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## 88th President of APS

Patricia E. Molina



Patricia E. Molina

As I sit to write this editorial and reminisce over this past year, I can't help but feel immense pride, joy, and honor as I contemplate the privilege that you, my colleagues, have bestowed on me. Beyond gratitude for your support and faith in my capabilities, you deserve my commitment to do the best job I can during my tenure as President of the American Physiological Society. It is a title that I do not take lightly, and one that I hope many others who never dreamt of it can aspire to obtain one day. As the first Hispanic female to be elected to this

position, I wish my tenure as APS President to be a shining star in the history of our Society, one that marks the fulfilment of the hard work, dedication, and commitment of so many before me who sought to make the APS a welcoming, inclusive, and diverse scientific home for its members. I hope it also brings hope and encouragement to all of those who served as mentors during my professional development, and to inspire others who may hesitate to invest the time and effort it takes to mentor others. In telling my story, I hope to inspire future generations of physiologists. In presenting my vision, I hope to assure you of the strength of our Society but also to challenge you to reach further and engage in our common effort to excel in creativity, scientific integrity, interdisciplinary team-building, cohesiveness of our membership, and dissemination of our discipline to the lay and scientific communities. I want us to be proud of being physiologists!

### My Story

I was born in San Salvador, El Salvador, the smallest country in the Americas, to a Mexican father and a Palestinian mother. I attended the American School, because my father believed that being bilingual would open so many more doors in my professional future. But I also attended the Alliance Française, ballet academy, art and cooking school, swimming and tennis lessons, and weekly calligraphy tutoring, because my mother wanted me to be fit to marry royalty! The cultural dichotomy

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A Matter of Opinion  
Guest Editorial

## Bias is Stagnating Physiology

Physiology is one of the oldest of the medical sciences, concerned with how the various systems within our bodies interact to produce our phenotype. Despite the fact that this could be considered one of the core disciplines in biology, many medical schools are closing their physiology departments.

As senior physiologists debate why this discipline is stagnating, they fail to see that our own biases are one of the most prominent reasons for this fall from grace. Two recent events have brought this to the fore for me, one in the outskirts of St. Louis and the other here in the little town of Davis.

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# Science Policy

## FASEB Releases *Sustaining Discovery in Biological and Medical Science*

In January 2015, the Federation of American Societies for Experimental Biology (FASEB) released an analysis of the threats to continued progress in biological and medical science research. *Sustaining Discovery in Biological and Medical Science: Framework for Discussion* examines the challenges facing researchers and presents a series of recommendations to alleviate them. What follows is the report's Executive Summary. The entire report can be viewed online at [www.faseb.org/sustainingdiscovery](http://www.faseb.org/sustainingdiscovery).

### Executive Summary

**The Federation of American Societies for Experimental Biology (FASEB), the nation's largest and oldest coalition of biological and medical researchers composed of 27 member societies and representing over 120,000 scientists and engineers, is concerned about the future of biological and medical research. Inconsistent investment policies, growing demands for research funding, and outdated policies are jeopardizing current and future progress in this important area of research. This is a serious problem for the nation and requires immediate attention and action. In this document, FASEB presents its analysis of the problems and proposes options for mitigating them.**

Investment in biological and medical research has paid enormous dividends, and it has made the United States the world leader in this critical area of science. Publicly sponsored biomedical research produced discoveries that lowered death and disability from polio, heart disease, cancer, and other diseases, and new scientific breakthroughs have given us the opportunity to dramatically accelerate desperately needed progress on therapies for thousands of other diseases and conditions. In addition to improving health and enhancing quality of life, bioscience research has created vibrant new industries. Biotechnology, with its applications to health, agriculture, and environmental remediation, has become a critical component of economic progress.

Unfortunately, the research enterprise that has yielded so much in the past and that offers so much promise for the future is now under tremendous strain. Research budgets have not kept pace with expanding opportunities and rising costs. After adjusting for inflation, the federal investment in the life sciences has declined by more than 20% since 2003. Insufficient funding – along with

increased regulatory burden and budgetary uncertainty – is a growing obstacle to future advancement. Rapid growth of the research enterprise fueled increased dependence on external research support, and the demand for research funding has skyrocketed. Consequently, the fraction of submitted proposals that are ultimately funded (the funding rate) are at an all-time low. There are more highly meritorious requests for research funding than the system can accommodate.

Change is taking place throughout the research enterprise as agencies, institutions, and individuals are forced to adapt to new funding and regulatory environments. To ensure that new arrangements and policies are made in a proactive, deliberative manner and will be most conducive to progress, FASEB undertook an examination of the major challenges facing the biological and medical research enterprise and methods to alleviate them. FASEB's Science Policy Committee conducted analyses, developed recommendations, and prepared a draft discussion framework. After a series of roundtable discussions with representatives of FASEB societies, funding agencies' officials, representatives of research organizations, and other stakeholder groups, the document was revised. This document summarizes key themes that emerged from the analyses and discussions and offers recommendations to maximize the amount and efficient use of research funding, optimize the composition of the research workforce, and improve the funding mechanisms used to support research.

The following sections of this Executive Summary outline the major steps that FASEB believes are critical to sustaining biological and medical research in the United States in the coming decades. The points outlined here

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## Continued from page 63: 88th President of APS

of expectations according to gender was palpable. But clearly, for my parents, education was the only thing “no one can take from you.” As a junior in high school, I spent a year in Baton Rouge, LA, where I had my first taste of American life as an exchange student in a program called Youth for Understanding. I was the first student from that program to ever come to a southern state. Looking back, it could have been a sign of my future path. After returning to El Salvador to complete high school in the American School, I faced the political turmoil of the mid-70s, a period when the only medical school in our country was occupied by guerillas, and the assassination of one of the deans made it impossible for me to pursue my dream of medical school in my native

country. Faced with this challenge, my parents tried to dissuade me from pursuing medical school. I refused to give up that dream, and eventually they facilitated the path that ended with my enrollment in the Universidad Francisco Marroquín in Guatemala City.

