

M.D./Ph.D. News

PENN STATE MILTON S. HERSHEY MEDICAL CENTER • PENN STATE COLLEGE OF MEDICINE



M.D./Ph.D. Program Retreat

This year's retreat was a great success! Our sixth annual M.D./Ph.D. Program Retreat took place at the Penn Stater Hotel and Conference Center in State College, March 27-28, 2010. We enjoyed healthy, delicious cuisine, with a variety of snacks and drinks between presentations. The retreat weekend started Friday night with a barbeque at the home of Diane Thiboutot, M.D., codirector of the M.D./Ph.D. Program, followed by an evening of bowling.

On Saturday, the two student winners of the annual M.D./Ph.D. Abstract Competition, Joon (Andy) Lee (M1, Cell and Molecular Biology Graduate Program) and Kristin Plichta (G4, Cell and Molecular Biology Graduate Program), presented data from their winning abstracts. Andy's talk, "Regulation of NKT cell development by tumor suppressor CYLD," highlighted his work in the laboratory of Shao-Cong Sun, Ph.D. Kristin's talk, "Activating the Ras pathway in distinct mammary cell compartments reveals compartment-specific dependency on effector signaling pathways," focused on her work in the laboratory of Edward Gunther, M.D.

Two M.D./Ph.D. Program alumni—Faoud Ishmael, M.D., Ph.D. (class of 2004) and Joseph J. Rasimas, M.D./Ph.D. (class of 2003)—presented clinical vignettes highlighting the importance of basic science knowledge in formulating a differential diagnosis. Our Saturday keynote speaker was

C. Barth Rountree, M.D., assistant professor, pediatrics and pharmacology, Penn State College of Medicine. He presented a very motivating talk, "Physician-Scientist: Waking up on the right side of the bench", describing his pathway and motivating events that led to his decision to become a physician-scientist. During breaks students and faculty socialized and also competed in teams in a trivia tournament. Saturday's session concluded with a student poster session, allowing students to highlight their research.



Parting students Ryan, Neggy, Ato, and Jocelyn show off their M.D./Ph.D. T-shirt graduation gifts from the underclassmen. (Dan not pictured.)

On Sunday, keynote speaker Candace Floyd, Ph.D., assistant professor, physical medicine, rehabilitation, and neurobiology, University of Alabama, led a stimulating discussion about "The New NIH Grant Application and Review Requirements." Following the retreat, students participated in the 25th Annual Penn State Graduate Exhibition poster session, where graduate students from all of Penn State's campuses showcased their work.

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Milestones Through the Years ...

New Students

We welcome our incoming students for fall 2009! Their orientation week finished with the annual White Coat Ceremony, which has been a Penn State tradition since 1996. In the presence of their families and friends, incoming students received their first white medical coat, a symbol of their entrance into the medical profession.



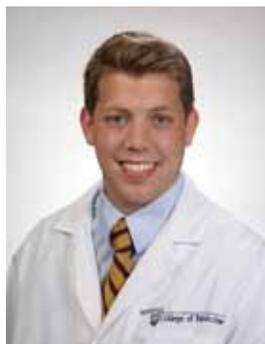
Zainul Hasanali

B.S., Boston College, Boston

HOME:
Tomball, Texas

PAST RESEARCH:
Advanced materials research

AWARDS/HONORS:
Dean's Scholar; Sophomore Scholar;
EMT-B certification



Steven Steinway

B.S., The College of New Jersey (TCNJ),
Ewing, N.J.

HOME:
Florham Park, N.J.

