aging on mesenteric collateral growth capacity in Fischer 344, Brown Norway, and Fischer 344 x Brown Norway hybrid rats. *Am J Physiol Heart Circ Physiol*. 2007 Dec;293(6):H3498-505. Epub 2007 Sep 28. PMID: 17906115 [PubMed - indexed for MEDLINE]

Rodenberg EJ, Pavalko FM. Peptides derived from fibronectin type III connecting segments promote endothelial cell adhesion but not platelet adhesion: implications in tissue-engineered vascular grafts. *Tissue Eng*. 2007 Nov;13(11):2653-66. PMID: 17883325 [PubMed - indexed for MEDLINE]

Bauser-Heaton HD, Bohlen HG. Cerebral microvascular dilation during hypotension and decreased oxygen tension: a role for nNOS. *Am J Physiol Heart Circ Physiol*. 2007 Oct; 293(4):H2193-201. Epub 2007 Jul 13. PMID: 17630350 [PubMed - indexed for MEDLINE]

Savage JJ, Hunter CS, Clark-Sturm SL, Jacob TM, Pfaeffle RW, Rhodes SJ.

Mutations in the LHX3 gene cause dysregulation of pituitary and neural target genes that reflect patient phenotypes. *Gene*. 2007 Oct 1;400(1-2):44-51. Epub 2007 Jun 7. PMID: 17616267 [PubMed - indexed for MEDLINE]

Knudson JD, Dincer UD, Bratz IN, Sturek M, Dick GM, Tune JD.

Mechanisms of coronary dysfunction in obesity and insulin resistance.

Microcirculation. 2007 Jun-Jul;14(4-5):317-38. Review. PMID: 17613805 [PubMed - indexed for MEDLINE]

Zhang M, Fang H, Zhou J, Herring BP. A novel role of Brg1 in the regulation of SRF/MRTFA-dependent smooth muscle-specific gene expression. *J Biol Chem*. 2007 Aug 31;282(35):25708-16. Epub 2007 Jun 28. PMID: 17599918 [PubMed - indexed for MEDLINE]

Dominguez J, Wu P, Packer CS, Temm C, Kelly KJ. Lipotoxic and inflammatory phenotypes in rats with uncontrolled metabolic syndrome and nephropathy.

Rajashekhar G, Grow M, Willuweit A, Patterson CE, Clauss M. Divergent and convergent effects on gene expression and function in acute versus chronic endothelial activation. *Physiol Genomics*. 2007 Sep 19;31(1):104-13. Epub 2007 Jun 12. PMID: 17566077 [PubMed - indexed for MEDLINE]

Ott LW, Resing KA, Sizemore AW, Heyen JW, Cocklin RR, Pedrick NM, Woods HC, Chen JY, Goebel MG, Witzmann FA, Harrington MA. Tumor Necrosis Factor- α - and interleukin-1-induced cellular responses: coupling proteomic and genomic information. *J Proteome Res*. 2007 Jun;6(6):2176-85. Epub 2007 May 16. PMID: 17503796 [PubMed - indexed for MEDLINE]

Swartz-Basile DA, Lu D, Basile DP, Graewin SJ, Al-Azzawi H, Kiely JM, Mathur A, Yancey K, Pitt HA. Leptin regulates gallbladder genes related to absorption and

secretion. *Am J Physiol Gastrointest Liver Physiol.* 2007 Jul;293(1):G84-90. Epub 2007 Apr 26. PMID: 17463181 [PubMed - indexed for MEDLINE]

Charoonpatrapong-Panyayong K, Shah R, Yang J, Alvarez M, Pavalko FM, Gerard-O'Riley R, Robling AG, Templeton E, Bidwell JP. Nmp4/CIZ contributes to fluid shear stress induced MMP-13 gene induction in osteoblasts. *J Cell Biochem.* 2007 Dec 1;102(5):1202-13. PMID: 17455210 [PubMed - indexed for MEDLINE]

Savage JJ, Mullen RD, Sloop KW, Colvin SC, Camper SA, Franklin CL, Rhodes SJ. Transgenic mice expressing LHX3 transcription factor isoforms in the pituitary: effects on the gonadotrope axis and sex-specific reproductive disease. *J Cell Physiol.* 2007 Jul;212(1):105-17. PMID: 17311285 [PubMed - indexed for MEDLINE]

Evans-Molina, C, Vestermarck, G., and Mirmira, RG. "Development of Insulin Producing Cells From Primitive Biologic Precursors." *Curr. Op. Organ Transpl.* (In Press)

Deering, TG, Ogihara T, Trace, AP, Maier, B, and Mirmira RG. "The Methyltransferase Set7/9 Maintains Transcription and Euchromatin Structure at Islet-Enriched Genes." *Diabetes* (In Press)

Congratulations!

Suzanne Young received an NIH NRSA Postdoctoral Fellowship entitled: The role of Focal Adhesion Kinase in OCTSI presents Predoctoral Training Awards steoblast Mechanotransduction."