Since kindergarten, my dream had been to be a pediatrician. I was sure nothing could stand in the way. However, in medical school, I befriended a classmate who became my soul mate, and whom I married a year before completing medical school. We had our first son, a few months after completing medical school. Although my husband seamlessly progressed to a residency program in medicine, I was faced with the dilemma

## Patricia E. Molina Biography

Patricia E. Molina is the Richard Ashman PhD Professor and Chair of Physiology, and the Director of the Alcohol and Drug Abuse Center of Excellence at Louisiana State University Health Sciences Center (LSUHSC) in New Orleans. Molina completed her PhD in physiology at LSUHSC (1987-1990) and her postdoctoral experience (1990-1992) at Vanderbilt University. She progressed through the academic ranks initially as an Assistant Professor of Surgery and Physiology at the State University of New York, Stony Brook (1992-1996), and subsequently as Director of Surgical Research at North Shore University Hospital (1996-1999). During that period, she held a Guest Scientist appointment at Brookhaven National Laboratory before joining the Department of Physiology at LSUHSC (1999) as an associate professor. Molina's research is funded by NIAAA, NIDA, and DOD. She is the PI of a T-32 training

grant focused on biomedical consequences of alcohol abuse and of the P60 LSUHSC Comprehensive Alcohol Research Center focused on alcohol interactions with HIV/AIDS. Molina has a strong commitment to education and student development, actively participates in physiology courses at LSUHSC, and is the author of the Langue series *Endocrine Physiology* monograph. She has been a member of the faculty of the School of Graduate Studies, the Graduate Education Committee in Physiology, and Graduate Advisory Council, and is a mentor for the LSUHSC Interdisciplinary Graduate Program. In addition, she served two elected terms on the Faculty Assembly of the School of Medicine, was a member of IACUC for over 10 years, served in the Animal Care Advisory Committee, the MD/PhD Admissions Committee, and the Faculty Appointment, Promotions, and Tenure Committee at LSUHSC before being appointed

as department head. Molina has served on multiple NIH and AHA review panels, and was appointed Chair of the Biomedical Research Review Subcommittee AA-11 (2009-2012). She served as member of the Intramural Board of Scientific Councilors for NIAAA (2002-2006) and NIDA (2009-2012), and currently is a member of NIAAA Council. At APS, Molina served as President of Gulf Coast Physiological Society (2003-2004), Councilor in the Endocrine and Metabolism Section (2003-2007), Chair of the International (2005-2007) and Porter Development (2008-2011) Committees, Councilor in the Association of Chairs of Departments of Physiology (2010-2012) and APS (2011-2014). Currently, Molina serves as Chair for the National Hispanic Science Network on Drug Abuse, an organization with the mission of developing the next generation of Hispanic researchers on drug abuse and comorbid conditions.

of having a child, a MD degree, and no earthly idea of how to balance these roles. I decided that residency in pediatrics was not compatible with my own standards as a mother. I contemplated a residency in ophthalmology but decided against it when I reckoned that I would not be able to manage the underlying diseases leading to eye pathology. I briefly considered dermatology but was discouraged when I got a better sense of the principal pathology seen at the dermatology hospital in Guatemala. Without professional mentoring and guidance to balance out the strong message from both parents and in-laws to “be happy – you have already achieved so much, you have a degree, a husband, a beautiful child, what more can you want?” I settled into motherhood for almost 10 months. It was my classmates who alerted the faculty at our medical school that I was home playing mom and not planning to pursue my career. That led to a call from the Director for the Research Unit at the Universidad Francisco Marroquín with an offer for a 2-hour-a-day job to work with medical students in their dissertation research projects. I thought that was a good compromise, so I accepted the 2-hour-a-day job.

I soon learned little could be accomplished in 2 hours and that, in fact, completing medical school had taught me little (basically nothing) about research. This realization led me to explore new possibilities that culminated in my move to the U.S. to pursue my PhD in physiology, an adventure facilitated by my colleague Dr. Lucrecia Anzueto, who had already initiated her graduate studies. Initially at the University of South Alabama, recruited by Neil Granger into Aubrey Taylor’s Department of Physiology, I discovered a world of science I did not even know existed! It was humbling to learn how much I did not know, despite the fact that I was already an MD! How could it be possible that there was so much more to know than what I thought I already had learned in medical school? That was the beginning of a scientific journey I would have never dreamt of! A year later, when my husband joined Tulane to do his residency training, I transferred to the Department of Physiology at LSU in New Orleans, where I completed my PhD in physiology under the mentorship of John Spitzer, Chuck Lang, and Greg Bagby. My graduate work focused on understanding the impact of alcohol on carbohydrate metabolism during sepsis.

After completing my PhD, I joined Naji Abumrad’s laboratory in the Division of Surgical Research at Vanderbilt University and switched research focus from carbohydrate to protein metabolism and from sepsis to insulin-induced hypoglycemia. His lab had identified that insulin-induced hypoglycemia leads to increased gut proteolysis. My work focused on understanding the role of the brain in mediating this response. I moved to SUNY Stony Brook with Abumrad when he was recruited to chair the Department of Surgery and became his scientific partner by helping establish his lab and running his projects. I did not know anything about establishing scientific independence at that time. However, my time working with him provided me with exceptional opportunities for growth, development, and eventually (without realizing it) establishing my independent research career. A few years later, my husband and I returned to New Orleans, a city we had loved during our training. For approximately 2 years, I commuted to New York to run studies and meet with the lab still at Brookhaven every other week. The rest of the time, I worked from my den, and on Mondays I came to LSU to participate in research seminars. LSU had a hiring freeze that precluded John Spitzer from hiring me at that time. The unfortunate and tragic accident that led to the death of Alistair Burns was the pivotal event that led to my joining the LSU physiology faculty in 1999.