PAST RESEARCH:
Bioinformatics Summer Institute Intern;
Independent Research in Biology at TCNJ;
Undergraduate Research Fellowship in
Bioinformatics; 11th Annual Celebration
of Student Achievement presentation
(TCNJ); REU in Bioinformatics Research
Symposium

AWARDS/HONORS:
Phi Kappa Phi Honor Society; Order of
Omega; Dean's List; runner-up for TCNJ
Biology Alumni Award; Phi Kappa Phi
Faculty-Student Research Award Recipient



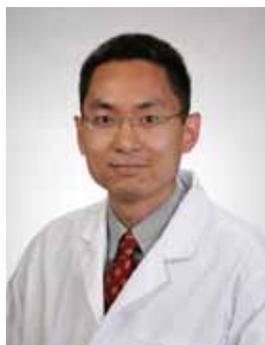
Francis LeBlanc

B.S./B.M.S., University of Western
Ontario (UWO), Canada

HOME:
Cambridge, Ontario, Canada

PAST RESEARCH:
Lawson Health Research Institute;
Research Assistant-Dr. Gerald Kidder
Research Group; NSERC Research
Scholarship

AWARDS/HONORS:
Top Graduating Athlete; Dean's List/
Graduated with Distinction; Vice
President of Communications-Amnesty
International UWO; President-
Undergraduate Chemistry Society UWO



Xiaowei (Bill) Su

B.S., Yale University, New Haven, Conn.

HOME:
Cheshire, Conn.

PAST RESEARCH:
Duman Molecular Psychiatry Lab,
Abraham Ribicoff Facilities

AWARDS/HONORS:
Summa Cum Laude; William R. Belknap
Prize for Excellence in Biology; Phi Beta
Kappa; Federal Robert C. Byrd Scholar



Jeffrey Nguyen

B.S., St. Louis University, Mo.

HOME:
St. Louis

PAST RESEARCH:
Chemical biology lab at Washington
University School of Medicine; St. Louis
Area Undergraduate Research Symposium
and American Chemical Society National
meeting poster presentations

AWARDS/HONORS:
Alpha Sigma Nu National Jesuit Honor
Society; iLEAD; Award for Excellence and
Achievement in Organic Chemistry



Lauren Weiler

B.S., Cornell University, Ithaca, N.Y.

HOME:
Monroe Township, N.J.

PAST RESEARCH:
Undergraduate Research in Animal
Science; Undergraduate Research
Assistant in Human Development

AWARDS/HONORS:
Ho-Nun-De-Kah Honor Society

Milestones Through the Years ...

Entering the Lab

Darrin Bann

Cell and Molecular Biology

Advisor: Leslie Parent, M.D.

Research: My work focuses on Mouse Mammary Tumor Virus (MMTV), which causes breast cancer in mice and may play a role in human breast cancer. I am interested in how MMTV virions interact with host cell machinery to facilitate virus assembly and whether these interactions contribute to tumor formation.

Allison Cleary

Cell and Molecular Biology

Advisor: Edward Gunther, M.D.

Research: We study important genetic events and interactions that lead to breast tumor initiation and progression.

Matt Moll

Pharmacology

Advisor: Philip Lazarus, Ph.D.

Research: Our lab studies cancer pharmacogenetics.

Emilie Muelly

Neuroscience

Advisor: Gregory Moore, M.D., Ph.D.

Research: Our lab uses MRI to investigate neuropsychiatric symptoms in patients with genetic metabolic diseases.

Marie Shaner

Cell and Molecular Biology

Advisor: Jeffrey Sample, Ph.D.

Research: Our lab studies genetic and epigenetic changes associated with Epstein-Barr virus latency.

Recent Thesis Defenses

Bozo Todoric, June 1, 2009

Undergraduate: B.S./'03, Elizabethtown College, Pa.

Graduate Program: Cell and Molecular Biology

Advisor: James Connor, Ph.D.

Thesis Title: "Roles of Ferritin Receptor and its Ligands in Oligodendrocytes: Implications for Oligodendrocyte Development and Survival in Disorders of Myelination"

Joon (Andy) Lee, July 17, 2009

Undergraduate: B.A./'03, University of Pennsylvania, Philadelphia

Graduate Program: Cell and Molecular Biology

Advisor: Shao-Cong Sun, Ph.D.

