THE PHYSIOLOGIST

87th President of APS

David M. Pollock



David M. Pollock

Being elected President of the American Physiological Society (APS) is truly a humbling experience. I look at the individuals who have held this office over these 125+ years and see many pioneering giants in not just physiology but scientific endeavor in general. Groucho Marx is credited with the statement, "I don't care to belong to any club that will have me as a member." However, in my case, it is more like, "I can't believe this club would have me as a member." Nonetheless, I accept this role with tremendous excitement, and now it is my pleasure to explain my overall goals and aims for the coming year and beyond.

My personal ambition is to do my best for the society and to be a proper spokesman for our discipline.

Background: Why Physiology?

Before highlighting some of the specific aims I will pursue as president, I want to explain some of my personal priorities through the years and how they are aligned with those of APS. We have all had parents, mentors, or advisors tell us to "find your passion" and pursue it. However, for many like me, a clear path was not obvious by the time I started college. I was an undecided major my freshman year at the University of Evansville in Indiana and was trying to choose between music and medicine. The music theory book a professor gave me to study over the summer before school looked too much like a cross between quantum mechanics and Latin, so it was quite intimidating at the time. Also, all the advice from friends and family was that music is a life of poverty, frustration, and difficulty finding secure employment. I very much enjoyed my science classes, so after my freshman year I signed on as a biology major.

Still in search of that "passion" to define my future, I was enjoying various advanced-level biology and chemistry courses, but with modest enthusiasm. It was when I took a senior-level human physiology course that my fate was sealed. My undergraduate professor, Dr. Eugene Schroeder, was so passionate and enthusiastic about physiology in the classroom that I was inspired to learn more. Although normally a reserved, quiet individual, in the classroom he was animated and full of energy. He had a way of convincing his students that physiology

Continued on page 111

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A Matter of Opinion

"They're Ba-aack!"

Or perhaps we should be saying, "We're ba-aack." After all, we were last in San Diego in 2012 and we will be back again in 2016, 2018, and 2020. Fortunately "we're ba-aack" does not evoke the same memories as the squeal of the little girl played by the late Heather O'Rourke in the 1986 movie about evil spirits invading a suburban home (Poltergeist II). There are no evil spirits associated with Experimental Biology! Although some in San Diego might bemoan our arrival, most of us are exultant to be in San Diego from April 26 to 30 to silence the demons that have compromised our ability to address issues associated with disease processes. Our goal is to "transform the future through science."

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THE PHYSIOLOGIST

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Science Policy

Congress Finalizes Fiscal Year 2014 Budgets

Facing a mid-January deadline, Congress managed to finalize omnibus legislation that sets funding levels for federal agencies and programs, including research at the National Institutes of Health, National Science Foundation, NASA, and the VA. President Obama signed the bill into law on January 17, 2014.

Moving beyond the impasse that led to a partial government shutdown in October 2013, Congress approved the Bipartisan Budget Act (BBA) of 2013 in December. The BBA established an overall spending level of \$1.012 trillion. This reversed some of the funding cuts required under the 2011 Budget Control Act, enabling appropriators to increase funding for priority programs without the threat of sequestration.

The National Institutes of Health (NIH) will be funded at \$29.9 billion in fiscal year (FY) 2014, an increase of \$1 billion over the FY 2013 post-sequester level. This is expected to enable the NIH to fund 385 additional research studies and trials in FY 2014. New funds were provided for high-profile priority programs, including the Brain Research through Application of Innovative Neurotechnologies (BRAIN) initiative and research into Alzheimer's disease. The legislation also directs the NIH to continue support in FY 2014 for the Office of Science Education and several ongoing programs, including Science Education Partnership Awards (SEPA). The SEPA program establishes critical connections between active researchers and K-12 educational partners. A government-wide realignment of STEM education programs that was included in the president's budget request had eliminated funding for K-12 programming at the NIH.

The National Science Foundation (NSF) will have a budget of \$7.17 billion, an increase of \$287 million over the FY 2013 post-sequester level. This is expected to allow the NSF to support an additional 780 competitive grants in FY 2014.

NASA will receive \$17.6 billion, \$781 million more than the FY 2013 post-sequester level.

Medical and prosthetic research at the VA is funded at \$585 million, an increase of \$3 million over the FY 2013 post-sequester level. ●

Chimpanzee Update

There have been several developments in recent months concerning chimpanzees as research subjects. NIH, which wants to retire most of its research chimpanzees, was stymied by a cap on funds the agency was allowed to provide to a sanctuary that would like to house these animals. Meanwhile, an animal rights group asked three courts in New York to recognize chimpanzees as legal persons. In addition, the Fish & Wildlife Service decision about whether captive chimpanzees should receive additional protection under the Endangered Species Act is still pending.

New Funding to Retire Research Chimpanzees

On November 27, 2013, President Obama signed a package of legislation that included amendments to the

Chimpanzee Health Improvement, Maintenance, and Protection (CHIMP) Act. This legislation overrides the spending cap in legislation that was passed in 2000 to establish sanctuaries to provide housing and care for NIH-owned chimpanzees no longer needed in research. The original bill had capped NIH expenditures for that purpose at \$30 million. NIH Director Francis Collins issued a statement hailing the bill's approval.

"Americans have benefitted greatly from chimpanzees'service to biomedical research," Collins noted, "but new scientific methods and technologies have rendered their use in research largely unnecessary." Based on recommendations from the Institute of Medicine and NIH's Council of Councils, Collins decided in June 2013 to retire most NIH-owned chimpanzees. "With the funding roadblock removed, NIH can begin to move forward with our previously stated plans to transfer all but 50 of the NIH-owned research chimpanzees, over time, into the federal sanctuary system," Collins said.

The CHIMP Act amendments authorize NIH to spend another \$55 million over the next 5 years on care and housing for chimpanzees it owns or supports. The bill provides \$12.4 million in FY 2014, but that sum will decline by \$750 million each year until it reaches \$9.4 million in FY 2018. The legislation requires the Government Accountability Office (GAO) to conduct a study on chimpanzees owned or supported by the NIH, including an assessment of how many chimpanzees are retired and how many remain available for research. The GAO will calculate the cost of care in research vs. non-research settings, as well as what services are being provided. The GAO will also investigate whether the sanctuary has met its matching fund requirements and whether the overall cost of chimpanzee care can be reduced. In addition, the legislation requires NIH to provide biennial reports on the research status of its chimpanzees and the cost of their care.

Judges Reject Chimpanzee Personhood

In December, three New York State judges rejected requests to recognize chimpanzees as legal "persons." Lawyer Steven Wise and his Nonhuman Rights Project (NhRP) submitted three petitions of habeas corpus on behalf of two chimpanzees in private hands and two in a SUNY Stony Brook lab that is trying to understand the origins of bipedal locomotion in humans.

A writ of habeas corpus is typically used so that a court can determine whether a prisoner is being held legally or should be released. The judge who received the petition on behalf of the Stony Brook chimpanzees rejected it without a hearing. The other two judges allowed the NhRP to state their case in oral arguments.

The NhRP argued that chimpanzees ought to be recognized as legal persons. In a hearing before Fulton County Supreme Court Justice Joseph Sise, Wise cited the "famous case of Somerset vs. Stewart" in 1722 where a writ of habeas corpus was granted to "a black slave who was seen as a legal thing." Sise quickly rejected Wise's effort to draw a parallel between "human beings who were slaves" and "a chimpanzee." Wise argued that chimpanzees are "fully autonomous, extraordinarily complex beings," and that therefore they ought to be granted the "right to bodily liberty." When Sise wanted to know whether Wise was asking the court to redefine what a human being is, he said that was not necessary since courts have previously recognized other "legal things," including rivers, religious idols, and corporations, as "legal persons."

Nevertheless, Sise denied the petition as did Niagara County Supreme Court Justice Ralph Boniello. In a press release, the NhRP asserted that it plans to appeal all three cases.

On December 20, law professor Richard Cupp of Pepperdine University participated in a *ScienceOnline* chat with Wise about animal personhood. Cupp said he emphasizes "human responsibility for animal welfare" because he believes that this approach "will be more effective [in helping animals] than creating an artificial rights paradigm." Nevertheless, he asserted that, despite the difference in their approaches, he and Wise "may come to the same conclusions in terms of how animals are treated."

Status of Captive Chimpanzees

The U.S. Fish and Wildlife Service (F&WS) has not yet announced its decision on the status of captive chimpanzees under the Endangered Species Act (ESA). On June 12, 2013, the service published a proposal to reclassify captive chimpanzees as endangered rather than threatened based on a new interpretation of the statutory language and legislative history of the ESA.

Since 1990, captive chimpanzees have been classified as threatened at the same time that wild chimpanzees were classified as endangered. If F&WS classifies captive chimpanzees as endangered, special permission from the service will be required to conduct research with chimpanzees.

The comment period on the proposed reclassification closed on August 12, but it is unclear when the agency's decision will be announced.

APS News

Synthetic Biology: Scientific Progress or Ethical Dilemma?



Penny Moody-Corbett

The field of synthetic biology presents exciting new opportunities for scientists to better understand normal and disease states of biological systems. It merges several disciplines – biology, chemistry, mathematics, computer science, engineering, etc. – to modify existing organisms or construct novel organisms that are being used to tackle challenging questions in medicine and

biology. Synthetic biology aims to be a rational approach for engineering tissues and developing new biotechnologies (diagnostics, vaccines, therapeutics, biomaterials, biofuels, etc.) with both health and economic benefits. However, as with many advances in biology and science, synthetic biology raises a number of questions about the technology, its applications, and its regulations: What structures are in place to address ethical treatment of new animal species? How should new technologies, such as synthetic biology, be regulated and managed? What are the appropriate governance structures that will advance the benefits of synthetic biology and safeguard society? Who should be involved in developing oversight? These were some of the topics raised at the Ethics Symposium "Synthetic Biology: Scientific Progress or Ethical Dilemma?" which occurred at the International Union of Physiological Sciences (IUPS)-hosted afternoon symposium at the 37th IUPS Congress held in Birmingham, UK, July 2013. A summary of the session can be found at the IUPS website (http://www.iups.org/about-us/committees/ethicscommittee/2013-symposium-on-synthetic-biology/).

The IUPS Ethics Committee includes Penny Moody-Corbett (Chair), Canada; Theo Godfraind, Belgium; Ashima Anand, India; Pat Buckley, Australia; Andrea Calkovska, Slovakia; Kiyoshi Kurata, Japan; and William Yates, U.S. ●

Introducing "physiology for the public"



APS News

Calls for Papers

Physiological Genomics

Mitochondrial Metabolism

NextGen Sequencing Technology-Based Dissection of Physiological Systems

Advances in Physiology Education

Teaching and Learning of Professional Ethics

American Journal of Physiology – Cell Physiology

Cellular Mechanisms of Tissue Fibrosis (Submission deadline: June 30, 2014)

Cellular Circadian Rhythms (Submission deadline: June 30, 2014)

Stem Cell Physiology and Pathophysiology (Submission deadline: June 30, 2014)

Proteomic and Metabolomic Approaches to Cell Physiology and Pathophysiology (Submission deadline: June 30, 2014)

Physical Biology of Cancer (Submission deadline: June 30, 2014)

ER Stress (Submission deadline: June 30, 2014)

American Journal of Physiology – Gastrointestinal and Liver Physiology

Physiology and GI Cancer

Intestinal Stem Cells in GI Physiology and Disease

Innovative and Emerging Technologies in GI Physiology and Disease

American Journal of Physiology – Heart and Circulatory Physiology

Cardiovascular and Cerebrovascular Aging: New Mechanisms and Insights (Submission deadline: March 15, 2014)

American Journal of Physiology – Lung Cellular and Molecular Physiology

Biomarkers in Lung Diseases: From Pathogenesis to Prediction to New Therapies

Biomarkers of Household Air Pollution (Submission deadline: April 1, 2014)

Real-Time Visualization of Lung Function: From Micro to Macro (Submission deadline: January 1, 2015)

Bioengineering the Lung: Molecules, Materials, Matrix, Morphology, and Mechanics

American Journal of Physiology – Renal Physiology

Novel Mechanisms and Roles of Glomerular Podocytes (Submission deadline: June 30, 2014)

Novel Therapeutics in Renal Diseases (Submission deadline: June 30, 2014)

Sex and Gender Differences in Renal Physiology (Submission deadline: June 30, 2014)

Renal Hemodynamics: Integrating with the Nephron and Beyond (Submission deadline: June 30, 2014)

Renal Hypoxia (Submission deadline: July 31, 2014)

For a complete list of current Calls for Papers, visit the APS homepage and click on the tab for *Calls for Papers*.

Experimental Biology 2014

Experimental Biology 2014

April 26-30, 2014, San Diego PHYSIOLOGY PLATFORM SESSIONS

Saturday, April 26, 2014

| Room | | |
|--------------|--|--|
| Ballroom 20A | 5:30 PM-6:30 PM Physiology in Perspective—The Walter B. Cannon Memorial Award Lecture Anderson | |
| Room 22 | 3:00 PM-5:00 PM NCAR Section's DataNCARnation Haack/Dick | |
| Room 23 | 9:00 AM-11:30 AM MCS President's Symp I: Innovative Approaches to Microvascular Science Frisbee | 2:00 PM-4:00 PM MCS President's Symp II Rapid Fire talks Cardinal/Murfee |
| Room 24 | 8:00 AM-12:00 PM APS Education Comm: Refresher Course on Exercise Physiology: The Role of Exercise in Disease Prevention, Treatment, and Optimal Aging Henige/Clark | 3:15 PM-5:30 PM WEH Section Trainee Award Finalists Session and Data Diuresis Grobe/Lee |
| Room 25A | 1:00 PM-3:15 PM PG Special Session First APS Physiological Genomics Group Conference Fisher/Olfert/Sun/Zhuo | |
| Room 25B | 1:00 PM-3:00 PM Animal Care & Experimentation Comm Symp: Administrative Burden: Mitigating the Impact on Research Edwards | |
| Room 25C | 3:00 PM-5:00 PM <i>Communications Comm Symp:</i> Storytelling: Mandatory Training for Today's Scientists Goodman | |
| Room 26 | 1:00 PM-3:00 PM <i>Workshop:</i> Translation of Cardiovascular Endpoints Across Species Northcott/Bailie | 3:15 PM-5:15 PM Workshop: Multiscale Computational Modeling and Simulation for Studying Physiological Processes Solomon/Cordovez |

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Experimental Biology 2014

Sunday, April 27, 2014

| Room | 8:00-10:00 AM | 10:30 AM-12:30 PM | 3:15-5:15 PM |
|--------------|--|---|---|
| Ballroom 20A | | Cross Sectional Symp: Sex Differences in Physiology and Pathophysiology Yosten/Lindsey | 3:15 PM-5:15 PM President's Symp Series– Early Life Origins of Adult Disease Lang 5:45 PM-6:45 PM Henry Pickering Bowditch Award Lecture Nakamura |
| | | | |
| Room 22 | <i>PG F1:</i> Epigenetics and Epigenomics Liang | CAMP Section Symp: Establishing Epithelial Cell Polarity Praetorius/Parsons | E&M Section Symp Diabetes-related Contractile Dysfunction of the Heart: Clinical Implications, Underlying Molecular Mechanisms, and Exercise- Related Cardio-protection Essop/Willis |
| Room 23 | NCAR Section Symp Is the Kidney a Key Sensory Organ in Neurogenic Cardiovascular Disease? Knuepfer/Osborn | CV Section Symp: Emerging Concepts in Inflammation: Roles of Intravascular Leukocyte Crawling, Pericytes, and Generation of Sequential Chemoattractant Waves to Instruct Neutrophil Trafficking Korthuis/Nourshargh | MCS Landis Award Lecture Lombard |
| Room 24 | Physiologists in Industry Comm Symp: NO, CO and H ₂ S: Toxic Gases, Gasotransmitters and Therapeutic Targets Olson/Clark | Teaching Section Bernard Lecture Carroll | 2:00 PM-3:00 PM CAMP Section Davson Lecture Frizzell 3:15 PM-4:15 PM WEH New Investigator Award Lecture O'Connor 4:15 PM-5:15 PM WEH Section Starling Lecture Jacob |
| Room 25A | WEH Section FT: Novel Role of Hormones in Trauma Uyehara/Hinojosa-Laborde | NCAR Section Trainee FT Vincent/Lazartigues | NCAR FT: Diverse Effects of Angiotensin Peptides on Autonomic Regulation in Health and Disease Sabharwal/Campagnole- Santos |

| Room | 8:00-10:00 AM | 10:30 AM-12:30 PM | 3:15-5:15 PM |
|----------|--|--|---|
| Room 25B | Teaching Section FT: Using Retrieval Practice and Other Advances from Cognitive Science to Enhance Student Learning Dobson/Wenderoth | Hypoxia Symp: Adaptations in the Oxygen Transport System at Altitude: Is Polycythemia Helpful or Harmful? Simonson/Wagner | BMES Symp: Frontiers of Cellular and Molecular Imaging for Cardiovascular Research Hsiai/Wang |
| Room 25C | SEBM Symp: Bridging Career Pathways for an Evolving Biomedical Workforce Friedlander/Gaskins | Publications Comm Symp: Publishing 101: How to Get Your Work Published and Avoid Ethical Minefields Raff/Scheman | Teaching Section Symp: On the Origin of Science Faculty with Education Specialties (SFES): Perspectives on Their Roles and Tensions Pelaez/Anderson |
| Room 26 | Cross Sectional Symp: Sleepless in San Diego: Is Sleep Deprivation the New Silent Killer? Carter/Van Cauter | <i>CNS Section FT:</i> Sympathetic Mechanisms in the Etiology of Obesity-related Hypertension Sartor/Stocker | <i>Resp Section Symp:</i> The preBötzinger Complex: Where are We 25 Years Later? Fortin |
| Room 27 | AFMR Symp: Nucleic Acid Aptamers: An Emerging Frontier in the Diagnosis and Treatment of Disease Miller/Giangrande | <i>Renal Section FT</i> : Hypoxia as a Unifying Mechanism for Kidney Disease Palm/Wilcox | Renal Section Symp: Renin- Angiotensin-Aldosterone System Regulation of the Sodium Chloride Cotransporter Ko/Subramanya |
| Room 28A | CV Section FT: Sex/ Gender Influences on the Cardiovascular System Hamblin/Fu | CV Section Symp: Perivascular Adipose Tissue in Vascular Health and Disease: Friend or Foe? Tune/Gollasch | CV Section Symp: Hematopoietic Stem Cells Give Rise to Inflammation in Cardiovascular Disease Lindsey/Nahrendorf |
| Room 28B | CV Section Symp: Pericyte- Endothelial Interactions Bearden/Mayo | Resp Section Symp: Crossing the Epithelium: New Insights into Pulmonary Barrier Function and Transepithelial Transport Sidhaye/Blazer-Yost | CNS Section Symp: Epigenetic Regulation of CNS Function Martin |