During the 2 years I spent working from home, I felt an urgency to find my professional identity! I no longer felt part of Brookhaven or North Shore University Hospital, and I did not feel part of LSU. Slowly I came to the recognition that the APS, which I had joined in 1986, could provide that sense of belonging that I was so desperately seeking. I urged my colleagues Chuck Lang, Owen McGuinness, and David Wasserman to nominate me for an APS committee. They kept insisting on the Women in Physiology Committee, but I felt I was a better fit for the International Committee. After a couple of attempts, I was appointed to the committee and the following year was asked to chair the International Committee. Needless to say, I was home! Someone wanted, needed, and appreciated my contributions! And that was an addictive feeling that I am sure many of you have experienced. During my tenure as Chair of the International Committee and through participation in Council meetings, I learned so much about the

Society! I was amazed at the dedication and passion so many around me showed for the mission of the APS. (I sometimes wonder how many of our members truly recognize the dynamic operations that give the APS life. At times, I sense that the vast scope and diversity of APS-sponsored programs and activities are such that even the leadership is not always fully aware of how much we have to offer! If you haven't already done so, visit the APS webpage, familiarize yourself with the different committees, identify programs that may benefit you or your colleagues and trainees, look for ways to get involved, and, most importantly, spread the word so we can continue to attract the brightest minds in the field!)

The logical next step for me was membership of the Porter Development Committee, which I later chaired. That led to greater involvement with the mentoring aspects of the APS, including participation in the Professional Skills Workshops. It was through my involvement in these mentoring activities that I first recognized the significance of my participation and the role that I could potentially play in the APS. There was meaning to my presence and participation, and that was something I had not considered before. I had trainees pulling me aside to tell me how I was an inspiration to them and how they wanted to hear how I had gotten to the current position. This was inspiring but also puzzling to me. I could not see what it was that they valued. It was around that time that I was invited to join the Steering Committee of the National Hispanic Science Network, which at the beginning I was not too excited to do, but which over time provided me with a framework for understanding the importance of having diversity in leadership roles, particularly in academia. Recognizing that ~13% of the U.S. population self-identifies as Black or African-American and 17% self-identifies as Hispanic or Latino, you may find it surprising to know that <4% of faculty in academic positions are from these two ethnic minority groups. This realization provided a different perspective not only from a personal standpoint but also as a member of the APS. Growing up and going to school in El Salvador did not provide me with the perspective of being an underrepresented minority. Luckily, I guess, it was not until a much later point in my career that I "discovered" that I belonged to a minority group that was not frequently represented in biological

sciences or academia. I am grateful that all the mentors I had along the way since coming to the U.S. had not allowed that designation to taint their expectations of my performance. I can confidently attest that I have a new sense of commitment to the mission of increasing minority representation in leadership positions within APS and beyond. *I aspire to inspire you to aspire to inspire the next generation of underrepresented minority stars!*

With time, I have learned to value the APS as a home for physiologists, whether based in a clinical or in a basic science department. Not only did it provide that professional home for me when most of my work was being conducted from my den, but it really became crystal clear during a time of crisis. On August 29, 2005, the day Hurricane Katrina made landfall, we were faced with a crisis, one that no one had planned for and one that no one could not have prepared for or prevented. The initial response was disbelief, followed by relief based on our safety and that of those around us, including colleagues, students, and staff. During our evacuation, following the initial period of grieving and acceptance of the idea of what had occurred, came a period of uncertainty and speculation on what the future held for us. Our laboratory was affected significantly. The loss of biological samples collected from our studies and the loss of reagents and valuable productive time made a huge dent in our ability to maintain our level of productivity. For the first few days after the hurricane, our ability to communicate with our colleagues was complicated by the loss of LSU e-mail, our most effective way of staying in touch. Most of us relied on our work e-mail for virtually all our communications. Logistical issues such as geographical distances between our members added to the burden. But it was then, barely 72 hours after the disaster, that APS set up a board to locate members from the affected area and to provide encouragement and a mechanism to communicate with our network of colleagues. It was unbelievable! APS recognized our needs and came to the rescue. Moreover, once the losses of our students and colleagues were recognized, APS provided monetary support for affected trainees in the area to help subsidize replacement of a computer or simply buy clothes to wear until they could return to their homes. In addition, for the first year after the hurricane, APS provided support for invited speakers to visit our campus, meet with our trainees and colleagues, and confirm that there

was a network of physiologists looking after their own! It was then that I made the commitment to give back to the Society to the extent of my capabilities! No one knew how much more I would receive from APS! I hope my story reflects what we are capable of achieving with hard work, inquisitiveness, flexibility, good mentors, and a desire to progress.

### **APS Presidential Year: Vision, Challenges, and Goals**

The preceding section gives perspective to my vision and approach to the extraordinary challenge and opportunity to be APS President. In recent years, competition for extramural funding has been increasingly challenging. This has led to discouragement, frustration, and at times attempts to disown our discipline in search for a sexier or timelier title or designation. All of these are natural reactions to events beyond our control. But I want to caution our core members and challenge them to stay true to our discipline. It is during times like these that we must increase awareness and education of our colleagues and the lay public of the relevance of physiology. Physiology knowledge is critical if we want to be healthy, protect our environment and endangered species, or improve health in the aging population. Physiology is the core science that integrates molecular, cellular, genetic, and behavioral discoveries. Physiology is the most fundamental of all the disciplines for trainees in the biomedical sciences, whether nursing, medical, allied health, veterinary, or dental. Physiology is the basis of pathophysiology and pharmacology. Physiology is what we teach our children, parents, and patients when we instruct them on dietary habits, exercise, and sleep patterns. Physiology is what the public needs to know more about so that our society does not continue in this downward health spiral. Physiology is what our lawmakers need to have a primer on so that they can make the right decisions when it comes to school lunches and regulation of the food industry. Physiology is the most integrative and translational discipline, the most viable mechanism for moving discovery to treatment and prevention. Physiology should never again be confused with psychology or physics, or any other discipline that is spelled even remotely similarly. *It is our job to make sure everyone knows what physiology is, why it is important, and how their lives have been impacted by the discoveries that physiologists have made. I challenge you to teach 50 people you know or interact with, what physiology*