Thesis Title: "Role of NFkB-Associated Factors in T Cell Development and Function"

Vance Albaugh, August 28, 2009

Undergraduate: B.S./'03, Coastal Carolina University, Conway, S.C.

Graduate Program: Physiology

Advisor: Christopher Lynch, Ph.D.

Thesis Title: "Mechanisms of the Metabolic Side Effects of Atypical Antipsychotic Drugs"

Violetta Kivovich, August 31, 2009

Undergraduate: B.S./'02, State University of New York, Binghamton

Graduate Program: Cell and Molecular Biology

Advisor: Mark Kester, Ph.D.

Thesis Title: "Examination of the Mechanism of Parvovirus B19 NS1 Induced Cellular Toxicity"

Kristin Plichta, May 6, 2010

Undergraduate: B.S./'04, College of William & Mary, Williamsburg, Va.

Graduate Program: Cell and Molecular Biology

Advisor: Edward Gunther, M.D.

Thesis Title: "Mammary Epithelial Cell Subtype-specific Analysis of Ras Pathway Activation"

Jay Jin, May 7, 2010

Undergraduate Degree: B.A./'04, Grinnell College, Grinnell, Iowa

Graduate Program: Cell and Molecular Biology

Advisor: Robert Levenson, Ph.D.

Thesis Title: "An Analysis of Mu Opioid Receptor Interacting Proteins in Opioid Addiction"

Congratulations Graduating Students



Daniel De Cotiis

Residency: Temple University Hospital, Philadelphia

Specialty: Radiology-Diagnostic

2003-10

Ph.D.-October 2009

M.D.-May 2010



Jocelyn Edathil

Residency: Temple University Hospital, Philadelphia

Specialty: Internal Medicine

2001-10

Ph.D.-September 2008

M.D.-May 2010



Ryan Mitchell

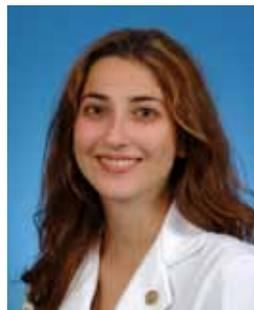
Residency: University of Washington Affiliated Hospitals, Seattle

Specialty: Otolaryngology

2003-10

Ph.D.-April 2009

M.D.-May 2010



Neggy Rismanchi

Residency I: Orange County Children's Hospital, Calif.

Specialty: Pediatrics

Residency II: University of California, San Diego (2012)

Specialty: Pediatric Neurology

2002-10

Ph.D.-October 2007

M.D.-May 2010



Ato Wright

Residency: Duke University Hospital, Durham, N.C.

Specialty: Radiation Oncology

2002-10

Ph.D.-September 2008

M.D.-May 2010

Hometown Highlights

TRAINING FACULTY SPOTLIGHT: GREGORY MOORE, M.D., PH.D.



Dr. Gregory Moore is the most recent member of the M.D./Ph.D. Steering Committee and a recent training faculty member. He received his Ph.D. in radiological sciences at Massachusetts Institute of Technology. After a postdoctoral fellowship at Los Alamos National Laboratory, he joined the faculty at Wayne State University School of Medicine.

After a successful track record of groundbreaking research, publications, and students in his laboratory, he decided to get a medical degree at Wayne State. He came to Penn State in 2004 as a faculty member in psychiatry and to complete his residency in radiology. He will be completing his neuroradiology fellowship in the summer of 2010.

Dr. Moore is the director of the Center for Emerging Neurotechnology and Imaging (CENI), one of the first centers to open within the new Penn State Hershey Neurosciences Institute. CENI will conduct research in four key areas: (1) neuroinformatics; (2) presurgical/pretreatment functional, neurochemical, morphological, and molecular mapping; (3) behavioral neuroimaging; and (4) rapid image-guided neurochemical and molecular intervention development. M.D./Ph.D. students Emilie Muelly and Cody Weston are currently doing thesis research in Dr. Moore's lab.