The Indiana Clinical and Translational Sciences Institute

The Indiana Clinical and Translational Sciences Institute (CTSI) announced its 2008-2009 Predoctoral Training Awards recipients. This program, along with the postdoctoral awards which were announced previously in the year, will provide more than \$1 million to support research training and career development of young scientists.

The 2008 recipients are:

Stephanie Colvin, IUPUI Biology, Purdue School of Science, who is investigating pediatric diseases associated with impaired pituitary development, using mouse models as well as testing candidate genes in children

All awardees have dual mentorship from a clinician and a nonclinician (e.g., PhD) scientist and are focused on translational research that will accelerate the application of laboratory findings to improved understanding and care of human disease, and from clinical studies to patients and populations in the community.

Secrets to writing, publishing journal articles

Learn the secrets to writing and publishing journal articles during a seminar from 3 to 5 p.m. Tuesday, Aug. 19, in Emerson Hall, room 304. All postdocs and graduate students were invited. Light refreshments were served.

Hear distinguished faculty who serve as journal editors and reviewers share the secrets to writing and publishing articles, including:

- Selecting the right journal
- Writing an initial submission and resubmission letter
- Being a responsible author
- Making it through the editorial and review process

Featuring: **Hal Broxmeyer**, PhD

Chairman and Mary Margaret Walther Professor of Microbiology and Immunology
Professor of Medicine
Scientific Director of the Walther Oncology Center

Michael Sturek, PhD

Professor and Department Chair
Department of Cellular and Integrative Physiology

Tatiana Foroud, PhD

P. Michael Conneally Professor of Medical and Molecular Genetics
Director of Hereditary Genomics Division

Welcome!

New Faculty, Students & Staff

Welcome to Richard Day, Ph.D. and family. Dr. Day has joined our department as our newest faculty member, and will start moving his laboratory early 2009. He comes from the University of Virginia, Division of Endocrinology and Metabolism, we welcome him and his family. <http://faculty.virginia.edu/rday/>

Elisabeth Smith staff in the Gunst lab.

Rebekah Jones staff in the Herring lab.

Angela Plummer, Ph.D., student with Susan Gunst.

Nolan Hoffman, Ph.D., student with Jeff Elmendorf.

Jeffrey Bonner, M.S., student with Steve Kempson.

Whitney Seals, Postdoctoral Fellow, Jeff Elmendorf.

Thesis Defenses' & Graduates – January/07-October/08

January, 07 – Omar El-Mounayri

April, 07 – Lauren (Nikki) Bell

May, 07 – Alicia McCarthy

July, 07 – Wuqiang Zhu

October, 07 – Holly Bauser-Heaton

May, 08 – Rui Duan & Emily Horvath

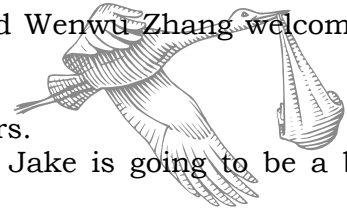
August, 08-Matt DiStasi

September, 08 – Jenny Rodenberg

New & Expecting Arrivals (*future Physiologist*)

Rong Zhao welcomed her daughter Cindy, July 13, 2008 and Wenwu Zhang welcomed baby #2 Jayden on August 1, 2008. into their families

Frank Witzmann and Steve Kempson both became Grandfathers. Jake "Witzmann" and Henry "Kempson". And now, I hear, Jake is going to be a big brother



Miss Erica Haichen Lai, was born Tuesday November 25 at 6:57 pm. She was 7 lbs 3 oz, 19.25 inches long. Congratulations to Xianyin & Yang

Stephanie Colvin is expecting her first, daughter.

J. Tune and family are expecting #4 in April.

Good Luck & Congratulations to All!



Departmental Pitch-In Picnic, was held July 27th, 2008 from 10:00 – 3:00 p.m. at Garfield Park, shelter #1, Indianapolis southside. We all had a nice time, lets do it again next year.

American Diabetes Association's Kiss A Pig

Meet "*Lillian*" the Pig! This year's American Diabetes Association's Kiss A Pig contest starred eight-month-old Ossabaw pig. *Lillian* the pig takes a step towards stardom tonight. As the guest of honor at this year's Kiss A Pig contest for the American Diabetes Association,



Lillian was the center of attention for five candidates who've raised more than \$51,000 for diabetes research. The big event took place March 19, 2008 as part of the Indiana Pacers' halftime show at Conseco Fieldhouse.



Kiss A Pig is an event of the American Diabetes Association that raises funds to fuel research for a cure for diabetes. The event honors the pig for its life-saving role as one of the first discovered sources of insulin, a hormone needed to save the lives of the more than 24 million Americans with diabetes. Pam Rodgers of Vacular Biology is the proud owner & social agent, to *Lillian*. **Also, Pamela Rodgers, just celebrated an October anniversary, 20 years at IU.**

HOLIDAYS ARE AROUND THE CORNER!