*is. Share this message, because if you share physiology, soon there will be hundreds and hundreds of people who will value, study, teach, fund, and support physiology!*

I also believe we have work to do on the home front. We are in need of attitude adjustments and revisions of past behavior. We are in need of stronger interactions among our sections and hopefully more productive integration of our visions and goals. We are in need of shaking off stale traditions and embracing novel approaches to working together to strengthen our programs, to retain the vibrancy of our membership, and to attract creative scientists who will promote our scientific excellence. “Because that is how we have done it in the past” should no longer be an acceptable response to a suggestion for change or modification. “Because I belong to the cardiovascular section” should not be a reason not to team up with water and electrolyte to sponsor the best speakers and the best science. *Let’s start talking across section lines, let’s find out what works for others and how we can benefit from others’ experiences.* This past fall, we took a step in that direction by having the first ever fall joint Council-Section Advisory Committee meeting! I think we need to have more of these interactions – physiologists from different scientific interests together in a room discussing how to best serve our members and forgetting for a bit the research focus that defines our interests.

Discussions among the Publication Committee revolved around enhancing peer review and accessibility of our journals to leaders in the field. *There is strong desire to recapture the interest of neurophysiologists (AKA neuroscientists) and translational physiologists working with disease states (AKA clinician scientists) to consider publishing in our journals. The mindset must shift to provide our colleagues with a more inclusive, or perhaps less restrictive, definition of what is suitable for publication in our journals. The leadership in the publications front is exceptional and the energy of the committee palpable!*

The efforts of our Public Policy and Advocacy Committees are remarkable and incessant in their pursuit of bringing the message of the importance of research funding to Capitol Hill. The current funding environment has put at risk many talented and promising investigators who have not succeeded in securing extramural research funds to sustain

their activities. We are at risk of losing talent and of creating a void difficult to fill once the aging academic workforce makes the transition to retirement. We have outstanding training and mentoring programs, we have a profitable publications portfolio, our sessions at EB are well attended, and the science shared at that venue is top notch. We have programs in place to ensure the recruitment and development of the pipeline for physiology; we have mechanisms in place to support travel to scientific meetings. Other than the Porter Development Fellowship program, we do not have a mechanism in place to support researchers who are struggling to keep their laboratories alive. *Perhaps time is ripe for us to consider a research funding mechanism to ensure that physiology continues to thrive throughout this period of dismal funding rates. The need is there, I believe the resources are available, and the impact we can potentially have is significant!*

The environment in which we work has changed dramatically. Geographical distances are no longer barriers for collaboration. Communication systems have ensured that we have the means to collaborate and interact in real time. Still, the process to establish our role within the international scientific community is a continuous challenge. Our focus has expanded from Latin America, to Eastern Europe, Asia, and Africa. As all things, we have come full circle and close to home to once again place efforts on establishing interactions with the Cuban Physiological Society. How timely! The same year that sanctions are lifted, the APS has embarked in conversations with leaders of the Cuban Physiological Society to explore opportunities for collaboration, interaction, and exchange. I hope to be reporting on the Executive Cabinet's progress later this year. Success in our international front was also palpable and evident during the first Pan-American Physiological Congress held in Iguazu Falls in August of 2014. Significant interest from our colleagues in Africa to participate in our meetings and explore collaborations is likely to lead to development in that front as well within the immediate future. Our international membership continues to grow and accounts for close to 25% of our membership. *That is yet an additional positive signal that we have become more inclusive and welcoming of diversity! In fact, representation from international members in leadership positions continues on an upward trend.*

I am confident that the APS will remain strong throughout these difficult funding times. The commitment of so many of its members will ensure that is the case. However, I can't help but imagine what could be achieved with increased retention, participation, and engagement of our members. I still believe that there is social and intellectual capital that remains to be tapped to strengthen APS. The overall goals identified during our last strategic plan clearly outline our priorities. I encourage you to familiarize yourself with them and to consider contributing to the progress of one or more of these strategic priorities summarized below.

### **Increase Efforts to Ensure Awareness of, and Advocacy for, the Discipline of Physiology**

This is something we can all contribute to. You do not need a special designation or committee affiliation. We can all help spread the word and reinvigorate the image of physiology!

### **Actively Work to Attract, Meet the Needs of, Engage, and Retain Membership Subgroups**

We need to continue our quest for inclusiveness and diversity. I speak not only of cultural, ethnic, or gender. I speak of research interests, models, and levels of investigation. From molecule to environment, from bench to bedside. From student to senior scientist. Every member brings a unique strength to the Society, and we must make an effort to retain and engage so that we can continue in our pursuit of excellence!

### **Develop Strategies to Strengthen the Society's Publications in a Changing World**

I challenge and encourage you to submit your best science to our journals. When planning a scientific meeting, consider submitting a review or proceedings to one of our journals. Our editors are eager to work with you!

### **Enhance Opportunities for Scientific Interaction and Exchange**

I encourage you to attend Experimental Biology, to submit proposals that will make the program exciting not only for those closely related to your field but that will serve as forums for honest discussion and critical evaluation of where we are in the field. The APS conferences program is a relatively underutilized resource. Think of ways of integrating our experts into

a cutting-edge symposia or stand-alone meeting. Let's reach across the table and start speaking "transporters" to the "hormone receptors" and "baroreflexes"!