CONGRATULATIONS TO RECENT AWARD RECIPIENTS:

Vance Albaugh

Poster presentation at the National M.D./Ph.D. Conference in Keystone, Colo.; travel scholarship to attend the Molecular Medicine Days conference in Sweden (oral presentation)

Theresa Carr

Patrick G. Quinn award for outstanding graduate studies in cellular and molecular physiology

Melanie Dispenza

American Acne & Rosacea Society grant award (PI): "Modulation of the Immune System by Isotretinoin in Acne Patients"; Finkelstein Memorial Student Research Award

Meredith Hannan

Department of Psychiatry Award for clinical excellence in psychiatry

Aley Kalapila

D. Eugene Rannels Award (cellular and molecular physiology award for outstanding doctoral dissertation); John Kreider Cell and Molecular Biology Award for research and academic excellence

Matthew Moll and Emilie Muelly

Judith Bond M.D./Ph.D. Award for academic achievement in preclinical years

Ryan Mitchell and Neggy Rismanchi

Judith Bond M.D./Ph.D. Award for overall performance in M.D./Ph.D. training

Christina Ryan

John F. Enders Award (for scholarly and research achievement in microbiology and immunology); Robert B. Spieth Award (for medical students with an interest in oncology)

Bozo Todoric

Diversity travel award to attend the National M.D./Ph.D. conference in Keystone, Colo.; oral presentation at conference; Alpha Omega Alpha (AOA) Honor Medical Society inductee

Directors' Update

By Dr. Robert Levenson and Dr. Diane Thiboutot

We would like to welcome Dr. Dan Notterman as our new vice



dean, research and graduate studies, Penn State College of Medicine; and associate vice president, research, Penn State. As a physician-scientist, Dr. Notterman has direct understanding and appreciation of the importance of M.D./Ph.D. training in

academic medicine. Together with Dean Paz, Dr. Notterman has reaffirmed the commitment of the University to ongoing support of this key training program. We look forward to working with Dr. Notterman in the coming years as we continue to grow and expand the program.

This year we received 163 completed applications for the M.D./Ph.D. program. There were four recruitment dates in which we interviewed 57 students. Ten students joined us for Second Look Day activities, and several traveled to University Park to meet with faculty to learn about their research interests. Look for our next newsletter to learn more about our entering class of 2010.

In terms of recruitment, Bob has been busy spreading the word of our program to local colleges and universities with recent visits to Lehigh, Goucher, Gettysburg, Bucknell and Penn State. Each of these sessions was very well attended by prospective applicants and their prehealth advisors.

Our 6th annual program retreat (where has the time gone?) was held in March at the Penn State Conference Center at University Park. Many of our training faculty at University Park joined us for an exciting, informative and interactive weekend. Special thanks go to our invited speaker, Dr. Candace Floyd, who provided valuable insights with regard to the nuances involved in navigating the new NIH grant application process.

Opportunities for our students to engage in thesis research in engineering sciences are emerging with the recent development of the joint M.D./Ph.D. curriculum in Engineering Sciences and Mechanics (ESM). Judy Todd, chair of ESM, has been working closely with us to streamline the requirements for students with an interest in combining engineering sciences with translational medicine. Our plan is to expand these opportunities with other programs and departments at University Park in the coming months.

Staying Connected

ALUMNI SPOTLIGHT: MICHAEL WATERFIELD (M.D. '05/PH.D. '03)

I have been gone from Penn State now for almost five years. I completed my M.D./Ph.D. program at Penn State in seven years and then moved to San Francisco in the summer of 2005 for a pediatrics residency and to be part of the Molecular Medicine Program (MMP) at the University of California at San Francisco (UCSF). The MMP is a unique program that is designed for M.D./Ph.D. graduates and allows them to continue to have a research focus through their respective residency program. The MMP accepts M.D./Ph.D. graduates entering a variety of residency programs, including pediatrics, medicine, pathology, and dermatology. The benefit of the MMP is that UCSF will allow you to enter the fellowship of your choice in the hope that you will stay at UCSF for the research portion of your fellowship.