Sunday, April 27, 2014 – continued

THEPHYSIOLOGIST

Experimental Biology 2014

Monday, April 28, 2014

| Room | 8:00-10:00 AM | 10:30 AM-12:30 PM | 3:15-5:15 PM |
|--------------|---|--|--|
| Ballroom 20A | AJP: Lung <i>Symp</i> Bioengineering the Lung: From Myth to Reality Prakash/Stenmark | NCAR Symp: Autonomic Regulation of the Immune System in Health and Disease Abboud/Zubcevic | President's Symp Series: Life at Extremes: Adaptations to Diverse Challenges to Normal Homeostasis Samson |
| Room 22 | <i>CV Section FT:</i> Vascular Remodeling and Stiffening in Cardiovascular Pathology: Commonalities and Differences Trask/Fleenor | <i>Hypoxia FT</i> : Influence of Maturation on Cell- and Systems-level Hypoxic Behaviors Solomon/Wilson | CAMP Section Symp: HVCN1 Physiology and Consequences O'Connor |
| Room 23 | AFMR Symp: Bioactive Lipids in Lung Inflammatory Diseases Zhao/Natarajan | CV Section FT MicroRNAs—Novel Regulators of the Cardiac Remodeling Process Bagchi/Czubryt | 3:15 PM-4:15 PM CNS Section Erlanger Lecture Levin 4:15 PM-5:15 PM CNS Section Erlanger Minisymposium Levin/Stocker |
| Room 24 | 8:00 AM-10:00 AM NCAR Section Ludwig Lecture Raizada 9:00 AM-10:00 AM NCAR Section Minisymposium Vincent/Raizada | 10:30 AM-11:30 AM E&M Section Berson Lecture Elias | 2:00 PM-3:00 PM EEP Section Adolph Lecture Jackson 3:15 PM-4:15 PM Renal Section Gottschalk Lecture Wall |
| Room 25A | WEH Section FT: Water and Electrolyte Homeostasis: Physiology and Pathophysiology Cunningham/Tipton | WEH Section FT: Hypertension: Mechanisms and Consequences Gottlieb/Banek | WEH Section Symp Under Stress: Endoplasmic Reticulum Stress and Apoptosis in Cardiovascular and Renal Disease De Miguel/Spradley |
| Room 25B | Renal Section FT: Recent Developments in Renal Physiology and Kidney Disease I Pluznick/Burford | GIL Section FT Intestinal and Liver Stem Cells: Physiology, Pathophysiology and Nutrition Lund/Ney | NCAR Section FT Sex Matters When it Comes to Blood Pressure Regulation Joyner |
| Room 25C | Teaching Section Symp MCAT 2015 Update: Are We ready? Silverthorn/Galey | <i>CEP Section FT</i> : Abstract- driven Trainee FT Contreras/Rees | CEP Section FT: Comparative Physiology of Aging and Senescence Roberts/Kirkton |

| Room | 8:00-10:00 AM | 10:30 AM-12:30 PM | 3:15-5:15 PM |
|----------|--|---|---|
| Room 26 | BMES Symp: Advances in Bioengineering and Regenerative Medicine Christman/Leach | Renal Section Symp Advances in Regulation of Epithelial Transport by Protein Glycosylation Chen/Hughey | CV Section FT Kaley Lecture and Short Complementary Talks Zucker/Koller |
| Room 27 | EEP Section FT: Pregnancy and Exercise Newcomer | MCS Young Investigator Symp Goodwill | <i>BMES Symp:</i> Biophysical Regulation of Stem Cells and Cancer Engler/Kumar |
| Room 28A | CAMP Section FT: Ion Channels and Transporters in Health and Disease Hamilton/Greenlee | CAMP Section FT: Cellular Interaction of the Microbiome and Eukaryotic Cell Function Worrell/Bomberger | Resp Section FT: Genetic Manipulation in Respiratory Control: Basic Science to Clinical Trials Fuller |
| Room 28B | Resp Section FT: New Insights into the Chemical Control of Breathing and Blood Pressure Moreira/Mulkey | CNS Section FT: CNS Control of Feeding and Metabolism Madden | <i>Resp Section Symp:</i> The Enigma Variations: The Many Faces of the Myofibroblast in Fibrotic Disease Chambers/Mercer |
| Room 7B | | <i>EEPSection FT</i> : Skeletal Muscle-based Therapies for the Treatment of Diabetes Millitus Hawke | |
| Room 9 | <i>PG Group</i> : Trainee Highlights in Physiological Genomics Joe/Klemcke | | |

Monday, April 28, 2014 – continued

Visit the aps Booth at EB! Booth #1320

Find us at <u>Booth #1320</u> and get your FREE 2014 meeting essentials like lanyards, luggage tags, pens, and other freebies! Check out our new store merchandise also available at <u>the-aps.org/store</u>.

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THEPHYSIOLOGIST

Experimental Biology 2014

Tuesday, April 29, 2014

| Room | 8:00-10:00 AM | 10:30 AM-12:30 PM | 3:15-5:15 PM |
|--------------|--|---|--|
| Ballroom 20A | NIH/NIAID Symp: Scavenger Receptor Biology and Nomenclature PrabhuDas/El Khoury | <i>Cross Sectional Symp:</i> Origins of Hypertension: The CNS, the Kidney and Beyond Wainford/Schreihofer | 3:15 PM-5:15 PM President's Symp Series Symp: Physiological Relevance of the Intestinal Microbiome: Moving Beyond the Gut Lund 5:45 PM-7:30 PM APS Business Meeting |
| Room 22 | <i>ETG FT</i> : Regulation of Epithelial Transporters, Paracellular Transport, and Regulatory Proteins Hamilton/Marunaka | <i>MBG Symp</i> : Muscle Fatigue: A Cross Discipline Approach Karatzaferi/Geeves | <i>ETG Symp:</i> Trafficking in Epithelial Cells Levi/Klein |
| Room 23 | GIL Section and AJP: GI and Liver John Forte Distinguished Abstract Plenary Session McCole/Uno | <i>E&M Section Symp:</i> Novel Aspects of G Protein-coupled Receptor Signaling Samson/Sandberg | 2:00 PM-3:00 PM GIL Section Davenport Lecture Ghishan 3:15 PM-4:15 PM CEP Section Krogh Lecture. Supported by Novo Nordisk Foundation Carey |
| Room 24 | J Phys, PhysSoc/APS Symp: Insights Gleaned from Pharmaco-genetic Dissection and Modeling of Cardio- respiratory Neural Networks Paterson/Paton | 10:30 AM-11:30 AM Resp Section Comroe Lecture Mitchell | 2:00 PM-3:00 PM CV Section Berne Lecture Somers 3:15 PM-5:15 PM Cross Sectional Symp: New Perspectives on Regulation, Interaction, and Noise Found in Physiological Systems Mellen/Ben-Tal |
| Room 25A | PG Symp: Cellular Adaptation and Survival to Hypoxic Conditions: Epigenetic Mechanisms Klemcke/Wang | WEH Section FT: Adverse Perinatal Environment and Priming of Metabolic and Cardiovascular System to Chronic Disease Loria/Ho | E&M Section Symp: Cardiometabolic Consequences of Sleep Deficiency and Circadian Disruption Broussard/Knutson |

| Room | 8:00-10:00 AM | 10:30 AM-12:30 PM | 3:15-5:15 PM |
|--------------------------------------|--|--|--|
| Room 25B | <i>Renal Section FT:</i> Recent Developments in Renal Physiology and Kidney Disease II Otiz/Shepard | <i>GIL Section FT:</i> Organoid Culture Systems: An Innovative Research Tool for the Study of Gastrointestinal Development, Physiology and Disease Zavros | <i>Renal Section Symp:</i> Tumor Necrosis Factor: A Two-faced Cytokine? Ramseyer/Ferreri |
| Room 25C | Careers in Physiol Comm Symp: Conscious Choice and Serendipity in Your Career Trajectory: A Panel Discussion Leon/Wehrwein | CEP Section Symp: Organismal Adaptation/ Response to Hypoxic Environments Williams/McDonald | <i>EEP Section FT</i> : Defining the Thermoneutral Zone of Laboratory Mice Gordon |
| Room 26 | <i>CEP Section Symp:</i> RNAseq Approaches to Understanding Extreme Physiological Adaptations Warren/Buck | CV Section FT: Wiggers Award FT: Mechanisms of Local Regulation of Blood Flow Chilian | CAMP Section, AJP:Cell Symp: Tissue Fibrosis: General Mechanisms with Variations on a Theme Insel/Lotersztajn |
| Room 27 | <i>E&M Section FT:</i> Inflammation in Beta Cell Dysfunction: From Mouse to Man Corbett | NCAR Section FT: Sympathetic Vascular Transduction: Bridging the Divide in Blood Pressure Regulation Fadel/Fairfax | CV Section Symp:Novel Mechanisms of Transcriptional Regulation in Cardiac Hypertrophy Medford/Marsh |
| Room 28A | EEP Section FT: AltitudeOmics 2012 Roach | CAMP Section FT: Cell Signaling: Pathways and Proteins Bradbury/Ameen | CNS Section Symp: Recent Advances in Hypothalamic Signaling Mechanisms in Health and Disease States Stern/Johnson |
| Room 28B | <i>CV Section FT:</i> Therapeutic Targets for Diabetic Cardiomyopathy Davidoff/Ritchie | EEP Section Symp: Heat Stress and Compromised Blood Pressure Control: Cardiovascular, Cerebral, Cutaneous and Respiratory Considerations Low/Crandall | <i>Resp Section FT</i> : Signaling in Pulmonary Hypertension Bonnet/Paulin |
| Marriott Marquis, Marina Ballroom | | | 1:00 PM-2:00 PM History Group Lecture Javitt |

Tuesday, April 29, 2014 – continued

THEPHYSIOLOGIST

Experimental Biology 2014

Wednesday, April 30, 2014

| Room | 8:00-10:00 AM | 10:30 AM-12:30 PM | 2:30-4:30 PM |
|--------------|---|---|---|
| Ballroom 20A | CARnet Symp: Cerebral Autoregulation in Pathological Conditions Claasen/Rickards | | 4:45 PM-5:45 PM <i>President's Symp Series:</i> APS Nobel Lecture in Physiology or Medicine Beutler |
| Room 22 | Resp Section Symp: Airway Defnsive Reflexes: Ex Vivo, In Vivo, In Silico and Translation to Bedside Bolser/Pitts | 10:30 AM-12:30 PM <i>ETG FT</i> : Regulation of Epithelial Ion and Water Channels, and Regulatory Proteins Cai/Rao | 2:30 PM-4:30 PM Cross Sectional Symp: Sialic Acids: How Glycans Impact Human Physiology and Disease Bode |
| Room 23 | 8:00 AM-10:00 AM CV Section Symp: Sex Disparities in Cardiovascular Disease: Implications for Prevention, Prognosis, and Treatment Goulopoulou/Altara | <i>MBG FT</i> : Muscle Loss in Diabetes: Not Your Same Old Sarcopenia Brozinick | |
| Room 24 | NCAR Section FT: Carotid Body Chemoreceptors: Beyond the O ₂ Frontier Johnson/Limberg | CV Section FT: Cell Therapy versus Non-cellular Therapy for Myocardial Repair Kloner/Liao | |
| Room 25A | <i>GIL Section Symp:</i> Unlocking the Molecular Mechanisms of Liver Cancer Wang/Lu | History Group Symp: Historical Perspective of Peripheral and Central Chemoreception of Hypoxia and Hypercapnia Ramirez | <i>MBG FT</i> : Ambient Hypoxia, Muscle Mass Control and Energy Metabolism Beaudry |
| Room 25B | <i>E&M Section FT:</i> Brown and Beige Adipose Tissue: New Insights into Primary Targets for Obesity Prevention Symond s | CARnet Symp: Autonomic and Other Control of the Cerebral Circulation Tzeng/Barnes | CARnet Symp: Cerebral Autoregulation – The Quandary of Quantification Serrador/Zhang |
| Room 25C | EEP Section Symp: The Regulation of Anabolic Signaling in Skeletal Muscle: The Integration of Mechanical, Metabolic and Inflammatory Stimuli White | EEP Section Symp: Adaptations of Mitochondrial Oxidative Phosphorylation to Changing O ₂ Microenvironments Clanton/Gladden | EEP Section Symp: Molecular Mechanisms of Muscle Atrophy Hood |

| Room | 8:00-10:00 AM | 10:30 AM-12:30 PM | 2:30-4:30 PM |
|----------|--|---|---|
| Room 26 | Translational Phys Group Symp: Organ Injury in Diabetes Sharma/Schmidt | BMES Symp: Spatial-Temporal Control of Cellular Behaviors Qutub/Duber | |
| Room 27 | <i>CV Section FT</i> : Thin and Thick Filament Regulation of Cardiac Sarcomere Lucchesi/Sadayappan | <i>GIL Section Symp:</i> From Friend to Foe: The Emerging Role of Intestinal Pathobionts in the Etiopathogenesis of Disease Devkota/Carey | Exp Physiol, <i>PhysSoc Symp:</i> The Physiological Signaling Between the Gut and the Kidney: Which Can Help Reverse Diabetic Kidney Disease Ie Roux |
| Room 28A | Women in Physiol Comm Symp: Ahead of the Curve: Taking the Lead Appleyard/Urso | Trainee Advisory Comm, Publications Comm Symp: The Other Side of the Submit Button: The Ins and Outs of the Manuscript Review Process Nichols/Greenlee/Haack/ Ramseyer | <i>CV Section Symp:</i> New Mechanisms of Heart Failure Based on Protein Misfolding Del Monte/Gottlieb |
| Room 28B | <i>ALACF Symp:</i> New Insights in Vascular Biology Machado/Iturriaga | Resp Section FT: Important Signaling Networks for the Structure and Function of Airway Smooth Muscle Cells Wang/Pabelick | CV Section FT: Novel Mechanisms of Diabetic Cardiac Dysfunction Bradley/Gardner |
| Room 15B | | 12:00 Noon-4:30 PM NASA Symp: International Space Station Research Results and Opportunities Tomko | |

Wednesday, April 30, 2014 – continued

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Find us in Publisher's Row at <u>Booth #723</u> and meet the editors of the prestigious APS journals, learn about the new website, APS*select*, and pick up your free desktop phone stand.

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Read more about the article selection process from Editor-in-Chief Joseph Metzger in the January 2014 issue of *The Physiologist* at <u>the-aps.org/mm/Publications/Journals/Physiologist</u>.



ACDP News

Association of Chairs of Departments of Physiology: Meeting Highlights

The Association of Chairs of Departments of Physiology (ACDP) held its annual meeting at RIU Palace Pacifico Hotel, Puerto Vallarta, Mexico, on December 5-8, 2013.

President Muthu Periasamy (Ohio State University) developed a program focused on issues being currently faced by department chairs, especially the impact of declining NIH funding on biomedical research as a whole and how it may affect scientists.

Research talks included the 7th Annual Arthur C. Guyton Lectureship given by José Jalife (University of Michigan) on "Searching For The Holy Grail: Upstream Therapy To Prevent Atrial Fibrillation Progression." The new chair research presentation was by J. Kevin Foskett (University of Pennsylvania). The 2013 ACDP Distinguished Service Award was presented to Allen W. Cowley, Jr. (from Medical College of Wisconsin). Cowley discussed his research and scientific career in a presentation.



Jalife receiving Guyton Award

On the national level, chairs heard from Mary Woolley, President of Research! America, on "The Impact Of NIH Funding Cuts On American Science." She challenged scientists to become advocates and champion their own cause.

Building on Woolley's talk but at an institutional level, Mark B. Taubman (Dean, School of Medicine & Dentistry, Vice President for Health Sciences, University of Rochester) gave a dean's perspective on "Supporting Research In Academic Medical Centers In The Era Of Health Care Reform And Fiscal Conservatism."

That was followed up with a discussion led by Muthu Periasamy (Ohio State University) on "Future of Biomedical Research in the USA," with the assistance of Harel Weinstein (Cornell University) and Marshall (Chip) Montrose (University of Cincinnati).

Martin Frank, APS Executive Director, updated the group on "Status and Initiatives of the APS."

On a more departmental level, Susan DeMesquita (American University of the Caribbean School of Medicine) led a discussion regarding "Digital Age of Medical Education." That was followed by a discussion led by Michael Sturek (Indiana University) about "Compensation Plans."

Officer elections were held with the following results. Michael Sturek (Indiana University) was elected presidentelect. Elsa I. Mangiarua (Marshall University) was elected secretary-treasurer. Pieter P. de Tombe (Loyola University Chicago Medical School) and Janice H. Urban (Rosalind Franklin University of Medicine & Science) were elected to 3-year terms as councilors.

Chip Montrose (University of Cincinnati) was thanked for his service as past president. T. Richard Nichols (Georgia Institute of Technology) and Michael Sturek (Indiana University) were thanked for their service as councilors.

President-elect Nick Delamere (University of Arizona) announced the 2014 ACDP annual fall meeting will be December 4-7 at Gamboa Rainforest Resort in Panama. As details are available, they will be added to the 2014 meeting web page (*http://www.acdponline.org/*). The meeting will be called the ACDP Leadership Retreat and will be open to chairs of departments of physiology or related areas, graduate directors in physiology or related areas, and medical physiology course directors. The meeting will focus on leadership topics and other areas of broad interest to those audiences. ●

ACDP News

Cowley Honored at Annual ACDP Meeting

The ACDP's highest award, the Distinguished Service Award, was presented to Allen W. Cowley, Jr., Professor and Chairman, Department of Physiology, Harry & Gertrude Hack Term Professor Physiology, and James J. Smith & Catherine Welsch Smith Chair in Physiology, Medical College of Wisconsin, during the organization's 2013 fall meeting in Puerto Vallarta, Mexico. Muthu Periasamy (Ohio State University), President of the Association of Chairs of Departments of Physiology (ACDP), presented the award.