### ***Increase the Exposure to Physiology in Life Sciences and Health Sciences Education***

As physiologists we should all engage in ensuring that the discipline receives appropriate time and instruction both at the undergraduate and graduate levels. Disappearing departments of physiology should not be an obstacle or deterrent to having physiology still at the core of the biomedical or comparative sciences. We must actively embrace new teaching methodologies and seek integration throughout the curriculum to ensure the discipline remains at the forefront of future generations of scientists.

The above are key strategic objectives that guide our activities. As an APS member, keep an eye out for when

and where you can contribute to advancing them. Council and APS committees are diligently working to ensure that we focus our efforts in doing so.

### **Closing Remarks**

I want to close by reiterating my gratitude for your vote of confidence. I am forever grateful to my mentors, colleagues, trainees, and staff. They have shaped my path. My family has been extremely supportive and at times amazingly encouraging of the next challenge ahead. They are my life. I chose to use a personal approach to reflect on my motives and goals, but I am confident that some of these will resonate with you as well. I ask that you help me do the best job I can. I have the good fortune of working with an exceptional team at the APS, and I am sure they will be the best guides during this extraordinary privilege of serving as President. I welcome your feedback and comments and look forward to a productive and successful year. ●

## Election Results

The American Physiological Society announces the results of the election of officers for 2015. Jane Reckelhoff of the University of Mississippi Medical Center is the new President-Elect. The three newly elected Councillors taking office on April 1, 2015 are David Gutterman, Medical College of Wisconsin; Lisa Leon, U.S. Army Res. Institute of Environmental Medicine; and Irene Solomon, Stony Brook University. The Councillors will each serve a 3-year term.



Jane Reckelhoff



David Gutterman



Lisa Leon



Irene Solomon

*Continued from page 63:*

## Bias is Stagnating Physiology



Keith Baar

When I heard the events surrounding the shooting of Michael Brown, there was no doubt in my mind that bias played a significant role in his death. My assumption is not based on the facts of the case so much as my own experience in St. Louis as a postdoctoral fellow at Washington University. I will never forget running down the road yelling, "Dr. Ojuka!"

as the police stopped my friend and colleague Dr. Edward Ojuka to question him "because he fit a description." It is hard to imagine how this tall, ebony skinned, former triple-jump champion from Uganda could fit any description other than that of a black man walking alone at night in St. Louis. This wouldn't be the only time that my friend and colleague would experience this type of explicit bias in St. Louis. In the end, the result was that one of my most intelligent and thoughtful colleagues decided to leave the U.S. and take a position that didn't offer him the research opportunities but was in a place where he felt less threatened as a black man. That place was South Africa – a land that many of us on the outside see as one with serious racial issues but for Dr. Ojuka was far more welcoming than the U.S. When this happened, a number of us lost out, but no more than the science of physiology, which lost yet another young mind that could have reshaped the discipline.

This past week in Davis, another face of bias showed its tired face. After a national search, which employed a search firm, to identify the brightest minds to be our Chair in physiology, we were presented with yet another short list that lacked a single qualified female candidate. The same basic excuses came out: we didn't get good-quality female candidates; female candidates aren't competitive because they value their families more than their science; the female candidates weren't as dynamic/assertive in their initial interviews; and, my personal favorite, the process couldn't have been sexist

since there were women on the search committee. Yet when you look at each of these assertions, the implicit bias becomes clear. No qualified candidates? The reason to employ a search firm is to identify and recruit candidates who are less likely to apply on their own, women and underrepresented minorities. Women with families are not as dedicated? Why are women with a family questioned and men with a family celebrated? Female candidates were not assertive? When a female candidate is assertive, she is said to have balls. This is the core of implicit bias. That bravery is borne of the fact that someone has male genitalia. A classic backhanded compliment. Yet as a physiologist I know that a nematode worm has primordial male genitalia, and even so I can bend it to my will. If we want to be anatomical about bravery, maybe this fact should play a role and we should place bravery firmly in the backbone; that part of our anatomy that allows us to stand up straight in response to injustice. When we place bravery in the backbone it becomes something that is expected of everyone, male or female. There were women on the search committee. Why does this matter? When there is bias in the room, it is incredibly difficult to stand up to senior people. Which of us is willing to risk their career for an ideal? Why do we force underrepresented people to stand up for ideals that the rest of us do not have the backbone to speak out against? Why is it up to them and not us?

As a physiologist, I know that 1-1.5 million years ago the brains of our ancestors began to get bigger because they became hunter-gatherers and began to cooperate in groups. That means that for over a million years we evolved to identify us and them, and this was crucial to our survival. Now, we are at a different point in evolution. Just like our ability to store fat was crucial for survival during evolution and now is the basis for chronic disease that is eating away at our society, our ability to identify us and them was crucial to evolution, but now this is the basis for chronic issues in society and our science. When more than 50% of our young physiologists see the bias in our society and our science and decide that it is not worth it to constantly fight these battles, physiology loses out.

If this continues, where will the new ideas for physiology come from? We are behind the other medical sciences in recruiting new people and ideas. Until these biases change, we will continue to fall behind the other sciences.

Nobody wants to put their head above the parapet. I know that these words will forever change my career. But I am not doing this for me. This is for my mother, who was never given the opportunity to advance in academia because she was an opinionated woman. It is for all of the Edward Ojuka's of the world who have been pushed out of physiology in this country. It is for my 7-year-old daughter who I hope won't still be dealing with this issue 20 years from now.