After completing my pediatrics residency, I entered a rheumatology and immunology fellowship at UCSF, where I treat patients with a variety of autoimmune and immunodeficiency disorders. This fellowship was a natural fit for me, as my Ph.D. research was in

immunology working with Dr. Shao-Cong Sun. Most pediatric fellowships have one clinical year followed by two years devoted to research.

I have completed my clinical year of fellowship, and I am now in my second year, where I have spent the majority of my time working as a postdoctoral fellow in the lab of Dr. Mark Anderson. Dr. Anderson's lab studies the underlying mechanisms of immune tolerance and autoimmunity. As a model of autoimmunity, the lab studies the monogenetic autoimmune disease APS1 (Autoimmune Polyglandular Syndrome Type 1). Patients with APS1 develop a variety of autoimmune manifestations mostly to endocrine organs. The gene defect in APS1 is in the AIRE (Autoimmune Regulator) gene. Studies in knockout mice have revealed that AIRE is important in the process of central tolerance; however the exact function of the AIRE protein is unknown. My project in Dr. Anderson's lab focuses on further understanding the molecular mechanism of AIRE function.

ALUMNI NEWS

Akiva Mintz (M.D. '04/Ph.D. '02)

Advisor: Waldemar Debinski

Program: Cell and Molecular Biology

Residency: Nuclear Medicine, Lehigh Valley Hospital, Allentown, and University of Pennsylvania, Philadelphia

Current Position: Resident and research in the Department of Radiology, University of Pennsylvania, Philadelphia

Updates: He finished nuclear medicine residency and an NIH-sponsored molecular imaging fellowship in August 2008. He has a position at Wake Forest University Health Sciences as an attending nuclear medicine physician and is an assistant professor in the Department of Radiology and Neurosurgery, where he runs the brain tumor imaging lab. He received an R21 grant and the Dana Fdn Neuro-Immunology grant. His second child was born in July 2009.

Brian Blasiole (M.D. '07/Ph.D. '05)

Advisor: Robert Levenson

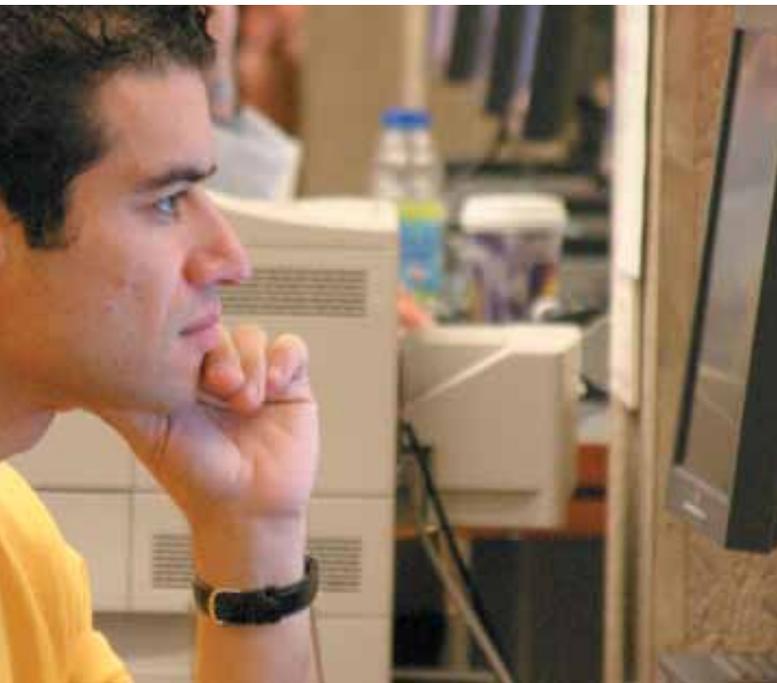
Program: Cell and Molecular Biology

Residency: Anesthesia, University of Pittsburgh Medical Center, Pittsburgh

Update: Congratulations to Brian and his wife Melissa for their new baby girl, Mia Kelly, born March 18, 2010!