Cowley was selected to receive the ACDP Distinguished Service Award for his long and illustrious service as an institutional and national leader of physiology, and for his wonderful contributions to scientific discovery that have highlighted the importance and value of physiology research.

Cowley has been Professor and Chairman of the Department of Physiology at the Medical College of Wisconsin since 1980. He earned his doctorate in physiology from Hahneman Medical College in Philadelphia, PA, working with John Scott. He then joined the Department of Physiology and Biophysics headed by Arthur Guyton at the University of Mississippi Medical Center. Cowley rose to the rank of professor there before accepting his current position at the Medical College of Wisconsin as Chairman and Professor of Physiology in 1980.

Cowley has made seminal findings related to the role of the baroreceptor reflexes, the renin-angiotensin system, and vasopressin in both the short- and the longterm regulation of arterial blood pressure. His research has revealed the importance of the renal medullary circulation in sodium homeostasis and the longterm control or arterial pressure. He proposed the novel hypothesis and then demonstrated that small reductions of blood flow to medulla of the kidney can produce chronic hypertension. During the past decade, he has pioneered efforts to attach systems level biology to the genome, providing novel insights into the location of genes that underlie complex disease, planting the seeds for the field now referred to as "physiological genomics." Cowley has served as President of the American Physiological Society (APS), the ACDP (1990 91), as well as President of the International Union of Physiological Sciences. He has received the Walter Cannon, the Ernest Starling, the Carl Wiggers, and Ray Daggs Awards from the APS. Cowley has been the recipient of the Novartis Award from the Council for High Blood Pressure Research of the American Heart Association and the Distinguished Scientist Award of the American Heart Association. His research has been continuously funded by the National Institutes of Health since 1971, during which time he has mentored over 50 fellows and students in his laboratory. Currently he directs two program project grants. One is focused on the kidney and the physiological mechanism of blood pressure control, whereas the second explores the genetic basis of salt-sensitive hypertension. He has over 325 publications in peer-reviewed journals and 38 book chapters.

Cowley's current research is focused on three areas: mechanisms controlling blood flow to the renal medulla, impact of arterial pressure on the production of oxidative stress and renal injury, and the renal medulla of hypertensive rats.

Because of his scientific endeavors, his dedicated service to the field of physiology, and his distinguished service to APS, ACDP, and other scientific organizations, the ACDP was proud to present its 2013 Distinguished Service Award to Allen W. Cowley, Jr. ●



ACDP President Muthu Periasamy presents Allen Cowley, Jr. with the 2013 Distinguished Service Award

Chapter News

The Sixth Annual Meeting of the Arizona Physiological Society

A very successful sixth annual meeting of the Arizona Physiological Society (AzPS) was hosted by the University of Arizona College of Medicine-Phoenix on the Phoenix Biomedical Campus during November 1-2, 2013. In attendance were 82 registrants from five state-wide university campuses: University of Arizona-Tucson (UA-TUC), University of Arizona-Phoenix (UA-PHX), Arizona State University (ASU), Northern Arizona University (NAU), and Midwestern University (MWU). Attendance represented 79% of the current membership. Of those attending, 39% were faculty members, 8.5% were postdoctoral trainees, 36.5% were graduate students, 16% were undergraduate and medical students. A number of high-quality abstracts (54 total) were submitted from undergraduate students (11), graduate students (22), postdoctoral fellows (6), and regular members (15). The meeting was sponsored by The American Physiological Society, University of Arizona-Tucson Department of Physiology, University of Arizona College of Medicine-Phoenix, Midwestern University Departments of Physiology and Basic Sciences, Northern Arizona University, Fisher Scientific, Data Sciences International, Kent Scientific Incorporation, Rainin Pipetting 360°, and Life Technologies.

The meeting commenced with an introduction and welcome given by Society President Layla Al-Nakkash (MWU), which was followed with the first session of the conference, "Trainee Physiology Research Presentations-I," chaired by Christos Katsanos (ASU) and Leah Penrod Steyn (post-doc, UA-TUC). There were four talks in this session, with topics ranging from research projects utilizing cellular models



Kevin Kregel, Chair of the APS Science Policy Committee, gives the APS-sponsored Chapter Advocacy Outreach Training talk



The AzPS keynote speaker, APS 86th President, Kim Barrett (UCSD)



A sample viewpoint of one area of a poster session

("Phosphorylation Within the Carboxy-Terminus of Connexin 37 Regulates Channel Open State," by Nicole Jacobsen, graduate student, UA-TUC) to human subjects ("Next Generation Sequencing Methylation Profiling in Skeletal Muscle From Lean and Obese Subjects," by Samantha Tangen, graduate student, ASU).

The second session of the conference, "Trainee Physiology Research Presentations-II," was chaired by Taben Hale (UA-PHX) and Tom Broderick (MWU). There were five talks in this session, with topics ranging from those utilizing models of brain injury ("Quantitative Vascular Morphology After Diffuse Traumatic Brain Injury," by Katherine Eakin, post-doc, UA-PHX) to models of diabetes ("Light Evoked Retinal Inhibition is Decreased in Streptozotocin-Induced Diabetes," by Johnnie Moore-Dotson, post-doc, UA-TUC).

The third session of the day was given by Kevin Kregel (chair of the APS Science Policy Committee, chair of the FASEB Animal Issues Committee, and professor and chair Department of Health and Human Physiology, University of Iowa). His talk, "Advocacy for Research Funding and Use of Animals in Research," was solicited as part of the APS-sponsored Chapter Advocacy Outreach Training. The session was chaired by Layla Al-Nakkash (MWU), and, given the current climate of diminished funding rates, Kregel's sobering and yet optimistic talk prompted much discussion on best practices to inform local government officials on the importance of our research and to advocate for continued funding. The keynote lecture, introduced by Ron Lynch (UA-TUC), was given by the current 86th APS President, Kim Barrett (Professor of Medicine, Division of Gastroenterology, University of California San Diego) and was entitled "Physiological Consequences of Interactions With 'Good' and 'Bad' Bacteria in the Gut." This inspiring and outstanding keynote talk was followed by a reception and buffet dinner, and the return of the popular minute poster presentations (whereby each poster presenter is given 1 minute of microphone time to "advertise who they are, and give a brief overview of the research poster they will shortly present"). Libations continued throughout the first poster session, including research presentations by 31 members.

The second day of the meeting began with an opportunity for post-docs to meet with Barrett over a light breakfast. The first session of the day given by James Rinehart (manager, Simulation Center, UA-PHX) entitled "The Simulation Lab: A Tool for Teaching Physiology" was chaired by Taben Hale (UA-PHX). This stimulating talk highlighted the usefulness of employing the simulation center as an aid to reinforce the physiology that medical and healthcare students are taught in lectures through the use of high-impact, closely monitored, and skillfully tailored clinical simulations. A lively discussion followed.



Poster presentation by Nicole Jacobsen (UA-TUC, graduate student)

Kiisa Nishikawa (NAU) then introduced this year's Arizona Distinguished Lecturer, Stan Lindstedt (NAU), who gave a charismatic and thought-provoking lecture



Poster presentation by Mun Aw (UA-TUC, undergraduate student) to Wei Guojun (UA-TUC, research staff)

| Abstract Category | Postdoctoral Fellow | Graduate Student | Undergraduate/Medical Student |
|----------------------|-------------------------------|------------------------|----------------------------------|
| First place | Christopher Pappas (UA-TUC) | Melissa Lynn (UA-TUC) | Haley Masters (UA-TUC) |
| Second place | Johnnie Moore-Dotson (UA-TUC) | Samantha Tangen (ASU) | Madeline Espineira (UA-TUC) |
| Third place | Leah Steyn (UA-TUC) | Michael Hicks (UA-PHX) | Zach Fader (NAU) |

Table 1. Abstract awardees

regarding his research, entitled "From Tusko to Titin: 'Giant' insights From Comparative Physiology."

The second minute poster session was chaired by Cara Sherwood (post-doc, UA-TUC) and Reece Mazade (graduate student, UA-TUC), affording the remaining 23 poster presenters an opportunity to give a 1-minute spiel of their research before their poster presentations. During both minute poster sessions, attendees were treated to many raffled giveaways generously donated by Rainin Pipetting 360° (iTunes gift cards), Kent Scientific (mugs and pens), Data Sciences International (Amazon gift cards), Fisher Scientific (small consumables), and Life Technologies (notebooks and Starbucks gift cards). During the lunch hour, judges of the poster categories met to discuss the finalists. Importantly, graduate and undergraduate students were invited to have lunch and spend time with Barrett.

The final oral communication session of the meeting, "Physiology Research in Arizona," was chaired by Chris Pappas (post-doc, UA-TUC) and Anthony Hessel (graduate student, NAU) and comprised six oral presentations on such topics as "Metabolism and Locomotion of Anoxic *Drosophila*" by Jon Harrison (ASU) and "TRPV4 in Porcine Lens Epithelium Regulates Hyposmotic Stress-Induced ATP Release and Na,K-ATPase Activity" by Amritlal Mandal (post-doc, UA-TUC).

The sixth annual AzPS conference concluded with the business meeting that was chaired by AzPS President

Layla Al-Nakkash. Members of the executive council who had completed their terms of service were thanked for their hard work and were awarded a certificate of appreciation: Anthony Hessel (Graduate Student Representative, NAU), and Cara Sherwood (Postdoctoral Representative, UA-TUC). Plaques were awarded to the two past AzPS presidents, Stan Lindstedt (NAU) and Scott Boitano (UA-TUC), to honor their staunch support of our AzPS chapter. Their contributions have been instrumental in generating a successful APS chapter. Recognition was also given to new executive council members that were recently voted into their positions: Kiisa Nishikawa (President-elect, NAU), Johnnie Moore-Dotson (Postdoctoral Representative, UA-TUC), and Nicole Jacobsen (Graduate Student Representative, UA-TUC). Taben Hale (UA-PHX) will continue to serve as secretary-treasurer for the final year of her term. Subsequently, financial awards were given for abstract submissions that represented \$100 for first place, \$50 for second place, and \$25 for third place. Listed in Table 1 are the names and institutions associated with the various awards.

Our 2-day annual chapter meeting continues to flourish in Arizona, bringing together physiologists from throughout the state. This meeting provides valuable support for our trainees and emboldens positive interactions between trainees and faculty. The ability to build and foster new collaborations, and share techniques and ideas can only serve to improve physiology research and teaching within Arizona. ●

Chapter News

The 17th Annual Meeting of the Iowa Physiological Society

The 17th Annual Meeting of the Iowa Physiological Society (IPS) was held on Saturday, September 21st at Des Moines University in Des Moines, IA. The meeting was supported by The American Physiological Society (APS), the Harman Endowment (Iowa State University), DSI, and North Central Instruments. Preparation and execution of the meeting was supported by the Continuing Medical Education Department of Des Moines University.

IPS President Joshua Selsby from the Department of Animal Science, Iowa State University, began the meeting with a welcome and opening remarks. Those remarks included a change to the printed program since an emergency caused our scheduled APS Keynote Speaker in Physiology Research to be unexpectedly called away. Selsby gave this address instead in a talk entitled "PGC- 1α Pathway Activation as a Treatment for Duchenne Muscular Dystrophy." This address was followed by research reports given by Shanthi Ganesan, a PhD student from Iowa State University, and Daniel Beltran, University of Iowa. The morning session concluded with the APS-sponsored Address in Research Advocacy delivered by T. Richard Nichols, Georgia Technical Institute, entitled, "Advocacy for Physiology Research."

The morning session was followed by a break, during which the meeting participants were able to continue discussions regarding research advocacy and enjoy their lunch. During this time, there was also a poster session where undergraduate and graduate students, post docs, and faculty members were able to present their recent findings. Undergraduate and graduate student presentations were evaluated, and awards given for first to third in each category, complete with monetary awards. The undergraduate category was won by Zachary Kadow, Drake University, followed by Aubrey Lambach,



Kim Tran presented a research talk



Vitor Lira presented a research talk



Gary Pierce presented a research talk



Jackie Brittingham delivered a research talk



Justin Brown delivered a research talk



Katrin Hollinger discusses her poster

Drake University, and Alisa Pajser, Drake University. The graduate category was won by both Kevin Ehlers, Des Moines University, and Katrin Hollinger, Iowa State University, and in third place was Michelle Burgard, Des Moines University.

In the afternoon, session research talks continued, with presentations from Kim Tran, Des Moines University; Rasna Sabharwal, University of Iowa; Erica Thomas, Des Moines University, who was selected for an oral presentation based on her submitted abstract; Gary Pierce, University of Iowa; and Vitor Lira, University of Iowa. The meeting then shifted somewhat to focus on the teaching of physiology. Jackie Brittingham, Simpson College, and Justin Brown, Simpson College, updated attendees with results of their novel and innovative teaching methods. The Keynote Address in Physiology Education, entitled, "How to Get Your Students' Attention Without Wearing a Clown Suit," was given by Bryon Wiegand, University of Missouri. Joshua Selsby, Iowa State University, then delivered closing remarks and adjourned the meeting.



Bryon Wiegand delivered the Keynote Address in teaching



T. Richard Nichols delivered the APS-sponsored address in Research Advocacy

The IPS business meeting took place immediately after the conclusion of the Annual Meeting. The business meeting was chaired by the IPS President Joshua Selsby, Iowa State University, and was attended by board members Harald Stauss, University of Iowa, Jackie Brittingham, Simpson College, Kim Tran, Des Moines University, and Mike Lyons, Grandview University. Jackie Brittingham was unanimously elected president, and Mike Lyons, Grandview University, is the new president-elect. Rasna Sabharwal, University of Iowa, was elected secretary and treasurer. Discussions focused on planning the next IPS meeting and specifically whether the meeting should be held in conjunction with other regional societies and whether the regional community would be better served by hosting the IPS meeting in the spring. Discussions also focused on ways to encourage participation in the IPS Physiology Seminar Series that was funded through the APS.

Chapter News

Annual Meeting of The Ohio Physiological Society

The Ohio Physiological Society held its 28th annual meeting at the Northeast Ohio Medical University Conference Center in Rootstown, OH on October 17-18, 2013. A total of 125 attendees from 14 of Ohio's universities congregated at NEOMED for the event. The OPS was able to attract, for the first time, a Nobel laureate to deliver the opening keynote address! Ferid Murad from George Washington University delivered his talk entitled "Discovery of Nitric Oxide and Cyclic GMP in Cell Signaling and Their Role in Drug Development." Murad's talk was enthusiastically received and celebrated with a wine and cheese reception and elegant banquet. It was a momentous event, and we appreciate the financial support from the American Physiological Society to support the keynote dinner of the OPS.

On Friday morning, the general meeting opened with outstanding research presentations by postdoctoral fellows Federica Accornero (University of Cincinnati) and Jessica Francl (NEOMED), graduate students Richard Pye (Wright State University) and Wenda Zhou (University of Akron), and Professor Maureen Peters (Oberlin College). This was followed by the morning poster session and lunch, which was sponsored by VisualSonics (Bret Hawkins, representative was in attendance). The latter half of lunch was highlighted by 18 student "blitz" presentations, which were 90 seconds in length and designed to stimulate interest for the afternoon poster session. The afternoon oral presentations were delivered by graduate students Suzanna Logan (NEOMED) and Qiming Duan (University of Toledo) and Matthew Gorr (Ohio State University), and Assistant Professor Sam Crish (NEOMED). The topics were diverse and stimulating, and the exchange of ideas throughout the conference was robust.

A total of 52 posters were displayed, presented, and judged for the conference. The students who presented at the lunchtime blitz session were eligible for the Peter K. Lauf Travel Awards to attend the Experimental Biology Meetings in April 2014 (San Diego). Thanks to the generosity of Lauf, along with the APS and the OPS, a total of four of these awards were made possible. Two graduate students, Ali Shawki (University of



The 2013 Ohio Physiological Society Peter K. Lauf award winners: (*left to right*) undergraduate student winners Sam McCright and Nelson Freeburg (Oberlin College), and Peter K. Lauf (Wright State Univ.); graduate student winners Rituparna Ganguly (NEOMED) and Ali Shawki (Univ. of Cincinnati).

Cincinnati) and Rituparna Ganguly (NEOMED), and two undergraduates, Sam McCright and Nelson Freeburg (both from Oberlin College), earned these prestigious travel awards with outstanding poster presentations. Congratulations to all of these poster competition winners and to all of our presenters for their high-quality research presentations and posters.

Gary Meszaros, 2013 President of OPS, organized the meeting, with an outstanding committee of faculty and administrative staff at NEOMED. William Chilian, Chair of the Department of Integrative Medical Sciences, provided significant support and assistance, as did the outstanding office staff from NEOMED of Karen Greene, Carolyn Miller, Danielle Nichols, and Dennis Finneran.

Before the meeting was concluded, Peter Lauf (Wright State University), the founder and strong supporter of the OPS, gave concluding remarks about his enthusiasm for the young scientists, their mentors, and research projects. He also thanked the faculty and staff at NEOMED for hosting a successful and stimulating conference, and Ferid Murad, Nobel Laureate, for taking time to visit and deliver the keynote address.

Education

APS Promotes Physiology at NABT Conference

The APS once again highlighted physiology for K-12 biology teachers at the National Association of Biology Teachers (NABT) Conference in Atlanta, GA. This year, NABT celebrated their 75th anniversary with a special gala and events that drew a record number of attendees. The annual national conference, held the third week of November, attracts middle- and high-school teachers as well as 2- and 4-year college faculty from across the nation. APS sponsored an exhibit booth and featured speaker, and presented a hands-on workshop that highlighted the APS Archive of Teaching Resources and career materials.



NABT Board Member, John McDonald, thanked APS for the continuation of their sponsored speakers at the conference and introduced this year's speaker, Gordon Giesbrecht.



APS sponsored speaker Gordon Giesbrecht delivers his keynote, "Lessons Learned From 100 Nights on Lake Winnipeg."