Malcolm X said that it was up to white people to fight at the source of racism. He couldn't have been more correct; it is up to white men to make this change. We are the source of the problem, and therefore we must be the face of change. So, to all of you on search committees, whether for physiology or for another discipline, the next time you want to tell an off-color joke or say how you don't trust a certain "phenotype," be warned. I hope that one of the white men in that room will use their backbone, stand up tall, and make it clear that for us to move forward we need to move past our evolutionary biases and find a new group of progressive thinkers. The future of physiology – the future of science – is depending on us. ●

Keith Baar  
University of California Davis

## Inspire the Next Generation of Physiologists

**Physiology Understanding Week will take place November 2<sup>nd</sup>-6<sup>th</sup> 2015**

### Begin Planning Your Event Now

- **PhUn Week** gives physiologists the opportunity to visit classrooms to work with students and local K-12 teachers.
- Begin now recruiting your team, coordinating special community events, and much more fun for understanding physiology!
- The APS provides resources and support to plan your event!



**Learn More About This Exciting Outreach Opportunity at EB 2015**

### PhUn Week Training Session

**Date:** Sunday March 29, 2015  
**Time:** 7:00-8:30 am  
**Place:** Westin Boston Waterfront  
**Room:** Grand Ballroom B  
**Format:** Poster Presentation

A free continental breakfast will be provided at the EB Training Session Co-sponsored by the APS and ADInstruments, Inc.



[www.PhUnWeek.org](http://www.PhUnWeek.org)



Continued from page 65:

## FASEB Releases *Sustaining Discovery in Biological and Medical Science*

and their historical backgrounds are expanded upon in the main body of this document.

### 1. Maximize Research Funding

Despite decades of path-breaking discoveries leading to new treatments, diagnostics, and dramatic improvements in health and quality of life, the federal investment in biological and medical research has not kept pace with rising costs, and the research enterprise in the United States is contracting. The National Institutes of Health, the largest federal source of biomedical and life science research funding in the U.S., has lost more than 20% of its capacity to support research in the past decade. Other federal research budgets are also declining and impeding scientific progress.

#### **Sustain Funding**

Stable, predictable increases in federal funding for the biomedical and life sciences are desperately needed to restore lost capacity, maximize discovery, and capitalize on the unprecedented opportunities before us. The size and scope of the federal investment in research make it impossible for other sources of research support to fully replace the decline in federal research dollars. Furthermore, many of other sources of research support are contracting as well.

**1.1. Congress and the Administration should restore the lost purchasing power of agency research budgets.**

**1.2. Congress and the Administration should provide sustainable and predictable funding for biological and medical research.**

**1.3. Funding agencies should expand mechanisms to facilitate financial support from stakeholders, such as industry, patient groups, and foundations.**

**1.4. The research community should expand its efforts to communicate more broadly the value of biological research and the importance of federal funding.**

#### **Optimize the Use of Resources**

Although more funding is desperately needed, there are ways to partially offset some of the lost capacity for scientific discovery. Overregulation and other inefficient practices waste scarce research resources. Simplification and harmonization of federal regulations would lessen the financial burden on institutions responsible for compliance. Policies promoting more shared use of research resources and reducing incentives for overexpansion of research facilities are also needed.

#### **Reduce Regulatory Burden**

Compliance with a growing number of regulations has lowered researcher productivity and increased the cost of conducting research. Researchers are spending exorbitant amounts of time on regulatory compliance and reporting, reducing time for research. Research institutions are devoting more resources to regulatory activities, expanding administrative staff, and developing new monitoring systems.

Simplification and harmonization of federal regulations would enable scientists and engineers to expend more effort on research and also lessen the financial burden on institutions responsible for monitoring regulatory compliance. Incentives to implement more efficient oversight practices could also reduce costs, whereas careful scrutiny of proposed new regulations would help minimize future growth of compliance costs.

**1.5. The research community should vigorously and collectively oppose the addition of unnecessary or duplicative regulations.**

**1.6. The federal government should eliminate duplicative or unnecessary regulations, and it should streamline or harmonize those that serve important functions.**

**1.7. The federal government and research institutions should eliminate duplicative or unnecessary training and certification requirements.**

**1.8. Investigators and administrators must take steps to promote efficient regulatory compliance practices at their institution.**

**1.9. The research community should encourage regulatory changes that permit efficient practices, such as multi-site Institutional Review Boards (IRBs) and Institutional Animal Care and Use Committees (IACUCs), whenever possible.**

### **Enhance Deployment and Use of Resources**

More efficient use of existing resources is essential; however, many policies and practices are in conflict with this goal. Timely passage of appropriations bills would help improve resource allocation and planning. More efficient use of infrastructure resources would expand access and leave more funding available for research projects. Research sponsors should provide greater flexibility in shared instrumentation and core facility programs to ensure that equipment is available to the widest possible range of users. Removing incentives for expansionary construction could restore some stability in the research enterprise and reduce long-term financial liabilities for both the federal government and institutions.

**1.10. Because of the breakdown in the appropriations process, federal research agencies should be allowed to carry funding over into the following fiscal year.**

**1.11. Research sponsors should provide greater flexibility in shared instrumentation and core facility programs to ensure that equipment is available to the widest possible range of users.**

**1.12. Research sponsors should encourage greater resource sharing when funding infrastructure.**

**1.13. The research community should examine the effect of reducing incentives for debt-financing of new facility construction.**

**1.14. Stakeholders should create a broader range of institutional ranking metrics (including indicators of a stable and sustainable research system) to reduce the likelihood of wasteful overcapacity.**

## **2. Optimize Funding Mechanisms**

Although increased funding is essential for progress in biological and medical research, research sponsors can expedite progress by improving the ways that researchers are funded. We need to reduce the time spent preparing and reviewing applications. Funding agencies need to increase the evaluation of

their portfolios and continue to explore improved mechanisms for investigator-initiated research funding. Grant mechanisms that worked well in the past may no longer be the most effective way to fund biological and medical science in the 21st century.