Back in Hershey!

Welcome back to Penn State M.D./Ph.D. graduates Faoud Ishmael (M.D. '04/Ph.D. '01) and Joseph (J.J.) Rasimas (M.D. '03/Ph.D. '02)! Faoud has an assistant professor position in two departments: Medicine (division of Pulmonary and Allergy) and Biochemistry and Molecular Biology. J.J. is a staff physician in the Department of Psychiatry and is also a medical toxicology fellow.



Visit Our Web Site

Want to know more about research students are doing? Want to read what our alumni are doing? Want to learn more about the program? Visit our website at PennStateHershey.org/mdphd.

Join Our New Facebook Group

There is a new way to keep in touch, whether you're still in the program or have graduated and moved on ... join our Facebook group, "PSU MD/PhD Program"!

Student Research Highlights

JAMES BAUER, G3

Advisor: Christopher Siedlecki, Ph.D.

Grad Program: Bioengineering

My research involves investigating the mechanisms of activation of zymogens into their enzymatic counterparts and initiation of the intrinsic pathway of coagulation following blood-biomaterial contact.

This project is part of an effort to better understand the molecular mechanisms underlying thrombogenesis on implanted biomaterials and define parameters that can be used in the development of biomaterials with better hemocompatibility.

I am looking forward to traveling to the upcoming 2010 Annual Meeting and Exposition for The Society of Biomaterials in Seattle for the opportunity to learn about the latest innovations in biomaterials science. While there, I also will be giving a presentation of my research concerning blood coagulation in response to biomaterial surfaces and stealing a little time away to explore Seattle when my thesis advisor isn't looking. These conferences are very enjoyable events for M.D./Ph.D. students, as they offer a forum to showcase the hard work put in the lab during the past months (years) and also look at the contributions of other investigators, which may offer the prospect of new ideas and collaboration.

MELANIE DISPENZA, G3

Advisor: Diane Thiboutot, M.D.

Grad Program: Physiology

A major focus of our laboratory is to decipher the molecular mechanisms by which the retinoid isotretinoin functions in the treatment of acne. Isotretinoin is the only agent that induces a permanent remission of acne in many patients, but the mechanism underlying its long-term efficacy is unknown. The major bacterium involved in acne, *P. acnes*, is a part of the normal flora of the skin in healthy people, and studies suggest that a patient's specific immune response to *P. acnes* plays a larger role in causing acne than the pathogenicity of *P. acnes* itself.

Retinoids are known to modulate the immune system in several ways, one of which is by promoting the induction of regulatory T cell responses that create tolerance to normal flora. This led me to hypothesize that an induction of immune tolerance to *P. acnes* plays a role in isotretinoin's permanent resolution of acne. Through the Penn State Dermatology Clinic, I recruit patients who are prescribed isotretinoin for their acne and take blood samples at baseline and various time-points during their treatment. From these samples, I isolate white blood cells and study the

changes in their phenotypes and functions during the course of isotretinoin therapy. In designing this project, I've gained experience in the different aspects of running a clinical study, such as patient recruitment, IRB procedures, and the experimental limitations of using humans as a model system. These skills are valuable training for a future career as a physician-scientist.

OLIVIER ROLIN, G2

Advisor: Eric Harvill, Ph.D.

Grad Program: IBIOS/Immunobiology

A dense community of commensal bacteria, the microflora, inhabits the nasopharynx and helps prevent pathogens from colonizing in the respiratory tract. Using a mouse model of respiratory infection by *Bordetella bronchiseptica*, our goal is to determine how the composition of the microflora affects resistance and susceptibility to disease. In addition we use this infection model to uncover strategies used by pathogens to overcome resistance from the microflora and invade the respiratory tract. In particular we are interested in how pathogens such as *B. bronchiseptica* are adapted to activate the immune system against the microflora and provide a favorable environment for their own growth. I also ride my bike a lot, and then I brew beer when I'm tired from biking.