This year's sponsored speaker was APS member Gordon Giesbrecht, University of Manitoba. Giesbrecht presented "Lessons Learned from 100 Nights on Lake Winnipeg," an entertaining and informative talk that shared what he learned in his 20-year quest to become the first North American to do a solo expedition to the North Pole. In four expeditions, in record-breaking cold temperatures, five lessons were learned: dare to dream, prepare, start, work hard, and keep going. Giesbrecht advised that following these principles will usually lead to significant accomplishments, even if the original high goal isn't met.

In a hands-on workshop led by Miranda Byse (Program Manager, Professional Skills Training & Archive Coordinator) and Margaret Shain (Program Manager, K-12 Education Programs), teachers were given a brief introduction to the *Next Generation Science Standards*. The newly released standards create a challenge for K-12 teachers and the way science will be taught in their classrooms. During this well attended workshop, sample resources and ideas for using the *Next Generation Science Standards* were presented, giving teachers the opportunity to actually try some of the hands-on engineering and modeling lab lessons that are currently available in the *APS Archive of Teaching Resources*.

Interest in undergraduate programs was a highlight at the exhibit booth throughout the 3-day conference as resources and program materials were provided and discussed with community college attendees. Next year's conference will be held in Cleveland, OH. For further information, please contact Margaret Shain, Program Manager, K-12 Education Programs (*mshain@ the-aps.org*). ●

Education

APS Promotes Physiology at AMLE Conference

The APS highlighted physiology for middle-school science teachers and administrators at the annual Association for Middle Level Education (AMLE) Conference held in Minneapolis, MN, November 6-9. This was the third year for an APS presence at the AMLE Conference, which is attended by over 4,000 teachers, administrators, and counselors from across the country. Teachers were as excited as ever for a science society's presence since so few opportunities are available for science-related materials at this meeting. The APS booth was extremely busy and well received, with many questions about the APS Archive of Teaching Resources, careers materials, and the Frontiers in Physiology Program.

Miranda Byse (Program Manager, Professional Skills Training, and APS Archive) and Margaret Shain (Program Manager, K-12 Education Programs) presented a workshop on the newly released *Next* *Generation Science Standards.* Teachers had the chance to experience active learning as they worked to familiarize themselves with these new standards and sample some of the many resources available in the APS Archive of Teaching Resources. Workshop attendees engaged in two sample hands-on engineering activities, from teacher developed lessons, which were designed to inspire participants to have their students move beyond normal textbook learning into actively engaging students in higher-level thinking. The overflow crowd of teachers at the workshop were encouraged to register in the APS Archive of Teaching Resources and received handouts of the activities to take back to their classrooms to try with their students.

Next year's conference will be held in Nashville, TN, November 5-8. For more information, please, contact Margaret Shain, Program Manager K-12 Education (*mshain@the-aps.org*). ●

EB 2014 APS Refresher Course

"Exercise Physiology: The Role of Exercise in Disease Prevention, Treatment, and Optimal Aging"

(Sponsored by the APS Education Committee)

Organizers

Kim Henige, California State University, Northridge Catharine G. Clark, Cornell University *Date:* Saturday, April 26, 2014 *Location:* San Diego Convention Center, Rm. 24 *Time:* 8:00 AM to 12:00 PM

Presentations

Exercise, Cognitive Function, and Aging Jill N. Barnes, Mayo Clinic

Lifestyle Factors That Influence Vascular Aging Douglas R. Seals, University of Colorado at Boulder

Effects of Physical Activity on Aging and Disease: Role of Redox Signaling Li Li Ji, University of Minnesota

Exercise-Induced Protection against Type II Diabetes Kristin Stanford, Harvard University, Joslin Diabetes Center ●

APS Undergraduate Poster Session

Come see the Future of Physiology and Anatomy! Sunday, April 27, 2014 4:00 - 5:30 PM San Diego Convention Center, Sails Pavilion

Over 125 undergraduate students will be presenting their research on a wide range of topics. Don't miss this opportunity to support undergraduate students and encourage them to pursue a career in biomedical research. It's also a great time to look for your next graduate student!

Meet the David Bruce Outstanding Abstract Awardees and be among the first to discover which of those students win the David Bruce Excellence in Undergraduate Research Award.

See the videos from the 2014 APS Presents ... Phantastic Physiology Voyage: "Function Follows Form" video contest and learn which among those were selected as the award winners.

For more information, go to *www.the-aps.org/ugposter* or contact Melinda Lowy, Senior Programs Manager, Higher Education (*mlowy@the-aps.org*; 301 634-7787).



Undergraduate students presenting their research findings to APS members



Departments and programs talk with undergraduate students about graduate school

Graduate Program Recruitment Opportunity

Graduate programs: Don't miss the opportunity to recruit Undergraduate Students for your next graduate student cohort.

Where will you find:

- Over 125 undergraduate students presenting posters.
- All first authors on research abstracts for EB.
- Most considering a research career.
- Many considering graduate school.

The APS Education Committee invites graduate physiology departments to recruit graduate students at this event.

Recruiters will receive:

- Dedicated 30 minutes at beginning of session to interact with students before session begins (3:30 4:00 PM) (food served).
- Table space for distributing graduate school information (6-ft. table).
- Inclusion on signage at poster session.
- Listing in special session program with contact information.
- Access to list of undergraduate students from the session who are interested in graduate school.

Cost: \$250/table.

To sign up, go to *www.the-aps.org/ugposter* or contact Melinda Lowy, Senior Programs Manager, Higher Education (*mlowy@the-aps.org*; 301 634-7787). ●

Education

Annual Biomedical Research Conference for Minority Students

The APS was a major conference sponsor and presented awards to minority undergraduate researchers at the Annual Biomedical Research Conference for Minority Students (ABRCMS) at the Gaylord Opryland Resort and Convention Center in Nashville, TN from November 13 to 16, 2013.

Now in its 14th year, ABRCMS is the largest, professional conference for underrepresented minority students to pursue advanced training in science, technology, engineering, and mathematics (STEM), attracting ~3,300 individuals, including 1,700 undergraduate students, 400 graduate students and postdoctoral scientists, and 1,200 faculty, program directors, and administrators. Students come from over 350 U.S. colleges and universities.

The conference is designed to encourage underrepresented minority students to pursue advanced training in STEM disciplines and provide faculty mentors and advisors with resources for facilitating students' success. More than 500 representatives from graduate programs at U.S. colleges and universities as well as scientists from government agencies, foundations, and professional scientific societies join ABRCMS in the exhibitors program to share information about graduate school and summer internship opportunities.

During this 4-day conference, over 1,500 students participated in poster and oral presentations in 12 disciplines in the biomedical and behavioral sciences, including mathematics. All undergraduate student presentations are judged, and those receiving the highest scores in each scientific discipline and in each educational level were given an award during the final banquet.

The APS, represented by Brooke Bruthers (Senior Program Manager, Diversity Programs), Abigail Ruiz-Rivera (2013-2014 APS K-12 Minority Outreach Fellow), and Sheree M. Johnson (Porter Physiology Development and Minority Affairs Committee Member), was pleased to present \$2,500 in awards to eight undergraduate students for the best oral and poster presentations in the physiological sciences. Students receive a complimentary 1-year print subscription to the APS journal *Physiology* and an APS denim shirt. Awardees were also added to the APS Minority Physiologists Listserv.

Nineteen judges selected the winners, including the following APS members: Robert Nakamoto (University of Virginia), Juanita Merchant (University of Michigan), Kameswara Rao Badri (Savannah State University), Sheree M. Johnson (Howard University), Latanya Hammonds (Georgia Gwinnett College), Basil Ibe (LA Biomedical), Cynthia Jackson (Alabama A&M University), Miguel Martin-Caraballo (University of Maryland-Eastern Shore), Mohammad Newaz (Chicago State University), and Ashlee Tipton (Georgia Regents University).

Oral Presentation Awardee

Momodou Sonko, Sophomore, Johns Hopkins University

Poster Presentation Awardees

Gwendolyn Quintana, postbaccalaureate, Case Western Reserve University

Jacob Mack, junior, University of California-Davis

Duong Chu, junior, Vassar College

E. A. Adesanya, senior, The University of Chicago

Chelsee Holloway, senior, McDaniel College

Mashhood Wani, sophomore, University of Maryland, Baltimore County

Ama Darkwa, sophomore, Brandeis University

The APS congratulates the students on a job well done and wishes them the best in their academic and career pursuits.

Finally, the APS Education Office sponsored an exhibit booth, highlighting the following awards, programs,

and resources for minority groups underrepresented in science.

APS Minority Travel Fellowships, which provide funds to attend Experimental Biology and the APS conferences.

Undergraduate Summer Research Fellowships, which support full-time undergraduate students to work in the laboratory of an APS member.

Porter Physiology Fellowships, which support minority students pursuing full-time studies toward a PhD in the physiological sciences.

Professional Skills Training Courses, which promote the development of key skills among graduate and postdoctoral students by creating effective live and online courses that are appropriate for students in any life science discipline.

APS Minority Listserv, which provides information on APS events, awards, grants, fellowships, science

news, positions available, and more, as well as social media pages.

For more information on these programs, go to *www. the-aps.org/diversity*. The APS career brochure, career website, Archive of Teaching Resources, Facebook fan page, membership for students, MentorNet, and Experimental Biology 2014 also were highlighted at the exhibit booth.

Formerly known as the MARC/MBRS Symposium, this conference is sponsored by the National Institute of General Medical Sciences (NIGMS) and Division of Minority Opportunities in Research Program (MORE), and is managed by the American Society for Microbiology (ASM). For more information, see *www.abrcms.org*. For more information regarding the awards, programs, and fellowships administered by the APS Education Office, please visit *www.the-aps.org/education* or contact Brooke Bruthers, Senior Program Manager, Diversity Programs, at *education@the-aps.org* or (301) 634-7132.



ABRCMS Awardees

Education

"Becoming an Effective Teacher": New Professional Skills Training Course

A new APS professional skills training course is being developed and will be held June 23-27, 2014 at the College of the Atlantic in Bar Harbor, ME. Registration deadline is March 21, 2014.

The course is designed for upper-level graduate students, postdoctoral fellows, and early career faculty who want to develop their teaching skills. Pre- and post-workshop assignments will be required, as well as those that are part of the in-person course. As part of the course, students will develop a micro-teach, demonstrating their understanding of effective teaching.

The course includes:

- Online lessons before/after the live workshop
- A 5-day in-person workshop
- Resources for ongoing teacher development
- Networking opportunities with your peers and experienced renown teachers

The cost will be \$800 for APS members (\$900 for nonmembers), which includes course registration and materials, double- or triple-occupancy dorm-style room, and meals (including lobster banquet). The participant is responsible for transportation between home and the College of the Atlantic.

The course will help participants:

- Develop skills and model being effective at teaching, including the creation, evaluation, and revision of a micro-teach





- Identify and distinguish between the different means by which people learn
- Create short- and long-term plans to develop and expand teaching credentials
- Describe and demonstrate methods for teaching students from diverse groups
- Understand the process involved in creating a lesson vs. a course
- Identify professional standards of practice in teaching

After finishing the course, participants have:

- A detailed plan for improving their teaching skills
- Hands-on experience at effective teaching
- Network of peers and mentors to share critiques and advice
- Tools and resources for further honing their teaching skills

Register by March 21 to attend this workshop. For registration information, go to *www.the-aps.org/ teaching-registration*.

For more information about the course, visit *www. the-aps.org/teaching* or contact Melinda Lowy, Senior Program Manager, Higher Education (*mlowy@the-aps. org*; 301 634-7787).



Experimental Biology 2014 San Diego, CA·April 26-30 APS Career/Mentoring/Trainee Sessions

Mark Your Calendars!

the-aps.org/careersymp

Career Symposium

"Conscious Choice and Serendipity in Your Career Trajectory"

Tuesday, April 29, 8:00 - 10:00 AM

Convention Center, Room 25C

Talks:

A Government Scientist's Perspective Project Realization and Management in Industry Application of Physiology in Product Innovation and Business Strategy Physiologists Role as Medical School Curriculum Architects

the-aps.org/mentorsymp

Mentoring Symposium "Ahead of the Curve: Taking the Lead"

Wednesday, April 30, 8:00 - 10:00 AM

Convention Center, Room 28A

Talks:

Why are Leadership Skills Important? How Do You Obtain Leadership Skills? How Do You Demonstrate Leadership Skills?

the-aps.org/traineesymp

Trainee Symposium "The Other Side of the Submit Button: The Ins and Outs of the Manuscript Review Process"

Wednesday, April 30, 10:30 AM - 12:30 PM

Convention Center, Room 28A

Talks:

How to Become a Reviewer? What Are the Responsibilities of a Reviewer? What is Included in a Review?

Education

Medical Physiology Course Directors' Meeting

All medical physiology course directors or anyone responsible for teaching medical physiology are invited to a meeting to discuss issues of concern or to share ideas at EB 2014 in San Diego, CA.

Location: Marriott Marquis and Marina Hotel,

Coronado Room Date: April 27, 2104 Time: 2:00 to 3:00 PM

Items to be discussed include:

 New members-only Medical Physiology Course Directors website

- Medical Physiology Course Directors listserv
- 2014 Refresher Course on Exercise Physiology and the best way to teach exercise physiology to medical students
- New textbooks and other resources
- Challenges being faced in teaching medical physiology
- Possible new meeting for course directors

For more information, contact Melinda Lowy, Senior Programs Manager, Higher Education (*mlowy@the-aps. org*; 301 634-7787). ●

The aps Institute on Teaching and Learning

Building a Life Sciences Education Community of Practice for:

- ✓ Reforming Life Sciences Education
- Developing and Using Core Concepts and Competencies
- ✓ Using Innovations in Student Centered Learning
- Aligning Teaching and Assessment
- ✓ Facilitating Educational Research Collaborations
- ✓ Publishing and Funding Educational Research

the-aps.org/ITL/













Mentoring Forum

Tips on How to Succeed at Your First Experimental Biology Meeting



Kathy Ryan

Congratulations . . . you are coming to Experimental Biology (EB) for the first time! EB is an incredible opportunity to learn, develop new research ideas, present your research results, and meet colleagues who may become lifelong friends. EB is something that I look forward to every year, since it provides opportunities to see old friends from graduate

school/postdoctoral fellowships, meet new friends, encourage trainees, learn new science, and be involved in APS activities.

Coming to this meeting, however, can be somewhat daunting; when you get to the Convention Center, you will be handed a program book that is the size of a phone book from a mid-sized city, you will need to navigate a convention center that is ~2 million square feet in size, and you will be there with 10,000-15,000 colleagues. As an inveterate EB attendee, I would like to offer some helpful hints that might make your experience more manageable and enjoyable. Some of these hints come from personal experience, whereas others have been derived from information provided by the Career Opportunities in Physiology Committee to undergraduate trainees.

Get Ready (November to February)

As you are submitting your abstract, don't forget to check out the numerous award opportunities for trainees and young investigators awarded by the sections and APS in general. If you don't apply, it is absolutely certain that you will not receive an award. Don't miss the opportunity to have your research recognized (and maybe gain some extra travel funds).

By now, you should have made hotel reservations. In fact, hotel reservations should be made at the same time as abstract submission, since hotel rooms at a reasonable rate near the convention center go quickly. Being closer to the convention center optimizes networking opportunities Kathy L. Ryan • US Army Institute of Surgical Research

and the ability to attend evening functions. There is no transportation provided by the convention itself, so you will be relying on your own feet, pricey taxi rides, and/ or public transportation.

Be aware that the early bird registration fee discounts expire in February. After the expiration date, you will be paying more. As an APS member, you receive an additional break on registration, so now is the time to join if you haven't already. Graduate students receive an even further discounted rate. As far as registration fees, the only thing better than being a graduate student is being an undergraduate student, since undergrads receive free registration.

Get Set (March to April)!

Scientific presentation. During this time frame, you will be preparing posters and PowerPoint slides if you are presenting work at the meeting. It is essential that you not wait until the last minute to do this. Set your deadline for having the work done at least 2 weeks before you are to leave for the meeting; if you plan to use the poster printing service and pick up your poster at the meeting, you should allow at least 3 weeks. It is essential that you allow ample time for coauthors and colleagues to review the work and catch any typos or other errors before printing your poster. Either a poster or a podium talk is a formal presentation to your colleagues, and you want to make the best possible presentation. Practice really does make near perfect.

If you are presenting from the podium, practice the presentation with your colleagues and mentors. Because you are so close to the work, you may have overlooked issues that your colleagues will pick up. Also, make sure that you are cognizant of time restrictions and tighten your talk to stay within these. Even though I am experienced (AKA, old), I find that soliciting input and advice from my colleagues is essential in putting together the best talk possible. Once the talk is finalized, save it to a couple of different media, just in case. I usually bring the talk on a thumb drive as well as a CD, since I don't want to be

caught without slides. Perhaps I'm just paranoid, but so far I haven't had a problem, and I have had to use my backup on occasion.

Preparation is also the key to success in presenting a poster. There are a variety of poster viewers: some will just walk by, others will stop to ask brief methods questions or only want the "big picture," some may just want to read only, whereas others will be very interested and ask a lot of questions. Prepare and practice 0.5-, 2-, and 5-min talks for these different types of viewers. Also, you might want to print 8.5" x 11" versions of your poster to hand to viewers who show profound interest.

Agenda for meeting. This is also the time to spend significant time and effort preparing your agenda for the meeting. The program is huge, and you will want to optimize your time spent at presentations that will be of most value to you. Use the "Itinerary Builder" program on the EB website to develop a day-by-day agenda. The APS Distinguished Lectureships are a great way to hear the leaders in your field give an overview of their work. Of these, the Cannon Lecture on Saturday evening serves as the official opening of the APS program and is followed by an opening reception with networking opportunities. Also, be aware of the difference between symposium presentations, which are usually overviews of a field, and 15-min talks, which are very focused on a specific research question.

For trainees and young investigators, I can't emphasize enough the outstanding Career Development Seminars and Workshops offered in the Career Center Area. Here, you will find invaluable information on interviewing, networking, alternate careers, job searches, conflict management, and professional development. Also, be aware that APS Committees, such as the Women in Physiology Committee, the Career Opportunities in Physiology Committee, and the Trainee Advisory Committee, offer symposia each year on topics of career or professional development. Although it is tempting to pack your schedule with science, take advantage of these talks on life skills that are often not discussed within your training programs but which are essential for a successful career in science. The Trainee Advisory Committee produces a nice collation of all of these opportunities that is available before the meeting and that is another resource for development of your schedule. Also, don't forget to leave an hour or so to walk through the exhibits, a great source of learning about new tools for your research, not to mention the "freebies" that are given away. Although it does take a few hours to produce your own personal EB master schedule, it will pay huge dividends in making the most of your EB experience.