Note that, during the Christmas and New Year Holidays, several departments/divisions are on limited schedules, if not closed. [Also, when placing orders, make sure there will be someone in your lab to accept packages.](#)

Our Holiday Office Hours

Thanksgiving Holiday – The Office will be closed November 27-28, 2008

Christmas Holiday – The Office will be closed December 25-26, 2008

New Years Holiday – The Office will be closed January 1-2, 2009

Office Hours for December 29-31 will be 7:00 a.m. – 4:00 p.m.

Urgent – Payroll Time Sheets for the pay period ending 12/27/08

Please make sure to turn in your time sheets prior to the holidays if you will not be here on the week between Christmas and New Year's. Please note that the check date for the pay period ending 12/31/08 for those paid on a monthly basis is January 2, 2009

Designated holidays approved by
the Board of Trustees. (below)

Holiday Day of Observance	2008	Date of Observance
Thanksgiving Day	(H7)	Thursday, November 27
Friday After Thanksgiving	(H8)	Friday, November 28*
Christmas	(H9)	Thursday, December 25
Holiday Day of Observance	2009	Date of Observance
New Year's Day	(H1)	Thursday, January 1, 2009
Martin Luther King, Jr. Day	(H2)	Monday, January 19*
Campus Holiday	(H3)	Friday, April 10 **
Memorial Day	(H4)	Monday, May 25
Independence Day	(H5)	Friday, July 3
Labor Day	(H6)	Monday, September 7
Thanksgiving Day	(H7)	Thursday, November 26
Friday After Thanksgiving	(H8)	Friday, November 27*
Christmas	(H9)	Friday, December 25

Departmental Holiday Pitch-in Lunch



The department will furnish the meats, paper and plastic items & condiments, set up and clean up. There will be a sign up sheet posted in the mail room. If you can not make it to the mail room, email Marlene and she will enter your pitch in item MS 311 A & B from 11:00 – 1:00 on December 12th.

If anyone has any suggestions, decorations, etc..... please share with the social committee. B. Vemuri, J. Wenzel, K. Touw, A. Obukhov and M. Brown

Examination Blunders

A new book, *F in exams: the best test paper blunders* give some great examples of exam Answers from the most clueless - and inventive - of students.

Some are very nearly right ("What happens to your body when taking a breath? Your chest gets bigger"), but some are very wrong indeed (Is the moon or the sun more important? The moon gives us sight at night when we need it. The sun only provides light in the day when we don't. Therefore the moon is more important). Laugh...and weep for the state of education!

1) **Question** : Name one of the early Romans' greatest achievements.

Answer : Learning to speak Latin

2) **Question** : What is a fibula?

Answer : A little lie

3) **Question** : Jeff has been asked to collect data about the amount of television his friends watch. Think of an appropriate Question he could ask them.

Answer : How much TV do you watch?

4) **Question** : What were the circumstances of Julius Caesar's death?

Answer : Suspicious ones

5) **Question** : Give an example of a smoking-related disease

Answer : Early death

6) **Question** : What are the Pyramids?

Answer : The Pyramids are a large mountain range which splits France and Spain

7) **Question** : What is a plasmid?

Answer : A high definition television

8) **Question** : In *Pride and Prejudice*, at what moment does Elizabeth Bennet realise her true feelings for Mr Darcy?

Answer : When she sees him coming out of the lake.

9) **Question** : What do we call a person forced to leave their home perhaps by a natural disaster or war, without having another home to go to.

Answer : Homeless

10) **Question** : Christians only have one spouse, what is this called?

Answer : Monotony

11) **Question** : In the Hawaiian Islands, there are around 500 different species of fruit fly. Give a reason for this

Answer : There are approximately 500 varieties of fruit

12) **Question** : Name an environmental side effect of burning fossil fuels

Answer : Fire

13) **Question** : Define the term "intensive farming".

Answer : It is when a farmer never has a day off.

14) **Question** : Change $\frac{7}{8}$ to a decimal

Answer : 7.8

15) **Question** : What does the term "lava" mean?

Answer : A pre-pubescent caterpillar

16) **Question** : Redundancy is often an unpleasant and unexpected event in someone's life. Give two examples of unexpected life events.

Answer : 1) death 2) Reincarnation

17) **Question** : What was introduced in the Children's Charter of 1908?

Answer : Children

18) **Question** : Explain the word "wholesaler".

Answer : Someone who sells you whole items - eg, a whole cake

19) **Question** : The race of people known as Malays come from which country?

Answer : Malaria

20) **Question** : What artificial waterway runs between the Mediterranean and Red Seas?

Answer : The Sewage Canal

21) **Question** : Name one famous Greek landmark

Answer : The most famous Greek landmark is the Apocalypse

22) **Question** : Expand $2(x + y)$

Answer : $2(x + y)$

$2(x + y)$

$2(x + y)$

23) **Question** : Where was the American Declaration of Independence signed?

Answer : At the bottom.

24) **Question** : What did Mahatma Gandhi and Genghis Khan have in common?

Answer : Unusual names.