**2.1. Research sponsors should make greater use of just-in-time components in grant applications.**

**2.2. Research sponsors should standardize grant application forms and materials to the greatest extent possible.**

**2.3. Research sponsors should explore the use of merit-reviewed pre-proposals.**

**2.4. Research sponsors should consider extending the duration of some investigator-initiated grant awards to decrease the amount of effort spent competing for funding.**

**2.5. Research sponsors should undertake regular evaluations of funding mechanisms and share findings with the broader community.**

**2.6. Advisory councils and boards of research sponsors should review portfolio allocations and prioritize investigator-initiated research.**

**2.7. Research sponsors should explore the impact of funding scientists or research programs instead of proposals for specific projects.**

**2.8. Research sponsors should monitor the amount of funding going to a single individual or research group to ensure a broader distribution of research funding.**

**2.9. Research sponsors should examine the feasibility of awarding partial funding to grants based on their priority score.**

**2.10. Research sponsors should consider creating a transition award for senior investigators.**

## **3. Improve Workforce Utilization and Training**

The U.S. system of laboratory staffing and research training has been extraordinarily successful. Created in an era of growth, the system is highly productive but dependent on expanding budgets. With resources becoming increasingly scarce, there is a need to find new, yet equally successful ways to employ and train research scientists and engineers. Dependence on external funding and the consequent pressure to produce results quickly must be reduced. Education and training strategies should be regularly evaluated to ensure effective and efficient production of investigators

in needed fields and areas of research, and that they are equipped with essential transferable skills.

**3.1. Research sponsors should take steps to reduce principal investigator dependence on external salary support.**

**3.2. Institutions should communicate information about career prospects to incoming graduate students and provide information about career paths to current trainees.**

**3.3. The research community should take additional actions to ensure quality training of graduate students and postdocs.**

**3.4. The research community as a whole should continue to monitor graduate and postdoctoral**

**education to ensure that changes do not undermine efforts to diversify the workforce.**

**3.5. NIH should create new funding mechanisms and modify current vehicles to increase the number of physicians and other clinicians entering research careers.**

**3.6. Congress should increase the NIH salary cap contingent upon a reduced F&A cost recovery at higher salary levels.**

**3.7. The research community should employ more staff scientists and consider more extensive use of career technicians. ●**

This project was initiated in 2013 in response to a recommendation made during a meeting of former FASEB presidents. Over the next year and a half, FASEB staff collected data, conducted analyses, and coordinated a series of discussions to identify the key issues and proposed remedies. The project was conducted under the auspices of FASEB's Science Policy Committee, and the results of this process were summarized in a draft discussion framework that was reviewed by the FASEB Board and the member societies. To incorporate a wider range of insights and perspectives, a series of three roundtable meetings was convened. During these sessions, representatives

of FASEB and its constituent societies spoke with officials from funding agencies, subject matter experts from other fields, representatives from organizations of research institutions, and other stakeholder groups.

This project was chaired by FASEB President-Elect Parker B. Antin. Bethany Drehman of FASEB's Office of Public Affairs served as the staff liaison, with guidance from Howard Garrison and Yvette Seger. FASEB President Joseph R. Haywood took an active role in the effort and co-chaired discussions of major issues.

## Awards, Grants, and Fellowships of the APS

- ✓ Student/Trainee Awards
- ✓ Section Awards
- ✓ Society Awards
- ✓ Teacher Awards

For more information, please visit [the-aps.org/awards](http://the-aps.org/awards)



## OLAW's New Guidance Will Streamline "Significant Changes"

Recent guidance issued by the NIH's Office of Laboratory Animal Welfare (OLAW) provides Institutional Animal Care and Use Committees (IACUCs) simplified options to incorporate some IACUC-approved changes into active animal protocols. Published on August 26, 2014, OLAW's *Guidance on Significant Changes to Animal Activities* (NOT-OD-14-126) allows IACUCs to establish policies for approval of these changes. The process will involve IACUC approval of standard operating procedures, guidance documents, and drug formularies that can be incorporated into an active protocol by consultation and verification from an authorized veterinarian. All changes to the protocol must be formally documented. Additional information may be found in the transcript of a related OLAW webinar at [http://grants.nih.gov/grants/olaw/140821\\_seminar\\_transcript.pdf](http://grants.nih.gov/grants/olaw/140821_seminar_transcript.pdf).

OLAW developed this guidance in consultation with the USDA for institutions that choose to implement these policies. Both agencies see this simplified approval process as an important way to reduce regulatory burden by enabling certain protocol changes to be implemented with minimal delay.

### Enhanced Flexibility in Review of Significant Changes

IACUCs will now have the option of handling some significant changes more expediently when an IACUC-approved policy is in place and an authorized veterinarian concurs (NOT-OD-14-126, section 2). Protocol revisions that may be appropriately handled this way include changes to anesthesia, analgesia, sedation, or experimental substances; changing the method of euthanasia to one approved under the *AVMA Guidelines for Euthanasia*; and changes to the duration, frequency, type, or number of procedures. A designated veterinarian must verify that the requested change falls under an approved IACUC policy. With the veterinarian's concurrence, the change can go into effect immediately. However, the verification – whether in person, by phone, or via e-mail – must be documented, preferably by both the scientist and the veterinarian.

### How the Process Works

OLAW's new guidance requires that there be approved IACUC policies in place and that changes the principal investigator wishes to implement be verified by an authorized veterinarian before the change is implemented. The veterinarian must confirm that the IACUC has adopted a policy concerning the requested change and that it is being applied appropriately. If so, the change can be made. The following scenario provides an example of how this process might be implemented:

Upon review of her data, Dr. Smythe determines that one more blood draw is needed for a better analysis of the data. Although it's a weekend, Dr. Smythe knows there is a tech in the lab who could draw the blood and send her the data. In reviewing the IACUC's website, she determines that there is an approved policy on blood collection that permits adding blood draws subject to review by an authorized veterinarian. Dr. Smythe therefore contacts one of the IACUC-approved veterinarians to explain why an additional blood draw is needed.