There are two caveats that must be kept in mind when developing your schedule. First, realize the geographical distances involved. As an example, although the Marriott Marquis in San Diego sounds close (it connects to the Convention Center), you won't make it if you only allow 5 minutes to get from an activity in Hall D to a meeting room at the Marriott. Second, avoid the temptation to try to see and do all the science you can. If you take this approach, your brain will become full and you will burn out after 1-2 days (personal experience). Pick and choose from the science programs the activities of most interest to you. Interspersing career development activities is another great way to prevent burn out, and you'll learn some valuable tools for your career. Also, consider setting aside some time to walk through the city or visit some attractions. As with all things, of course, there must be balance. If you are a trainee, discuss the expectations that your mentor has for you as far as the meeting, and share vour schedule with him/her.

Go!

Apparel/bags. I often say that the #1 tip I can give to ensure a successful EB is to wear comfortable shoes. This is absolutely essential! You will be walking great distances, standing on concrete floors at poster sessions, standing at receptions, etc. A couple of years ago, I spoke with an undergraduate student at her orientation session on Saturday afternoon. She had only brought newly purchased high heels to the meeting. By the time I saw her again Sunday evening, she had band-aids all over both feet and was hobbling. Wear comfortable walking shoes that are already broken in. At the same time, recognize that this is a professional meeting and dress for success; leave the flip-flops at home. It's an old cliche, but you only get one chance to make a first impression. Business casual is fine, but don't bring clothes that are too revealing or sloppy. Think of it this way: Dress as if the next person that you meet might have a job for you. I am always more comfortable being slightly overdressed at professional events than underdressed, and, yes, I learned this the hard way. Also, always bring a jacket or sweater to the Convention Center because the meeting rooms are often chilly.

Once you arrive, pick up your registration materials at the Convention Center. You will receive a large (and heavy) EB program, a briefcase, and other assorted items. You will also receive a badge, which you must wear to attend conference activities; you will not be allowed into the exhibit floor or presentation rooms without it. Upon leaving the Convention Center, take your badge off so as not to advertise that you are a visitor to the city. Be safe.

When you pack to go to the Convention Center each day, remember that you will be carrying your briefcase/pack/ bag all day, and it seems to take on mass throughout those 8-10 hours. I try to carry just the essentials – -my personal schedule for the day (which I review at breakfast), wallet, cell phone, EB program, note pad, business cards. Better yet, leave the EB program in your room and download the EB program app to your cell phone. It's very user-friendly and easy to use.

Networking. Many trainees will have their advisors with them at EB or have an assigned travel mentor. These folks can introduce you to physiologists that you want to meet. But even if you're on your own, don't be intimidated. We were all trainees or EB first-timers at one point in our career, and I have found APS members to be very friendly, giving individuals who truly care about and nurture our trainees. In discussions about your science or someone else's, be confident but teachable. Answer questions the best way you can, and don't be afraid to say you don't know but look forward to learning about it. I can honestly say that my EB interactions have, for the most part, been phenomenal and that I have never felt that anyone was out to get me through their questions. So introduce yourself to a distinguished lecturer at a reception or swing by the poster of someone you might want to work with in the future. Go to your APS section's social event or to special events for trainees. Go by the APS booth in the exhibit hall or the APS office in the headquarters hotel and meet some of the staff who will be more than happy to introduce you to APS activities and opportunities to plug in. I have met many people through EB over the years who have become valued colleagues and friends.

After the meeting. Just a quick note about after the meeting: If you struck up a conversation with someone who shares your research interests, think about sending a "thank you" e-mail with contact information. Again, this may be a colleague whom you will want to work with in

the future, either through employment or as colleagues on APS committees or future EB symposia. ●

Enjoy your first EB!

Disclaimer: The opinions or assertions contained herein are the private views of the author and are not to be construed as official or as reflecting the views of the Department of the Army or the Department of Defense.

Kathy Ryan Biography

Kathy Ryan is Chief of the Research Regulatory Compliance Division at the US Army Institute of Surgical Research (USAISR), Fort Sam Houston, in San Antonio, Texas. Kathy received her PhD in physiology from the University of Texas Health Science Center at San Antonio (UTHSCSA) in 1989. Following a postdoctoral fellowship, she joined Trinity University in 1992 as a research physiologist whose primary duties were performing research for the US Air Force at Brooks Air Force Base in Texas. In the evenings, she also taught undergraduate courses at Trinity and St. Mary's University (1991-2001). In 1999, Kathy became a research physiologist at USAISR and was actively involved in performance of research to improve care of combat casualties. In 2013, she assumed her current position after serving the Institute in a variety of research regulatory roles during her research career.

Kathy has performed a wide variety of research related to military problems and applications over her 21-year career with the military. Her initial research involved heat stress, but she then moved into investigations of hemostatic drugs and dressings for battlefield use by combat medics. More recently, her research interests were focused on autonomic responses to central hypovolemia. She has been privileged to work with developers of three medical devices that have been cleared by the FDA and are in use in both civilian and military settings.

Kathy is actively involved in the APS as Chair of the Career Opportunities in Physiology Committee and as an associate editor for *Advances in Physiology Education*. She has not missed an Experimental Biology meeting since 1992. ●

To comment or ask a question, please visit www.the-aps.org/ forum-eb

Mentoring Forum

The Other Side of the Submit Button: How to Become a Reviewer for Scientific Journals



Nicole Nichols

Jennifer Sasser

Why is Peer Review Important?

Peer review of scientific manuscripts is an important part of a scientific career. Manuscript review is both a service to the scientific community and to the journal to ensure the quality of the work that is published. The process also allows the reviewer to stay up to date on the most recent research advances in his/her field. Being asked to review a manuscript is an honor that demonstrates that you are recognized as an expert in your field. In addition, peer review can contribute to your own personal development as a writer and researcher, and service as a reviewer may be considered in annual performance reviews or promotion reviews. Despite the importance of peer review, this remains a skill for which few trainees receive formal, if any, training. Most trainees learn about the review process from observing the methods of their mentors; however, the review process varies greatly between investigators.

How do you Become a Reviewer?

The approach to learning how to review papers and becoming involved in the peer review process depends on the stage of your career. Nicole L. Nichols • University of Wisconsin-Madison Jennifer M. Sasser • University of Mississippi Medical Center

Graduate students. To learn the basics of peer review, there are several steps that you can take without being formally asked to review for a journal. First, as you stay up to date of the literature in your field, think about what defines a "good" manuscript. Think about all the steps involved in crafting a manuscript. (How much data do you need? How do you present the findings? How do you draw appropriate conclusions? How do you determine which statistical analysis is best suited for your particular study?) Examine papers from your graduate work or others in your research group, and pay attention to the comments made by your mentor when he/she edits your papers as well as to comments made by the journal reviewers. In addition, when you attend journal club, listen to criticisms of the paper being presented, especially those made by established investigators who are experienced in the editorial review process. When you present in journal club, act as a reviewer instead of just presenting the findings and ask your mentor and other faculty members for feedback on your critique of the paper. Volunteer to proofread manuscripts drafted by your peers and offer to assist your mentor with manuscript reviews when he/she is asked to review work that is in the area of your research project. Before you can work with your mentor or other faculty members to review a manuscript assigned to him/her, your mentor will first inform the editor that you will be assisting in the review process and then acknowledge your help in the confidential comments to the editor. This will ensure that you get credit for your efforts as well as give you authorization to read the protected document.

Postdoctoral fellows. As a post-doc, you can continue to work on the skills needed to critique scientific manuscripts by continuing to read the primary literature, participate in journal clubs, and write up your own results; however, you can also play a more active role in reviewing the work of others. In addition to reviewing comments from the reviewers of your manuscripts, assist more junior

members of your laboratory or department in preparing manuscripts and provide constructive criticism of their work. As you continue to build your scientific network, introduce yourself to associate editors of the journals to which you submit your work and volunteer to perform manuscript reviews for them.

Junior faculty members. By the time you become a junior faculty member, you will have gained considerable research experience. As you submit your work to journals and list yourself as the corresponding author or senior author, you are building a reputation in your field. Editors will often ask those who submit to their journals or who publish in a specific area of research to review manuscripts under consideration. Therefore, you may receive requests to review articles for journals in your field. In addition, be proactive! Ask former mentors or more senior investigators in your department to suggest your name to associate editors as a potential reviewer for their journal.

Established faculty. The APS and editors for the American Journal of Physiology encourage faculty members to involve their trainees in the peer review process. When asked to review a manuscript that is suitable for a colleague to assist with, the journals simply ask that you identify anyone who assists in the review in the confidential comments to the editor to ensure that he/she receives credit for the contribution to the review process. Make sure that the student or fellow understands the confidentiality of the review process. It is important to note that the manuscript should be destroyed after the review process is complete and that the manuscript should not be retained electronically. As a regular reviewer for a journal, in addition to working with trainees when you accept a review assignment, remember to recommend junior colleagues when you are unable to accept a review request. Take every opportunity to help trainees learn to critique scientific works: work with your own trainees as they prepare their papers for submission, provide guidance and constructive criticism during departmental journal clubs, and show your students and fellows examples of reviews and critiques of your own manuscripts. Training of your junior colleagues in the review process is an important step in ensuring the future of the peer review.

What do you do Once you are Asked to Review a Manuscript?

It is important to perform a timely, thoughtful, polite, and constructive review so that journal editors will continue to ask you to perform reviews for their journal. The purpose of the peer review process is to give feedback that is both rigorous and fair to the authors and that will assist the editor in making a decision on the manuscript. As an early career contributor to the review process, it is important to say "yes" when asked to review unless there are extenuating circumstances (which you can explain in a note to the editor/associate editor) or if you have to recuse yourself because of a relationship with one or more of the authors (i.e., you have published or worked with one of the authors in the last 3 years).

What are the responsibilities of a reviewer? The reviewer should critically read the manuscript to determine whether the work is technically sound, of relevance to the field, and fitting for the scope of the journal. Reviewers do not actually decide whether a paper is accepted for publication (that is the job of the editor); instead, they provide insight to the editor on whether the experiments presented are technically sound, animal or human studies were performed ethically, appropriate statistical comparisons were made, the introduction and discussion are complete, and conclusions are supported by the data presented. The reviewers should also comment on the novelty of the findings and the importance of the findings to the field. Main questions that the review should answer are:

- Does the work make a significant contribution to the field?
- Are the experimental design and data generated adequate to support the conclusions drawn by the authors?
- Is the statistical analysis appropriate for the study?
- Is the writing organized and complete?

What makes a good reviewer? Overall, it is important to make sure that you follow any instructions for reviewers from the journal. Complete all components of the online form and make sure that the confidential comments to the editor and your ratings are consistent with your comments to the authors. However, there are occasionally comments made confidentially to the editor that would not be appropriate for the formal review that goes back to the authors. And always deliver your review in the time frame requested by the journal (or even better, earlier than requested). Remember that, especially in the beginning, a thorough review will take time – maybe even a full working day!

In your comments to the authors, remember the "golden rule": treat the authors as you would want to be treated. Alhtough you want to be critical of the work, you also want to read the manuscript with an open mind. Take the time to phrase your comments in a way that is constructive and helpful; do not make any personal attacks on the author. Although you should strive to always be polite and professional, you must also be honest about the deficiencies in the work. However, do not decide to reject a manuscript because it does not answer the proposed question or because the style of presentation is not your preference. It can be helpful to the editor if you start the review with a quick summary of the study that includes the main results, the overall conclusion, and statement about the novelty of the work. Next, go over the main strengths of the paper and summarize your overall impression of the paper. Finally, list your main criticisms of the work and suggestions for improvement; making these suggestions specific and detailed can be helpful when the authors are preparing a response. These suggestions can be broken down further into major comments and minor comments. Remember to only comment on the areas of the article with which you are familiar. Also, do not force issues that are peripheral to the study. If there is a section of the manuscript that you feel you are not qualified to review, you can state that in the confidential comments to the editor. It is not okay to share the manuscript with a colleague who has expertise in the area unless you get advance permission from the editor.

In the comments to the editor, let the editor know exactly how you feel regarding your level of enthusiasm or overall concerns with the manuscript, whether positive, negative, or mixed. Summarize your overall concerns and state whether you recommend acceptance, rejection, or revision here (do not include this in your comments to the authors). You can also state your level of enthusiasm if the authors do address your concerns and resubmit a revision incorporating your suggested changes.

How do you improve your reviewing skills? There is little feedback given for the review process, so it is hard to determine how useful your reviews actually are. When you are starting the process and working with your mentor to review papers, ask for (and accept) critical feedback of your review. When the editor makes a decision on a paper, as a reviewer you will usually get the comments back from the other one to two reviewers as well as yourself in the final decision letter. Look through these other reviews and compare the similarities and differences between your review and theirs. Were there flaws that you missed? How did the other reviewers structure their reviews? Did you have a similar impression of the paper? ●

Learn from AJP Editors

Learn more about the peer review process this April at the Experimental Biology Symposium sponsored by the Trainee Advisory Committee and the Publications Committee: "The Other Side of the Submit Button: The Ins and Outs of the Manuscript Review Process" http:// www.the-aps.org/mm/Careers/Mentor/Presenting-Research/Graduate-Students/Writing-manuscriptreviews/Peer-Review-Process.

Date: Wednesday, April 30, 2014 Location: San Diego Convention Center, Rm. 28A Time: 10:30 AM to 12:30 PM

Acknowledgements

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4. Raff H, Brown D. Civil, sensible, and constructive peer review in APS journals. *Am J Physiol Regul Integr Comp Physiol* 305: R171-R172, 2013.

Biographies of Authors

Nicole Nichols is a postdoctoral fellow studying respiratory neurobiology in the Department of Comparative Biosciences at the University of Wisconsin-Madison. She has a BS in Molecular Biology/Life Sciences from Otterbein College and a PhD in Biomedical Sciences with concentration in Neuroscience and Physiology from Wright State University. Her research involves studying mechanisms of respiratory plasticity in models of motoneuron death. She is a member of the American Physiological Society and is the Respiration Section Trainee Representative to the APS Trainee Advisory Committee.

Jennifer Sasser is an assistant professor in the Department of Pharmacology and Toxicology at the University of Mississippi Medical Center. She received her PhD in Biomedical Science from the Department of Pharmacology and Toxicology at the Medical College of Georgia and completed her postdoctoral training in the Department of Physiology and Functional Genomics at the University of Florida. Jennifer currently serves as the Chair of the APS Trainee Advisory Committee and as an editorial board member for the *American Journal of Physiology*.

To comment or ask a question, please visit *www.the-aps.org/ forum-peerreview*

Membership

Brian R. Duling, 67th APS President



Brian R. Duling

Russell Duling, Brian 67th APS President and Professor Emeritus in the Department of Molecular Physiology & Biological Physics, and Biomedical Engineering, of Virginia University Health Sciences Center, died of complications from multiple myeloma on December 24, 2013, in the University of Virginia Hospital.

Duling was born in Pueblo, Colorado, on May 27, 1937. His father was an officer in the Army Air Force during the Second World War, so Brian grew up in a variety of military places and air bases, as most military children do. But his formative years in high school in the 1950s were spent in San Francisco . . . at just the right time . . . which explains some of his behavioral resemblances to Jack Kerouac and Jimmy Dean, with a dash of William Burroughs and a few drops of Allen Ginsberg.

Great things are not accomplished by those who yield to trends and fads and popular opinion.

– J. Kerouac

He served in the United States Air Force in Denver, Colorado, and graduated from the University of Colorado, Boulder, in 1962 with an AB degree in biology. He subsequently attended the University of Iowa, graduating in 1967 with a PhD in physiology and biophysics. He and his wife, Marilyn, and their first child, Kendra, then traveled to Charlottesville, Virginia, where he did a year of postdoctoral research with the newly arrived physiology chair, Robert M. Berne. In 1968, Duling was promoted to instructor and quickly rose through the academic ranks to become a tenured distinguished professor and stayed at Virginia for the remainder of his career, indeed for the remainder of his life.

Duling's contributions and dedication to teaching, research, and service to his professional disciplines in the areas of cardiovascular physiology, biophysics, biomedical engineering, vascular biology, and microcirculation were many and varied. He was also deeply involved in promoting and advancing the mission of excellence that is known among, and expected from, the dedicated members of the community of scholars at the University of Virginia.

Brian's career at the University of Virginia spanned 45 years of continuous productivity (continuously funded primarily by the NIH - 1967 to retirement in 2012) that encompassed research in the areas of peripheral vascular science from the molecular and cellular levels to the whole organism and comparative physiological levels. His many distinguished teaching and research awards reflect his excellence as a teacher and a research investigator. Among these were The Robert Bennett Bean Award for Teaching Excellence (1975); The Philip D. Dow Award from the University of Georgia (1980); The Philip Bard Award from Johns Hopkins University (1985); The George E. Brown Award from the American Heart Association (1987); The Eugene M. Landis Award from The Microcirculation Society (1988); the Abbott Microcirculation Award (1988); a NIH MERIT Award (1989-1999); Fellowship in The American Association for the Advancement of Science (1990); The Gollnick Lecture from the American College of Sports Medicine (1994); The Wiggers Award from the APS Cardiovascular Section(1994); Fellowship in the American Institute for Medical and Biological Engineering (1998); The APS Robert M. Berne Distinguished Lectureship (1998); election to the Academy of Distinguished Educators, University of Virginia (2003); The Malpighi Award from The European Society for Microcirculation (2004); The University of Virginia Distinguished Scientist Award (2006-2007; this was the first year this faculty award was given); The Benjamin W. Zweifach Award from the Microcirculatory Society (2007), the highest international award given by the Microcirculatory

Society to an internationally renowned scientist who has made outstanding contributions to the advancement of knowledge of the microcirculation and understanding of vascular biology; The 2009 Bodil M. Schmidt-Nielsen Award Lecture, in recognition of an extended career of excellence in teaching and mentoring students... and even more awards.