Recent Student Publications

Mitchell RM, Freeman WM, Randazzo WT, Stephens HE, Beard JL, Simmons Z, Connor JR. (2009) A CSF Biomarker Panel for Identification of Patients with Amyotrophic Lateral Sclerosis. *Neurology*. 72(1):14-19. PMID: 18987350

Mitchell RM, Lee SY, Simmons Z, Connor JR. (2009) HFE polymorphisms affect cellular glutamate regulation. *Neurobiology of Aging*. PMID: 19560233

Mitchell RM, Eisele DW, Mitzner R, Goldenberg D. (2009) The Tracheotomy Punch for Urgent Tracheotomy *Laryngoscope*. (accepted)

Mitchell RM, Simmons Z, Beard JL, Stephens HE, Connor JR. (2009) Plasma Biomarkers Associated with ALS and Their Relationship to Iron Homeostasis *Muscle and Nerve* (accepted)

Hu J, Shibata Y, Zhu PP, Voss C, **Rismanchi N**, Prinz WA, Rappaport TA, Blackstone C. (2009) A class of dynamin-like GTPases involved in the generation of the tubular ER network. *Cell*. 138(3):549-61. PMID: 19665976

Su XW and Ündar A (2009) Brain Protection During Pediatric Cardiopulmonary Bypass *Artificial Organs* (accepted)

Guan Y, **Su XW**, McCoach R, Kunselman A, El-Banayasy A, Ündar A (2009) Mechanical performance comparison between RotaFlow and CentriMag centrifugal blood pumps in an adult ECLS model *Perfusion* (accepted)

Guan Y, **Su XW**, McCoach R, Wise R, Kunselman A, Ündar A (2009) Evaluation of Quadrox-i® Adult Hollow Fiber Oxygenator with Integrated Arterial Filter *J of Extracorporeal Technology* (accepted)

Albaugh VL, Judson, JG, She P, Lang CH, Maresca KP, Joyal JL, Lynch CJ. (2010) Olanzapine promotes fat accumulation in male rats by decreasing physical activity, repartitioning energy and increasing adipose tissue lipogenesis while impairing lipolysis. *Molecular Psychiatry* doi: 10.1038/mp.2010.33

Albaugh VL, Vary T, Ilkayeva O, Wenner BR, Maresca KP, Joyal JL, Breazeale S, Elich T, Lang CH, Lynch CJ. Atypical antipsychotics rapidly and inappropriately switch peripheral fuel utilization to lipid, impairing metabolic flexibility in rodents. *Schizophrenia Bulletin* 2010 (in press)

Todorich B, Olopade J, Surgladze N, Zhang X, Connor JR (2010) Vanadium-induced cytotoxicity in glia reveals novel connections to ferritin: a possible mechanism of developmental vanadium-induced oligodendrocyte cell death and demyelination? *Neurotoxicity Res* (in press)

Jin J, Kittanakom S, Wong V, Reyes BAS, Van Bockstaele EJ, Stagljär I, Berrettini W, and Levenson R (2010) Interaction of the mu-Opioid Receptor with GPR177 (Wntless) Inhibits Wnt secretion: Potential Implications for Opioid Dependence” *BMC Neuroscience* 11:33.

Student Life

ZUMBA!!!!

Every week Marie Shaner (G1) shakes what her Momma gave her ... and for a great cause too! Marie teaches Zumba, a Latin-inspired dance fitness class, Wednesday evenings at Penn State Harrisburg as a fundraiser for Students for Global Outreach. The group provides students an avenue to raise money for international medical missions. In addition, Marie will be hosting a Zumba-THON next year for our very own Penn State THON, which supports pediatric cancer patients through the Four Diamonds Fund. On April 16th, local Zumba instructors conducted a Zumbathon to raise money and awareness for Polycystic Kidney Disease. Our very own Barb Koch who came out to support the wonderful cause! Thanks Barb!