Duling successfully trained and mentored more than 35 postdoctoral fellows, 3+ clinical fellows, and some 7 predoctoral students. His mentees went on to successful careers and prominent positions in a variety of careers: academic, industrial, clinical centers, and government institutions, all with national funding and numerous awards among themselves.

Brian's administrative service to science at the national and international level is well known and well documented. He was President of The Microcirculatory Society from 1984-1985; President of the Cardiovascular Section of The American Physiological Society (APS) from 1986-1987, President of The American Physiological Society (APS) from 1994-1995, and was a member (1993-1997) of the Board of Directors of the Federation of American Societies for Experimental Biology and Medicine. He was an active member of the Long-Range Planning Committee of APS, serving as its chair. He was a member of the NIH Cardiovascular B Study Section from 1979 to 1983 and served as a member of the very important NIH Task Force for "Ten Year Review" in 1981. Duling, by his spirited nature and dedication to the advancement of science, inspired significant changes through his service on those committees and societies that advanced and improved the atmosphere for creative cardiovascular and microvascular research with the injection of new methods and concepts. Indeed, his role in helping to implement improved conditions for research at the national level will continue to be felt for years to come, particularly through those students whom he trained.

Brian made a profound impact on all that he did. He was truly a man with soul. He had "sparkle." He was a man for all seasons. One of his closest colleagues said: "If Brian's creator asked me what his epitaph should be, I would paraphrase something Peter O'Toole once said when he answered a similar question about himself. It would say on his head stone: 'We regret returning too soon one of your creations, unfinished.'"

Brian is survived by his wife Marilyn and daughters Kendra, Shannon, and Erin, and six grandchildren. A celebration of life will be held in the spring in Stonewall, Colorado. In lieu of flowers, donations can be made in honor of Brian Duling to:

The American Physiological Society: Brian R. Duling Memorial Fund *http://bit.ly/1ikXzCK* or 9650 Rockville Pike, Bethesda, MD 20814.

Multiple Myeloma Research Foundation: *www.themmrf. org* or 383 Main Ave., 5th Floor, Norwalk, CT 06851.

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Suresh Govindan Loyola Univ. Chicago, Maywood, IL

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Bryan Hughes Univ. of Alberta, Edmonton, Canada

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Isao Ishii Keio Univ. Fac. Pharmacy, Tokyo, Japan

Yoko Ito National Jewish Health, Denver, CO

Manda Linea Keller Mayo Clinic, Rochester, MN Wararat Kittikulsuth Univ. Utah, Salt Lake City, UT

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Suzana Savkovic Tulane Univ., New Orleans, LA

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Daniel Tschumperlin Mayo Clinic, Rochester, MN

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Yang Yu Univ. of Iowa, Iowa City, IA

Anna Zuk Genzyme, A Division of Sanofi, Framingham, MA

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Collin Beckstrom Univ. of Colorado Boulder, CO

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Anand Lakhkar New York Medical College, NY

Thomas M. Langer Medical College of Wisconsin, WI

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Alexandra Mackenzie Williams The Univ. British Columbia, Canada

Lee Winchester Univ. of Louisville, KY

Tyler Thomas Wood Brigham Young Univ., UT

Brian Wu Univ. Southern California-Pasadena, CA

Yong Wu Guangzhou Medical College, China

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Christopher Shawn Conway Univ. of Hawaii, HI

Nelson Fraser Freeburg Oberlin College, OH **Phoebe Lea Hammer** Oberlin College, OH

Sarah Marie Johnson Univ. of Oregon, OR

Gabriel Maurice Moore Oberlin College, OH

Simone Prather Univ. of Oregon, OR

Mary Savarese Elon Univ., NC

Melinda Schneider Univ. California, SD

Jillian Ann Somero Elon Univ., NC

Chelsea Renee Strong Michigan Technological Univ., MI

Julia York Univ. of British Columbia, Canada

New Affiliate Members

Robert M. Weiss Univ. Iowa, IA

Recently Deceased Members

Brian R. Duling Univ. of Virginia Heath Sci. Ctr., VA

People and Places

Eve Marder, Gruber Neuroscience Prize Winner

APS member Eve Marder, a professor of biology at Brandeis University, is the 2013 recipient of the Gruber Neuroscience Prize. Marder has been a pioneer in the study of neural circuits, particularly in how the



Eve Marder

properties and dynamics of such circuits give rise to specific behaviors. Early in her career, while researching the small group of neurons called the stomatogastric ganglion system (STG) that controls digestive lobsters muscles in and other crustaceans, Marder demonstrated that such circuits are not "hard-wired" to produce a single output

or behavior. Instead, she reported, the circuits are remarkably plastic and change function frequently in response to various neuromodulators. That discovery marked a paradigm shift in how scientists viewed the architecture and function of all neural circuits, including those in the human brain. Marder has also been a pioneer in the field of theoretical neuroscience, which uses computational and mathematical tools to quantify what nervous systems do and how they operate. As part of that effort, she co-developed an experimental computational tool, the dynamic clamp, which is used worldwide for the study of neural systems at the cellular and circuitry levels. More recently, Marder has focused her research on how neural circuits maintain homeostasis over long periods of time despite constantly reconfiguring themselves – research that has broad implications for the study of many neurological disorders and diseases.



APS Intersociety Meeting: Comparative Approaches to Grand Challenges in Physiology San Diego, CA • October 5-8, 2014

Please join us for the 2014 APS Intersociety Meeting. The theme of the meeting will be "Comparative Approaches to Grand Challenges in Physiology." Comparative physiology takes advantage of the diverse evolutionary histories and ecological settings of animals. By definition, comparative physiology is broad, spanning a variety of animal taxa occurring in diverse environmental settings, and studied at many levels of biological organization (from molecular physiology to physiological ecology). This breadth allows comparative physiology to (a) understand basic physiological processes and (b) identify novel mechanisms used by animals to solve specific physiological challenges.

This meeting will draw comparative and evolutionary physiologists from around the world to present and discuss recent advances in animal physiology. The three and a half day meeting will feature 15 symposia, 2 plenary lectures,



2 workshops, and multiple sessions for contributed abstracts as oral or poster presentations. This meeting will include the 2014 Scholander Award competition for young comparative physiologists, plus other trainee awards and activities.

the-aps.org/comparative

People and Places

Address Changes

Linda E. May is now Assistant Professor in SODM FS at East Carolina University, Greenville, NC. Prior to this move May was a student in the Department of Anatomy at Kansas City University of Medicine and Biosciences, Kansas City, MO.

Tara Jeffrey Allen is now Teaching Professor in the School of Biological Sciences, University of Missouri, Kansas City, MO. Prior to this move, Allen was professor in the Department of Biology, William Jewell College, Liberty, MO.

Neal L. Weintraub is now Associate Director of Vascular Biology Center and Professor of Medicine at Georgia Regents University, Augusta, GA. Prior to this move, Weintraub was professor at the Univrsity of Cincinnati College of Medicine, Cincinnati, OH.

Yoonjung Park is now Assistant Professor of Exercise Physiology in the Department of Health & Human Performance, University of Houston, Houston, TX. Prior to this move, Park was assistant professor at Texas Tech University, Lubbock, TX.

Eugene W. Shek is now Principal Scientist/Team Leader in the Department of Rodent Pharmacy/Diabetes Biology/Pharmacology at Novo Nordisk Research Center, Beijing, China. Prior to this move, Shek was sr. scientist III in GPRD/R46R/APS9 Department at Abbive Inc., North Chicago, IL. Fabio Anastasio Recchia is now Professor in the Department of Physiology, Temple University School of Medicine, in Philadelphia, PA. Prior to this move, Recchia was Associate Professor in the Department of Physiology, New York Medical College, Valhalla, NY.

Rama Soundararajan is now Assistant Professor in the Department of Translational Molecular Pathology, M.D. Anderson Cancer Center, Houston, TX. Prior to this move, Soundararajan was assistant professor in the Department of Medicine at University of California, San Francisco, CA.

Johnny C. Hong is now Mark B. Adam Chair of Surgery/ Director of Solid Organ Transplants, Medical College of Wisconsin, and Milwaukee, WI. Prior to this move, Hong was Assistant Professor of Surgery, in the Department of Surgery, Division of Liver/Pancreas Transplants at the University of California, Los Angeles, CA.

Jason C. Woods is now Director Center for Pulmonary Imaging Research & Professor of Pediatrics and Radiology at Cincinnati Children's Hospital Medical Center, Cincinnati, OH. Prior to this move, Woods was Assistant Professor of the Mallingkrodt Institute of Radiology at Washington University, St. Louis, MO.

Yoshinobu Ohira is now Distinguished Visiting Professor in the Graduate School of Health & Sports Science at Doshisha University, Kyotanabe City, Kyoto, Japan. Prior to this move, Ohira was professor in the Graduate School of Medicine at Osaka University Life Science Laboratory.

Positions Available

Assistant/Associate/Full Professor: The Reproductive Sciences Program (RSP) at the University of Michigan seeks exceptional scholars for tenure-track positions in research areas that include gonadal biology; stem cells and development; reproductive genetics and epigenetics; reproductive medicine; maternal-fetal interactions and medicine; bioengineering in reproduction; and reproductive physiology and endocrinology. Positions are available at the assistant, associate or full professor levels in the Medical School Departments of Cell and Developmental Biology, Obstetrics & Gynecology, Pediatrics, Molecular and Integrative Physiology, and Urology, and in the School of Engineering Department of Biomedical Engineering. Candidates should have MD and/or PhD degrees with relevant postdoctoral or fellowship training, a strong track record of published work in reproductive sciences (non-cancer) or stem cell biology-related reproduction, and exceptional potential for conducting interdisciplinary translational and fundamental research in the reproductive sciences. Applications should include a curriculum vitae, a 1- to 2-page summary of research plans, and three letters of support. Applications will be reviewed as received until the positions are filled. Send applications to Gary Smith and Sue Moenter c/o Kelly Studer, RSP Interdisciplinary Faculty Cluster Hire Search Committee, 6428 Medical Science I, 1301 East Catherine St., Ann Arbor, Michigan 48109-0617; e-mail: kstuder@med.umich.edu; website: http://www.med. umich.edu/obgyn/research/rsp/index.htm. U-M EEO/ AA Statement: The University of Michigan is an equal opportunity/affirmative action employer.

Assistant Professor of Physiology: The Department of Physiology (PSL) at Michigan State University (MSU) seeks an engaging instructor with a strong interest in undergraduate education who is trained in physiology or a closely related biomedical discipline. The successful candidate for this fixed term, assistant professor rank must demonstrate effective, innovative design and teaching of undergraduate classes ranging from introductory non-majors to upper-level physiology majors. Specific duties include 1) teaching a largeenrollment course in introductory physiology for nonmajors, 2) developing an online course in introductory physiology, and 3) playing an active and integral role in the broader mission of excellence in undergraduate education at this institution, including committee

service, outreach efforts, innovation in the classroom, and discipline-based educational research. Instructional duties include delivering lectures, coordinating teaching assistant assignments, evaluating student performance, and reporting grades for the on-campus course as well as designing and teaching an online introductory physiology course using principles of sound instructional design. The successful candidate will actively collaborate with current faculty and MSU informational technology staff to advance MSU's strong commitment to undergraduate STEM education. Position is for 9-month academic year term, full time. Salary is commensurate with qualifications. Qualifications for this position include a PhD or equivalent in physiology or a closely related biomedical science. Previous experience teaching organ systems physiology to undergraduate students is required, with preference for experience as a lecturer in a large-enrollment course. Strong interest in developing online resources for delivery of a physiology course is necessary. Preference will be given to people with an extensive interest in education and pedagogy who are dedicated to improving student learning. Applicants must be able to work effectively with large numbers of students from diverse educational backgrounds. Applications are due January 31, 2014. Position will remain open until filled. MSU is an affirmative action, equal-opportunity employer, committed to achieving excellence through cultural diversity. The university actively encourages applications and/or nominations of women, persons of color, veterans, and persons with disabilities. Applicants should submit a letter of interest, statement of educational philosophy, curriculum vitae including lecture and teaching experience, and three letters of recommendation. Please visit our website *www.jobs.msu.edu* to apply for this position.

Neuroscience Faculty: Saint Maarten is looking for a regular, full-time FLSA (no FLSA required; Ross Islands only) for clear delivery of a comprehensive, up-to-date course in medical neuroscience. The course is taught in ~65 hours, three times a year. There are 100-225 students per class. Successful candidates will digitally disseminate course material to fourthsemester medical students that is readily understood, current, and enables students to maximize their performance on USMLE subject exams and USMLE; integrate neuroscience course material with the other basic sciences and clinical medicine; provide USMLE style questions in neuroscience for examinations in the course; advise medical students in neuroscience during daily office hours and when needed by appointment; and assume other duties as may be required, including course director. Attending one conference per year is mandatory. Qualifications are MD and/or PhD from an accredited American or Canadian medical school; experience as associate professor or higher with multiple years of experience teaching medical neuroscience to medical students, preferably at American or Canadian medical schools. The job is a full-time teaching position. AUC has been educating physicians since 1978 and is a well-established Caribbean medical school. All faculty members are expected to continue their professional development and/or scholarly achievement and their public and/ or professional service, and actively participate in university life. Rank and salary will be commensurate with qualifications and experience. We are proud to be an EEO employer M/F/D/V. We maintain a drug-free workplace and perform pre-employment substance abuse testing. Thank you for applying for this outstanding opportunity today. NOTES: Additional salary information: will commensurate with experience. Internal number: 2013-43216. To apply, please e-mail your CV and letter of intent, including a list of the neuroscience lectures that you have given to medical students, to Gretchen Yarbrough (gyarbrough@ devrygroup.com).

Assistant/Associate/Full Professor: The Cummings School of Veterinary Medicine at Tufts University (TCSVM) seeks a motivated individual with strong experience teaching in a health science curriculum, along with the ability to either establish a funded research program or provide clinical service in either veterinary anatomical pathology or veterinary internal medicine (or a subspecialty). The position is offered at a faculty level (assistant, associate, or full professor) commensurate with the candidate's level of experience and is available beginning May, 2014. The successful applicant is expected to take the lead in teaching veterinary physiology and will work with a team of faculty to develop an integrated first-year curriculum in physiology. He/she will also be expected to participate in one or more other missions of the school, such as research in biomedical sciences (neuroscience, reproductive biology, hepatic biology, pathology, etc.) or

through participation in clinical service in the Section of Pathology, the Foster Hospital for Small Animals, or the Tufts Large Animal Hospital. The successful candidate must possess effective communication skills and may also participate in residency or graduate student training, working with a number of groups within TCSVM. Candidates are expected to have substantial experience teaching in a health science curriculum, have positive teaching evaluations, and be committed to teaching excellence. Expected qualifications include a PhD or equivalent degree or a DVM, preferably with board certification in veterinary pathology from the American College of Veterinary Pathology or European College of Veterinary Pathology, or in a veterinary medicine specialty (e.g., American College of Veterinary Internal Medicine, or its equivalent). The candidate must have a demonstrated ability to work as part of a team. Applicants should submit (by mail or electronically) a cover letter that states the candidate's career goals, a curriculum vitae, and summary statements of teaching and research interests. Submit the names and contact information, including e-mail addresses, of three professional references. The search will remain open until the position is filled. Applications should be sent to Arthur Donohue-Rolfe, PhD Chair, Department of Biomedical Sciences Cummings School of Veterinary Medicine at Tufts University, 200 Westboro Rd., North Grafton, MA 01536; arthur.donohue-rolfe@tufts.edu. Tufts University is an equal opportunity/affirmativeaction educator and employer.

Endowed Professorship: The Department of Anesthesiology at the University of Alabama at Birmingham invites applications from candidates with distinguished track records in the fields of acute or chronic lung injury and repair to occupy the Paul Samuelson Endowed Professorship. Applicants must hold a PhD or MD degree and currently possess extramural support to conduct basic and / or translational research on mechanisms and treatment of lung diseases. The successful candidate will be expected to collaborate with colleagues in the Center for Free Radical Biology; Pulmonary, Allergy & Critical Care Medicine; Molecular and Cellular Pathology; the Pulmonary Injury and Repair Center; and Environmental Health Sciences, among others. The candidate must be able to work closely with clinicians and basic scientists to generate multi-investigator basic, translational, and clinical grants. Applicants should submit (in PDF format) a cover letter, a current CV, a description of current and future research plans, and the names of three references to Dr. Sadis Matalon, Alice McNeal Endowed Chair and Vice Chair for Research in the Department of Anesthesiology (e-mail: sadis@uab.edu). Applications received by March 1, 2014 will receive full consideration. UAB is an equal opportunity/affirmative-action employer committed to fostering a diverse, equitable, and familyfriendly environment in which all faculty and staff can excel and achieve work/life balance irrespective of ethnicity, gender, faith, gender identity and expression, as well as sexual orientation. UAB also encourages applications from individuals with disabilities and veterans. A pre-employment background investigation is performed on candidates selected for employment. In addition, UAB maintains a drug-free and tobacco-free work environment. Physicians and other clinical faculty candidates who will be employed by the University of Alabama Health Services Foundation (UAHSF) or other UAB Medicine entities must successfully complete a pre-employment drug and nicotine screen to be hired.

Research Fellow: Mayo Clinic in Rochester, MN is seeking a research fellow for the LeBrasseur laboratory. The laboratory and its collaborators conduct several measures of health span, including physical, metabolic, cardiac, immune, and sensory function in mice and humans. A research fellow at Mayo Clinic is a temporary position intended to provide training and education in research. Individuals will train in the research program of a Mayo Clinic principal investigator. Qualified individuals will demonstrate the potential for research, as evidenced by their training and peer-reviewed publications and should become competitive for national research grants. The ideal candidate will have graduate training in molecular biology, physiology, and/or metabolism. Experience with animal models or human studies of aging and/or diabetes is preferred. Cell culture experience is also desirable. Successful applicants will have effective written and verbal communication skills. Ideal candidates must have a PhD, MD, or equivalent doctoral degree in a field deemed relevant to the program. The research fellow position is appropriate for individuals who have completed no more than one prior postdoctoral fellowship at Mayo Clinic or elsewhere. Mayo Clinic is an excellent choice for the candidate who is seeking

a career in a world-class academic medical center that has been recognized by *Fortune* magazine as one of the "100 Best Companies to Work For." Mayo Clinic's multidisciplinary group practice focuses on providing highquality, compassionate medical care with a primary value that "the needs of the patient come first." Mayo Clinic is a nonprofit organization with ~3,800 physicians and scientists across all locations working in a unique environment that brings together the best in patient care, groundbreaking research, and innovative medical education. Interested candidates can go to mayoclinig. org/jobs and search 30537BR to learn more and apply. To learn more about Dr. Nathan Lebrasseur's research, please visit http://www.mayo.edu/research/faculty/ lebrasseur-nathan-k-ph-d/BIO-00055041. Mayo Clinic is an affirmative-action/equal opportunity educator and employer.

Postdoctoral Fellow Position: A postdoctoral fellow position is immediately available at West Virginia University's Department of Physiology and Pharmacology to study cellular and molecular mechanisms that regulate permeability in intact microvessels. Using single-vessel perfusion technique in combination with fluorescence microscopy and electron microscopy, the postdoctoral fellow will conduct NIH-funded research projects to identify and characterize the signaling mechanisms and structural changes in the regulation of microvascular functions during inflammation and disease conditions (http:// www.hsc.wvu.edu/ccrs/Investigators/he). An MD or a PhD in physiology or biomedical sciences is required. Individuals experienced with fluorescence microscopy and animal surgical skills are encouraged to apply. Salary is commensurate with experience. To view the full position description, please visit the WVU JOBS Bulletin at *www.hr.wvu.edu/jobs*. This position will remain open until filled. Interested applicants should forward a letter of application, current curriculum vitae or resume, and the names and contact information of three professional references via email to *ppsearches*@ hsc.wvu.edu. Please be sure to indicate the position title and number for which you are applying in e-mail. West Virginia University is an affirmative-action/equal opportunity employer. WVU Health Sciences Center is a smoke-free campus. West Virginia University is the recipient of an NSF ADVANCE award for gender equity. 🔵



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The APS is pleased to announce the publication of the first new monograph as part of our partnership with Springer. Lawrence Longo, Loma Linda University School of Medicine, has written a definitive history of an important field of physiology, that which concerns the developing fetus and newborn infant. The book, titled The Rise of Fetal and Neonatal Physiology – Basic Science to Clinical Care, addresses the contributions of physiologists and other basic scientists to clinical problems of prematurity. APS members can read the book for free online and purchase a printed copy for \$40.

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For more information, please visit: http://bit.ly/FetalNeonatalPhysiology





Book Reviews

Evolution and Medicine

Robert L. Perlman

Cary, NC: Oxford Univ. Press, July 24, 2013, 200 p., \$44.95 ISBN: 987-0-19-966172-5

Robert Perlman begins his lovely and highly welcome book by observing that Charles Darwin's family was a family of physicians. Charles himself also studied medicine, although he was never a practitioner. To this I can add that the inventer of the term neo-Darwinism in 1883 was a physiologist, George Romanes. Charles Darwin, T. H. Huxley, and many other leading biologists were members of the early Physiological Society. It would have seemed perfectly natural to 19th-century physiologists that function and evolution were related in a two-way process. Then came the Weismann barrier, the idea that the germline was "sealed off from the outside world," later reinforced by the Central Dogma of Molecular Biology. All of this was popularised in The Selfish Gene. Medicine and evolution became divorced through the assumption that function never determines genetic change and cannot therefore be the driving force in evolution. The process became one-way only: first genomic change through random (nonfunctional) mutations, followed by natural selection.

Epigenetics is now driving a whole cavalcade of coaches and horses through the Weismann barrier. As Perlman notes, "Many epigenetic marks are removed during the formation of germ cells, but some remain" (p. 38). Through that crack, which has now opened up to be a growing fissure, all the processes that neo-Darwinism regarded as impossible are returning into biological research. The consequence is that function could be relevant to genomic change as well as to the subsequent filtering by natural selection. The implications are immense. In a recent article in *Experimental Physiology* (*http://ep.physoc.org/content/98/8/1235.full.pdf+html*), I wrote, "It is hard to think of a more fundamental change for physiology and for the conceptual foundations of biology in general." The change has raised so many questions that I have posted a whole webpage of answers (*http://musicoflife.co.uk/pdfs/Answers.pdf*).

Perlman's book brings an important dimension to this debate, which is that the implications for the understanding of medicine are important. His chapters on aging, cancer, host-pathogen coevolution, sexually transmitted diseases, malaria, gene-culture evolution, and man-made diseases are full of insights. The cover blurb refers to "an anticipated expansion in seminars and in undergraduate and continuing education courses on this topic." I agree. Physiology needs to return to its 19th-century roots in which there was no divorce between physiology and evolutionary biology.

A final comment: Darwin was no neo-Darwinist. There are ~12 references in *The Origin of Species* to the inheritance of acquired characteristics. He even fulsomely praised Lamarck in the 4th edition (1866) of his book as "this justly celebrated naturalist . . . who upholds the doctrine that all species, including man, are descended from other species." It is through epigenetics that Lamarck's ideas are returning to mainstream physiology. ●

Denis Noble Balliol College Oxford Unive

Balliol College, Oxford University, UK

Book Reviews

The Biological Secrets of Salt: Its Diversity in Organisms and Impacts on Humans

Frank Conte, Craig Conte, and Paul Conte CreateSpace Independent Publishing Platform, October 24, 2012, 155 p., \$24.95 Availability: https://www.createspace.com/4029881; or Frank P. Conte, PO Box 170, Camp Sherman, OR 97730 ISBN 10: 1480179604; ISBN 13: 978-1480179608

As the authors state in their preface, their purpose in writing this book was "to coalesce in a single volume the general scientific knowledge of salt," and this purpose they accomplish. The Secrets of Salt are revealed in three sections, the first of which ("Historical and Societal Development") traces human uses and efforts to procure salt. Of interest in this section is development of the salt trade throughout the European conquest and settlement of North America from colonial salt licks seeps, springs, and lakes to modern industrial salt production techniques. The second section traces the history of salt in human nutrition and disease. Herein, the authors present the human physiological conundrums of survival at sea or in desert environments in the face of developing hypernatremia. The section also contains a short biography of Dr. Ancel Keys, salt nutritionist and comparative physiologist. The final section traces the diversity of salt environments and the evolution of physiological mechanisms that allow survival of organisms living in those environments. Notable in this section are descriptions of the diversity of auxiliary salt

excretory strategies and structures in invertebrate and vertebrate species.

Secrets of Salt is a family memoir in which a father (Frank, physiologist) and his sons (Craig, elementary school science and math teacher and out-of-doors enthusiast, and Craig, physician and surgeon) have combined and shared their personal interests in salt in hopes of piquing the curiosity of future scientists on this topic and in continuing exploration. Although this unique collaboration has its strengths, it also creates some obvious omissions; for example, the sand rat (Psammomys obesus) was the center of a controversy in the 1960s and 1970s over the mechanism by which the mammalian kidney formed concentrated urine, the euryhaline teleosts (e.g., Fundulus heteroclitus) that migrate between fresh- and salt-water environments, and the unique ultrastructure (e.g., apical crypt) of the chloride-secreting cell of the teleost gill.

Secrets of Salt is eminently readable, diverse in its content, copiously illustrated, and has substance for both long-time professionals and novices interested in salt biology.

Lewis Kinter AstraZeneca

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Meetings & Congresses

2014

March 1-2

Role of FGF Signaling in Tissue Regeneration and Metabolic Control, Ventura, CA. Information: ElieEl Agha and Chiara Francavilla, Chairs. E-mail: elieagha@gmail.com or Chiara.francavilla@ cpr.ku.dk; internet: http://www.grc.org/programs. aspx?year=2014&program=grs_fgf

March 2-7

Emphasis on the Role of FGFs in Metabolism Regulation and Tissue Regeneration, Ventura, CA. Information: Saverio Bellusci and Fen Wang, Chairs. E-mail: saverio.bellusci@innere.med.uni-giessen.de or fwang@ibt.tahsc.edu; internet: http://www.grc.org/ programs.aspx?year=2014&program=fgf

March 6-9

ISN Forefronts Symposium: Intrinsic Regulation of Kidney Function, Charleston, SC. Information: internet: http://www.isnforefronts.org/charleston/

March 8-9

Molecular Mechanisms in Lymphatic Function & Disease: New Frontiers in Lymphatic Research, Lucca (Barga), Italy. *Information:* internet: http://www.grc.org/ chairs.aspx?meeting=16563

March 9-14

Molecular Mechanisms in Lymphatic Function & Disease: State-of-the-Art in Lymphatic Research and Biology, Lucca (Barga), Italy. Information: internet: http://www.grc.org/programs.aspx?year=2014&program=lymphatic

March 13-15

The Power of Programming 2014 - International Conference on Developmental Origins of Adiposity and Long-Term Health, Munich, Germany. Information: e-mail: EarlyNutrition@med.imu.de; internet: http:// munich2014.project-earlynutrition.eu/

April 9-13

57th Annual Meeting of the Canadian Society for Molecular Biosciences – "Membrane Proteins in Health and Disease," Banff, Alberta, Canada. Information: Howard Young and Joe Casey, Co-Chairs. E-mail: hyoung@ualberta.ca or joe.casey@ualberta. ca; internet: http://www.csmb-scbm.ca/meetings/57th_ annual_conference.aspx

April 26-30

Experimental Biology (EB), San Diego, CA. *Information:* APS Meetings Department. Tel.: 301 634-7967; e-mail: *meetings@the-aps.org;* fax: 301 634-7264; internet: *http://www.apsebmeeting.org/*

May 12-13

36th International Symposium of the GRSNC: Sensorimotor Rehabilitation: At the Crossroad of the Basic and Clinical Sciences, Montreal, Canada. Information: internet: http://www.grsnc.umontreal. ca/36s/home.html

June 23-27

APS Institute on Teaching and Learning, Bar Harbor, ME. *Information:* APS Meetings Department. Tel.: 301 634-7967; e-mail: *meetings@the-aps.org*; fax: 301 634-7264; internet: *http://www.the-aps.org/itl*

June 24-28

The International 22nd Puijo Symposium "Physical Exercise in Clinical Practise – Critical Appraisal of Randomized Controlled Trials," Kuopio, Finland. Information: e-mail: saila.laaksonen@uef.fi; internet: http://www.puijosymposium.org

June 28-July 2

6th International Workshop on Advances in the Molecular Pharmacology and Therapeutics of Bone Disease, Oxford, UK. *Information:* internet: *http://www. oxfordbonepharm.org*

July 1**-**4

SEB Manchester 2014, Manchester, England. Information: internet: http://www.sebiology.org/ meetings/Manchester/Manchester.html

July 3-5

XIX Biennial International Conference on Infant Studies, Berlin, Germany. *Information:* Amy D. Glaspie, Meetings Manager; Tel.: 734 926-0614; fax: 734 926-0601; internet: *http://www.isisweb.org/view/0/ ISISconference2014.html*

August 2-6

1st Pan-American Congress of Physiological Sciences, Iguassu Falls, Brazil. *Information:* internet: *http://panam2014.com/*

August 25-29

7th World Congress for Psychotherapy, Durban, South Africa. *Information:* Janie Koeries, Paragon-Conventions, Milnerton Mall, Loxton Rd., Milnerton, Cape Town, South Africa. Tel.: 021 552 8679; e-mail: *jkoeries@paragon-conventions.com*; internet: *http:// www.wcp2014.com*

October 5-8

2014 APS Intersociety Meeting: Comparative Approaches to Grand Challenges in Physiology, San Diego, CA. *Information:* APS Meetings Department; Tel.: 301 634-7967; e-mail: *meetings@the-aps.org*; fax: 301 634-7264; internet: *http://www.the-aps.org/ Comparative*

2015

March 18-22 **AD/PD 2015,** Nice, France. Information: internet: http:// www2.kenes.com/adpd/Pages/Home.aspx



APS Institute on Teaching and Learning Bar Harbor, Maine • June 23-27



APS Intersociety Meeting: Comparative Approaches to Grand Challenges in Physiology San Diego, California • October 5-8



the-aps.org/mm/Conferences/APS-Conferences

Continued from page 53: "They're Ba-aack!"

The EB meeting is an opportunity to use discovery as a tool to understand life processes, disease progression, and cure development. It brings together nearly 15,000 scientists, clinicians, and students to share findings under the auspices of the six principal programming societies that comprise the EB family: APS (physiology), ASBMB (biochemistry), ASPET (pharmacology), ASIP (pathology), ASN (nutrition), and AAA (anatomy). Each society contributes unique programming specific to its disciplinary orientation, but the overall meeting provides each of us with an opportunity to cross disciplinary boundaries to learn new concepts and methodologies that can be applied in our own research framework.

A meeting like EB or a society standalone meeting has a unique purpose. It is an opportunity to share the best science in our disciplines as well as an opportunity for trainees to shine as they present their work to a knowledgeable and appreciative audience. It is also an opportunity to network with colleagues, to develop collaborations, to recruit new members to one's laboratory, or to find that next position. Increasingly, it has become a place to learn about topics other than research to make each attendee more knowledgeable about the professional opportunities that are available to them throughout their careers.

As the largest participant in the Experimental Biology meeting, contributing about 35% of overall attendees and abstracts, APS creates a meeting program designed to address all your needs. The Joint Program Committee, comprised of representatives from the Society's disciplinary sections and groups, as well as many of the APS committees, has put together an outstanding program that is available at http:// www.apsebmeeting.org/. Although the late-breaking abstract deadline may have past, it does not mean you should not consider attending. Hopefully, an overview of the meeting program (page 59) and a check of the EB website will encourage you to consider participating if you have not already submitted an abstract and registered.

As always, the APS portion of the EB meeting officially starts with the Walter B. Cannon Lecture on Saturday, April 24 at 5:30 PM. The lecture, sponsored by Sucampo AG, will be presented by James Anderson and will focus on epithelial homeostasis. However, although the official start begins with the lecture and the opening reception that follows, there is much to sample throughout the day on Saturday. The APS Education Committee is offering a "Refresher Course on Exercise Physiology" for those charged with teaching the subject in the next year or so. Two techniques workshops designed to enhance your research are being offered, with a focus on "Translation of Cardiovascular Endpoints Across Species" and "Computational Modeling." For those of us who have difficulty communicating our science to a lay audience, consider attending the Communications Committee symposium with Randy Olson, a scientist turned filmmaker, who has had several successful movies and books, including "Flight of the Dodos: The Evolution-Intelligent Design Circus" and "Don't be Such a Scientist: Talking Substance in an Age of Style." The symposium will focus on "Storytelling: A Mandatory Training for Today's Scientists."

On Sunday, the Society's second most prestigious lecture, the Henry Pickering Bowditch Lecture, will be presented by Kazuhiro Nakamura on the "Central Thermoregulatory System." In addition, throughout the week, the disciplinary sections will each be offering a distinguished lecture in their areas of interest. This year's outstanding distinguished lecturers include Robert Carroll, Raymond Frizzell, Howard Jacob, Mohan Raizada, Carol Elias, Malcolm Jackson, Susan Wall, Barry Levin, Gordon Mitchell, Fayez Ghishan, Virend Somers, and Hannah Carey. The lectures, along with ~140 other sessions, make up the remainder of the platform sessions. In addition, over 3,000 abstracts volunteered by physiologists will be presented as poster sessions throughout the meeting.

In addition to the section-driven programming that makes up the APS contribution to EB, the Society has traditionally asked the current president to organize a series of four sessions, which used to be called the Physiology InFocus program. That has evolved into a series of Presidential Symposium thematically linked and ending with the presentation of a lecture by a former Nobel Laureate in physiology or medicine. For EB 2014, APS President Kim E. Barrett has organized a program focused on "Multiscale Physiology: Linking Cellular and Molecular Insights to the Health of

THEPHYSIOLOGIST

Organisms and Populations." The three symposia associated with the theme are 1) Early Life Origins of Adult Disease; 2) Life at Extremes: Adaptations to Diverse Challenges to Normal Homeostasis; and 3) Physiological Relevance of the Intestinal Microbiome: Moving Beyond the Gut. The president's program closes on Wednesday at 4:45 PM with the presentation of the APS Nobel Lecture in Physiology or Medicine by Bruce A. Beutler, 2011 Nobel Prize recipient. Following the lecture, there will be an informal reception and an opportunity for trainees to meet Bruce Beutler for pictures and autographs.

The APS meeting would not be the same if we did not continue to offer a closing party, something that was started in 2012 when APS celebrated its 125th anniversary. Once again, the APS annual meeting will close with a performance by a band comprised of GI physiologists, a band called "GI Distress." They will be joined by the "FASEBettes," a group of GI scientists who provide vocal accompaniment. Please plan on attending and enjoying a wonderful evening before heading home.

Hopefully, the demons will be banished by our presence in San Diego. Join us at EB to learn new things about life processes and disease progression. Join us in San Diego to "transform the future through science."

Martin Frank



Continued from page 53: 87th President of APS

was important. Another aspect of this class that helped me know that physiology was my scientific home was using our required textbook, *Guyton's Textbook of Medical Physiology* (pre-Hall version). To an undergraduate student, it was easier to read than most advanced-level scientific textbooks. Finally, the relevance of physiology to what some call the "real world," and in particular, medicine, was so obvious. Other disciplines were more in the abstract, that is, dealt with things on a microscopic or molecular level that were more difficult to understand for an integrated, visual learner like me and definitely harder to personalize. (As an aside, this is a huge reason why we need more undergraduate physiology majors!)

Challenge #1

It is because of my experience at the undergraduate level that I started graduate school with a full respect for teaching undergraduate physiology and a desire to pursue that as a career. However, my undergraduate experience had never exposed me to a full, high-level research experience, which is what graduate training at the University of Cincinnati gave to me. Graduate school in the Physiology program at UC was again an eye-opening, life-changing experience. It was there that I was introduced to physiology research. My thesis advisor, Dr. Robert Banks, is an energetic renal physiologist who instilled an energy that I have attempted to emulate but find difficult to surpass. It was in his lab that I learned a basic maxim to always seek the truth and that no one should work harder than me to disprove my hypothesis. The target should be discovery of knowledge, not personal reward such as how I can get a paper in a high-impact journal. I believe the only way to sustain a strong, reputable, and successful research program is to focus on answering relevant questions, not in seeking notoriety. Although I would never begrudge anyone this type of success, it is not why we conduct research – it is not our purpose.