Marie handing out door prizes at Zumbathon.

HIKING IN CENTRAL PA

When the M.D./Ph.D.s are ready for some time out of the lab or library, the natural beauty of central Pennsylvania offers plenty of opportunities to get out and do something. Less than 20 miles

from the famous Appalachian Trail and close to a variety of parks, lakes, and rivers, Penn State Hershey is a great place to spend eight years.



M.D./Ph.D. students and friends hiking in Pine Grove Furnace



Pole Steeple, one example of Pennsylvania's photogenic wilderness

Conference Reports

2009 APSA REGIONAL MEETING REPORT

The APSA Physician Scientist Symposium took place in New York City in November 2009 at Mount Sinai Medical Center. Gene Cozza, Shane Lloyd, and Katrina Heyrana (M2s), attended the conference with the gracious support of the Penn State M.D./Ph.D. program. The symposium held four keynote addresses from prominent physician-scientists and a series of breakout session workshops. Topics included balancing career and family, balancing lab and clinic in residency, being a surgeon and a scientist, and special considerations for M.D./Ph.D. grant writing.

Aside from formal sessions, there were many opportunities to socialize and network with other M.D./Ph.D. students, residents, and physicians from the region. Interacting with other students on a similar career path was quite interesting, as we often find ourselves to be with little company—not fitting into the mold of a graduate student or a medical student. This was a great way to gain exposure to APSA and valuable career development advice from those who have gone through it all before.

2010 APSA NATIONAL MEETING REPORT BY JOCELYN EDATHIL

I had the pleasure of attending the 6th annual meeting of the American Physician Scientist Association (APSA) in Chicago this April 23-25. It was an excellent opportunity to network with other M.D./Ph.D. students and expert clinician investigators at leading medical institutions. The ASCI and AAP hold their meetings concurrently, providing exposure to both the depth and breadth of basic science and clinical research. I was inspired by keynote speaker Joseph Goldstein (1985 Physiology/Medicine Nobel Prize winner with Michael Brown for their pioneering work on lipid metabolism). He gave seven key pieces of advice to young investigators

He also emphasized the importance of developing the right kind of collaborations, pointing toward his own success with Brown. The conference was well attended by leaders in their fields and was an excellent venue to form lasting relationships. As Goldstein stated: "Scientists are not born, they are made by other scientists." The APSA conference provided an excellent format to "catch the fire" of love of discovery!

Penn State M.D./Ph.D. Program

The Penn State College of Medicine M.D./Ph.D. Program provides an opportunity for students interested in careers in academic medicine and research to obtain the necessary training in clinical and basic sciences. This eight-year, dual-degree program provides students with knowledge of the breadth of clinical science plus the ability to design experiments and conduct biomedical research with modern technology.

Applications to the Penn State M.D./Ph.D. Program can be submitted through the AMCAS application service by choosing the Combined Medical Degree/Ph.D. program. For students in the M.D./Ph.D. Program, tuition and stipend are provided for all years in the program.

For more information, visit PennStateHershey.org/mdphd or contact Barb Koch at (717) 531-1188, bkoch2@hmc.psu.edu.

THE GRADUATE PROGRAM CHOICES FOR THE PH.D. PART OF THE DUAL DEGREE ARE:

- Anatomy
- Biochemistry and Molecular Biology
- Bioengineering
- Cell and Molecular Biology
- Genetics
- Immunobiology
- Microbiology and Immunology
- Molecular Medicine
- Neuroscience
- Pharmacology
- Physiology
- Integrative Biosciences (including Chemical Biology and Molecular Toxicology)

U.Ed. MED 10-1953 RES

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Medical Center

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