Because of the disparity of my own experience between my undergraduate and graduate programs, I have committed to personally provide an undergraduate research fellowship each summer to one student from my alma mater. As president, I call upon all of our society members who have active laboratories to commit to an individual program beyond what APS or their institutions provide. It has always been easy for me to support the wide range of initiatives in which the APS is committed, especially when one considers all the outstanding programs that we operate, but, in the end, our members must be individually active and not wait for others to carry the load. As a society, we cannot sit idly by and wait for others to support the initial recruitment of young scientists into physiology labs.

Advantages of Physiology

Education and research are what facilitated me becoming a physiologist. They are what moved me from an early start in the pharmaceutical industry back to academia. As detailed in the book by Daniel Pink, Drive, it is mastery, autonomy, and purpose that motivate individuals in jobs where higher-level, creative thinking is required. (I highly recommend this book, especially for those in leadership positions.) This is what draws people to become academicians, whether it is teaching, research, clinical service, or some combination of each of these. For me, this is the advantage of being a physiologist. I can more readily see the purpose of physiology as it applies to clinical medicine. It has allowed me to establish collaborations with investigators conducting human studies as a way of addressing mechanisms we have developed in various animal models. This provides purpose for what I do. This is what defines physiology as the science of translational research, and thus the science of medicine. The line between the bench and the bedside is quite often much shorter for a physiologist compared with many other areas of modern biomedicine. I certainly find this true.

The fact that education and research are highlighted in the APS Mission Statement is no coincidence: "The APS mission is to promote the discipline of physiology and thereby enhance human and animal health by disseminating research discoveries, facilitating research and scientific interaction, educating the public, and enabling future generations of physiologists." This statement is a perfect summary of what APS is all about and provides a clear goal for all we do as a society.

We Have a Real Strategy

Our most recent strategic plan was outlined in the August 2011 issue of *The Physiologist* (*The Physiologist* 54: 113, 2011). Although I know that the mere mention

of the term "strategic plan" makes many of us roll our eyes and presume we are about to be hit with a bunch of "admin-speak," I strongly recommend that you take the time to go back and review this relatively brief summary. Unlike so many universities' strategic plans that read more like vague goals rather than actual strategies (e.g., "attain national recognition" or "deliver excellent education"), I am impressed that the APS strategic plan provides very tangible actions for moving forward. The job of APS President is only a 1-year term, and so it does not allow any single office holder to focus on too many areas. However, here, I discuss how the plans outlined by the Society that fall into several aims I consider of highest priority. Each of the initiatives I propose will address several of these aims simultaneously.

Aim 1

The first aim is to *increase efforts to ensure awareness of, and advocacy for, the discipline of physiology.* The only way we are going to do this is if we as physiologists **stop complaining about a lack of respect and start taking action** that will deliver and bring physiology the respect it deserves. Of course, the obvious action is for individuals to be making frequent contact with elected officials at the local and national level. APS has an incredible staff that can provide information to make this a fairly easy, straightforward job. However, advocacy for physiology must go further.

As I write this, we are heading into an initial effort to develop an APS Leadership Institute that will work to help the membership develop leadership skills that will be critically important for this initiative. As a part of this initiative, I believe it is important for us as a society to partner with emerging areas of biomedicine, such as imaging, genomics, bioinformatics, stem cell biology, medical devices, etc., and work outside of our society and develop partners and collaborators rather than competitors. Through partners, we can more easily demonstrate our relevance. Do not forget that trendy terms such as "translational" research are physiology by another name. We need to engage those members who are leaders in these areas to develop networks that are required to maintain physiology in the forefront. An effort to engage more relatively inactive and even non-APS members in a variety of APS activities is critically important to prevent us from marginalizing ourselves. This can be most easily accomplished through our full range of scientific conferences and publications.

Aim 2

APS leadership has also agreed to actively work to

attract, meet the needs of, engage, and retain membership subgroups. Our Latin American initiative has gone well to the point of expanding beyond just Latin America to now including other parts of the developing world. However, our efforts to reach out need not be limited to physiologists in other countries. Nor should we focus our outreach efforts exclusively on trainee programs, as is most often considered. Of course, these are extremely important efforts, but **we must broaden our net**. In keeping with what I said earlier about embracing those areas of the periphery of traditional physiology, we must find ways for APS to look outside the usual people and places to develop partnerships. We need to stop preaching to the choir and get out into the broader world of scientific endeavor.

The Experimental Biology meeting as well as the conference program should be used to bring in the emerging/trendy areas of biomedical sciences to our society. The conference program has the potential to have a major impact in our efforts to strengthen our discipline and should not be limited to a traditional physiology meeting. As one small example, several years ago we held a fall conference on Immunology and Cardiovascular Disease chaired by David Harrison at Vanderbilt. Harrison is a clinician whose research program in hypertension and vascular disease is leading an effort to bring cardiovascular physiology and immunology together. At his conference, he was able to reach out to leading experts working on the immune system but had never considered working alongside classic physiologists. This type of program generates tremendously positive exposure for APS and helps to open new avenues of research, not to mention the positive membership recruiting opportunity. The marketing potential of these activities is enormous.

Similarly, our journals need to seek invited reviews and editorials from outside traditional physiology circles while making a connection to our field. For example, hot topics such as the microbiome should not be limited to the GI section, since work in this area has great relevance for other areas, such as cardiovascular disease. Similarly, the concepts of epigenetics and early life origins of adult disease should be in the mainstream of physiological research. New initiatives should also include **publication of conference proceedings**. Having been involved in a number of conferences that publish proceedings, this is an opportunity to again provide exposure for APS and to reach out to scientists who would not usually think to turn to APS publications for this information. Publishing proceedings from our conference program and compiling this information into a single location is an opportunity to 1) increase awareness of physiology, 2) engage membership and potential new members, 3) enhance publications, and 4) promote scientific interaction and exchange – which are perfectly aligned with four of our strategic initiatives.

Aim 3

The idea of linking publications with scientific meetings is consistent with our third priority, to develop strategies to strengthen the Society's publications in a changing world. Open access, impact factors, and issues of misconduct are the topics that dominate the conversation and remain issues that we must confront. Fortunately, having spent the past three years on the Publications Committee, I have full confidence in our editors and APS staff that the journals are in excellent hands. Nonetheless, we must be creative and strengthen lateral structures in all aspects of APS activities that include cooperation between different groups, departments, and committees within APS. I am excited about the new APSselect "virtual journal" that will provide easy access to some of the top papers published in our primary research journals. This will allow our specialty journals to come together and highlight the outstanding work that is being published by APS. Other creative opportunities such as podcasts are going to be very important to develop as the publishing world continues to evolve.

Aim 4

My proposal to re-energize and re-task the conference committee to go beyond traditional boundaries also directly fortifies the fourth aim, to enhance opportunities for scientific interaction and exchange. I am a very strong believer that the intangible benefits of face-to-face scientific communication are severely underestimated and too easily disregarded. As the budget squeeze gets tighter, one of the first things to go is money for attending meetings. It is critically important for early career scientists to be active in scientific conferences, because meetings like EB are critically important for advancing knowledge and spawning new ideas, but equally important is the opportunity to get to know the individuals working in the scientific community, which allows for growth and development of a fully successful career. Over the years, this has been how I have discovered new job opportunities and research questions for myself as well as my trainees. APS already provides a large number of mechanisms for travel fellowships. I would like to see APS develop more opportunities for endowing travel awards for

other career stages and for other individuals who would like to attend our conferences but do not have the financial resources.

Aim 5

The final aim, to increase the visibility of physiology in life sciences and health sciences education, is something that we cannot easily brush aside. Although I know the Education Committee and the APS Education Department are continually working on new ways to strengthen physiology education, we cannot expect them to do it all. I am calling on the individual members of APS to get more involved at the grassroots level. APS members must be active outside of their laboratories through university leadership, local advocacy with community leaders and the local community itself, as well as working with local schools. How many of you have spoken to local business groups and explained what you do? For those of us in medical school settings, how many of you have a relationship with those on your campus that teach at the undergraduate level? Are there opportunities for your trainees to participate in teaching activities? If you want to help your trainees in their future, you must consider that teaching experience on most campuses (not all) is very difficult to come by. If you do not have an undergraduate campus, why not partner with a local college? Perhaps your own undergraduate alma mater would like your help. Identifying yourself as a physiologist will provide powerful visibility for your discipline.

Bring Out the New!

This brings me to a new initiative I would like to see developed in my term as president. The Executive Cabinet and Council of APS have discussed the idea of hiring a development director over the past several years. Although it was initially brought forth as a means of pursuing philanthropy to support APS, I would like to see a broader effort that combines marketing, communications, and fund raising under one coordinated umbrella. For example, the Physiological Society in the UK recently released a YouTube video that sells their upcoming annual meeting in much the same way that a trailer sells a movie. This is yet another example of what could be done to reach out beyond the core membership and broaden our reach. This office could also coordinate efforts to build the APS Endowment. APS Council recently approved a measure to endow some of the awards and add funds to the endowment such that some day we would hope to have all the award programs off our regular budget and be fully endowed. If successful, this could easily support more programs beyond awards as well. However, without professional media and appropriate expertise to "sell" APS, such efforts will fall far short of our potential.

The 30,000-Foot View

APS is a strong society that is serving its purpose well. By all measures, it is a very successful scientific society. I know there are many aspects of APS life that I have not mentioned in this missive, but that does not mean I do not consider them extremely important. I see considerable strengths and opportunities for the Society in the years ahead. Unfortunately, in a wide range of meetings and conversations in recent years, I have heard too much fear and loathing from our members that physiology as a discipline is viewed as an "old-fashioned" or "outdated" science. The evidence they often cite is that more and more universities are eliminating their departments of physiology or merging them with other departments. There have been clear efforts to re-brand the departments by including trendy names such as "integrative biology" or "systems biology" and eliminating the use of the word "physiology." Also feeding into this fear of physiology's demise is that the education mission has evolved at most medical schools out of the domain of departments because of accrediting body requirements to integrate the curriculum, that is, move the curriculum away from traditional discipline-based education and more toward organ system or diseasebased curriculums that encompass all of the traditional disciplines simultaneously.

Although I agree that we need to take steps to keep physiology research and education at the forefront where it belongs, I am also here to tell you that physiology is not going away. I would even argue that having very low walls between the traditional disciplines serves science for the better as opposed to having isolated realms that do not interact. However, in biomedical research, it is impossible to translate from the bench to the bedside without physiology. It is impossible to educate our biomedical workforce without physiology. It is impossible to be a good physician, dentist, physical therapist, biomedical engineer, etc. without a clear understanding of physiology. It has been my experience that re-branding efforts are all too often done by well intentioned, albeit misguided individuals who think that a name change will make them better. I have worked in several environments where names have changed, and I can assure you that this does not change the core of who you are. In the end, success depends on your ability to focus on what is important, whether it be answering relevant scientific questions in the laboratory or going beyond just knowing to rather gaining understanding.

Just Do It

Please do not misunderstand what I am saying. There are very real threats to physiology education and research. I am convinced that study sections and manuscript reviewers are far too enamored by techniques, technology, and minutia and marginalize the value of traditional basic physiology research. Still, all the hand wringing and complaining of my generation of physiologists are useless expenditures of energy. In order for physiology as a traditional discipline to maintain support, the APS membership at large must be mobilized. It is our actions that will define us, not our words. For example, I have called upon the membership to engage themselves in a variety of local efforts, such as building a relationship with your undergraduate institution. However, there is far more the membership can do. Are you serving on institutional committees that can impact initiatives for growing research? Are you engaged in the medical and graduate curriculum, and have you done all you can to keep physiology at the forefront of biomedical education? Have you met your congressmen and senators and explained to them the value of your work? Have you been a speaker at a Kiwanis Club meeting or church groups? Have you participated in a PhUn Week program? Have you mentored a trainee at the EB meeting? I could go on and on. The bottom line is that we all need to step up and play a role. We cannot complain about a lack of respect for our discipline if we are not doing all we can to help.

A Final Word

Serving as the 87th APS President is an honor that I never believed possible a short time ago. I have been fortunate in my career beyond my expectations. I have never been one to have a grand long-term plan for myself. My parents instilled in me the belief that if I worked hard and always did what I thought was right in serving others, my life would be filled with joy, success, and fulfillment. They were right.

Introducing David M. Pollock

David Pollock is professor in the Division of Nephrology, Department of Medicine at the University of Alabama at Birmingham. He serves as Director of the Cardio-Renal Physiology and Medicine section, a translational research program supported jointly by the Division of Cardiovascular Disease and Division of Nephrology. Pollock earned his PhD degree in physiology from the University of Cincinnati in 1983 with Robert Banks as his advisor. His thesis project comprised some of the first papers ever published on the renal actions of atrial natriuretic factor. He then completed a postdoctoral fellowship at the University of North Carolina at Chapel Hill under the direction of William Arendshorst in the world-famous micropuncture lab run by Carl W. Gottschalk. He conducted a series of studies related to mechanisms of autoregulation of renal blood flow and tubuloglomerular feedback. He then spent 2 years as a senior scientist at the Institute for Circadian Physiology at Harvard University in Boston, where he worked on a NASA-supported project studying fluid volume regulation in a ground-based model of weightlessness. In 1989, he took a position in the Drug Discovery Division of Abbott Laboratories in Chicago. While at Abbott, he worked on several projects, including atrial peptide analogs, angiotensin receptor antagonists, and endothelin receptor antagonists. Most of his work focused on proof-of-concept studies in various animal models of hypertension and renal disease.

In 1995, Pollock decided to move back to academia and accept a faculty position at the Medical College of Georgia (now known as Georgia Regents University), where he served as a faculty member in the Vascular Biology Center and eventually led the establishment of the Experimental Medicine section in the Department of Medicine. In January 2014, Pollock moved to his current position at the University of Alabama at Birmingham, where he is leading the development of a translational research group focusing on renal and cardiovascular physiology.

Pollock's research deals with the control of sodium excretion and the role of the kidney in blood pressure regulation. His long-standing interest in natriuretic factors has led to his active involvement in elucidating the actions of endothelin, primarily within the kidney but also in vascular and nervous systems. His research has helped to elucidate the opposing actions of endothelin A vs. endothelin B receptors in both renal vasculature and the tubular system. Recent studies from his lab have suggested that defects in the endothelin B receptor system contribute to salt sensitivity in hypertension. More recently, his research has included collaborators conducting human studies that address these same mechanisms. His work also includes the role of endothelin in glomerular injury, where his lab has conducted important proof-of-concept studies providing evidence that endothelin contributes directly to diabetic glomerular dysfunction and that ETA receptor antagonists exert therapeutic benefit, as recently shown in clinical trials. This work has extended beyond diabetes and now includes sickle cell nephropathy, a problem of rising incidence in subjects with sickle cell disease.

Pollock's research has been continuously supported by a series of National Institutes of Health and American Heart Association grants, including an AHA Established Investigator Award from 2000 to 2005. He currently serves as deputy director and project leader on a National Heart, Lung and Blood Institute Program Project Grant (PPG) focusing on stress in hypertension risk. He is also principle investigator on another PPG that investigates mechanisms of endothelin control of renal hemodynamics and excretory function. This work is a collaborative effort with fellow APS members including Jennifer Pollock, Edward Inscho, Donald Kohan, James Stockand, and Jennifer Sullivan. Since August of 2013, Pollock also serves as co-PI of a Center Grant (U01) investigating the role of endothelin in sickle cell nephropathy in both animal models and humans. He has also held a series of investigator-initiated grants from companies including Abbott Labs, Takeda, and Astra-Zeneca Pharmaceuticals, and has served as a scientific advisor for Abbott, Gilead, Speedel, and Astra-Zeneca. He has served on many NIH and AHA scientific peer review panels, including the AHA National Cardio-Renal study section, where he served as chair, and the NIH F10A panel on organ system pathophysiology reviewing individual training grants since 2005.

Pollock has authored 150 peer-reviewed papers along with nearly 40 invited reviews and commentaries and 11 book chapters, including one as book editor. Pollock recently completed a 6-year term as associate editor for the *American Journal of Physiology – Regulatory, Integrative and Comparative Physiology.* He has been a topic editor for the renal section of Comprehensive Physiology for the past 5 years and recently accepted the assignment of editor in chief. Pollock has also served as associate editor of *Vascular Pharmacology* as well as several other guest editorships. He also serves on the editorial board of the *American Journal of Physiology – Heart and Circulation, Hypertension* and *Nitric Oxide: Biology and Chemistry.* He has been a member of the APS Publications Committee for the past 3 years.

Pollock has been active in a wide range of national and international organizations. He has organized several conferences with APS as well as a FASEB Summer Conference, the International Conference on Endothelin, and a Forefronts Conference with the International Society of Nephrology. He serves as a founding member of the International Advisory Board for the bi-annual conferences on endothelin.

In terms of additional APS service, Pollock has served on the Career Opportunities Committee, the Liaison with Industry Committee, Committee on Committees, APS Council, as well as several posts within the APS Renal Section. At the Medical College of Georgia, Pollock served for nearly 10 years as the founding Chair of the Curriculum Committee for the Biomedical Sciences PhD Program. He has directed a NIH-supported institutional

APS News

Election Results

The American Physiological Society announces the results of the election of officers for 2014. Patricia Molina of the Louisiana State University Health Science Center is the new presidentelect. The three newly elected councillors taking office on April





Patricia Molina



Barbara T. Alexander



Rudy Ortiz



Bill Yates

training program in cardiovascular biology for the past 10 years.

Pollock has received a number of honors and awards, including the Louis K. Dahl Award for hypertension research from the AHA in 2013. At the Medical College of Georgia, he has received the Outstanding Faculty Award and the Distinguished Basic Science Research Award, among several others.

Pollock has been married to fellow APS member Jennifer Pollock for nearly 35 years. Jennifer describes herself as a biochemical physiologist and serves as chair of the Water and Electrolyte Section of APS. The Pollock's have three children. The oldest is Luke, a recent graduate in mechanical engineering from Georgia Tech. Next is Sam, who graduated last year from Mercer University and is currently in graduate school at the Medical University of South Carolina, studying health care administration. Sam recently married the lovely Blair Fils, who works for Teach for America. Their youngest is Michaela, a junior at Georgia College who majors in business management. When he has time, Pollock enjoys following sports, playing golf, and a dram or two of single malt scotch whisky now and then. ●