After discussing the situation with Dr. Smythe, the veterinarian determines that the requested change is permissible for the species in question; that it falls within the volume range specified in the IACUC policy; and that the change is appropriate for the animals in the experimental group. With the veterinarian's concurrence, the tech is instructed to collect the blood and send the needed data to Dr. Smythe.

When they return to the office on Monday, the veterinarian and the investigator submit the required documentation of the consultation and the change to the IACUC office.

### Drug Formularies

The policy allows IACUCs to establish or reference existing drug formularies providing the uses, dosages, and routes of administration of acceptable drugs (see the webinar transcript for details). Investigators may refer to an IACUC-approved drug formulary when writing their protocols. Doing so eliminates the need for

a formal protocol modification due to an overly narrow drug range.

### Animal Numbers

According to section 3 of the guidance, the IACUC office can authorize an increase in the number of animals if the IACUC has approved a policy addressing this. The requested change must be consistent with the previously approved rationale or justification for the number of animals used. If fewer animals are needed, no notification or action by the IACUC is required (section 5).

### Documenting Changes

To be in compliance with the policy, institutions need to develop a process for documenting and incorporating changes into the active animal protocol (see the webinar transcript for details).

### Implementation

Each IACUC is responsible for defining its policies and communicating to investigators how these policies will be implemented under the new guidance. Contact your IACUC about its plans to implement NOT-OD-14-126 at your institution. ●



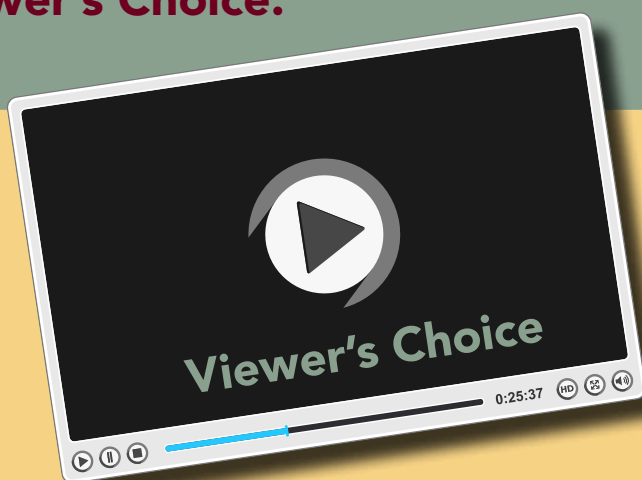
## APS Presents... Phantastic Physiology Voyage: "Function Follows Form"

**Deadline for Voting for Viewer's Choice:  
March 27, 2015**

**Check out the entries for the  
2015 APS Video Contest**

**Vote for your favorite!**

- The video with the most "Views" as of March 27 will win the Viewer's Choice Award (\$250)
- Vote early and often!



**For links to the 2015 Viewer's Choice Applicant videos,  
see [the-aps.org/video](http://the-aps.org/video) (under Resources)**

## Congress Finalizes FY 2015 Budgets

Facing a mid-December deadline, Congress finalized 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 December 16, 2014. The final bill combined fiscal year (FY) 2015 funding for all government programs and agencies with the exception of the Department of Homeland Security, which will operate under a continuing resolution (CR) at FY 2014 funding levels through February. Because the bill combined CR funding with an omnibus, it was termed a “CROmnibus.”

Following the partial government shutdown in October 2013, Congress approved the Bipartisan Budget Act (BBA). The BBA established an overall spending level and reversed some of the funding cuts required under the 2011 Budget Control Act (BCA), enabling appropriators to increase funding for priority programs without the threat of sequestration. However, the BBA only suspended the budget caps through FY 2015, which means that the stricter spending limits will again be in place in FY 2016 unless Congress acts to prevent it.

The **National Institutes of Health (NIH)** will be funded at **\$30.08 billion** in FY 2015, an increase of \$150 million over the FY 2014 level. The bill provides \$25 million in additional funds for the Brain Research through Application of Innovative Neurotechnologies (BRAIN) initiative, bringing the total for the program to \$65 million.

The **National Science Foundation (NSF)** will have a budget of **\$7.344 billion**, an increase of \$172 million over the FY 2014 level. This is expected to allow the NSF to support an additional 350 competitive grants in FY 2015.

**NASA** will receive **\$18.0 billion**, \$364 million more than the FY 2014 level.

**Medical and prosthetic research at the VA** is funded at **\$589 million**, an increase of \$3 million over the FY 2014 level.

## APS Minority Physiologists Facebook Page

The Porter Physiology Development and Minority Affairs Committee is interested in building a community of minority physiologists. Follow us for information on award applications and deadlines, updates on scientific meetings, and guidance on various topics that may affect you.

Join us at <https://www.facebook.com/APSMinorityPhysiologists>.

# Experimental Biology

## Experimental Biology 2015 March 28-April 1, 2015, Boston PHYSIOLOGY PLATFORM SESSIONS

Saturday, March 28, 2015

Room	8:00 AM-12:00 PM	1:00-2:00 PM	2:15-6:30 PM
205B	9:30 AM-11:30 AM <i>MCS Symp</i> Microcirculation: Oxygen/Blood Flow <b>Frame</b>	1:30 PM-3:00 PM <i>MCS Symp</i> Microcirculation: Inflammation <b>Gonzalez</b>	3:30 PM-5:00 PM <i>MCS Symp</i> Microcirculation: Signaling/Channels <b>Butcher</b>
205C			2:15 PM-5:15 PM <i>WEH Section Award</i> WEH Trainee Award Finalists Session and Data Diuresis <b>O'Connor</b>
206A		1:00 PM-3:00 PM <i>APS Workshop</i> Big Data Workshop <b>Larkin/Lindsey</b>	3:15 PM-5:15 PM <i>APS Workshop</i> Proteomics for the Physiologist <b>Adhikari/Rinehart</b>
207			3:15 PM-5:15 PM <i>Communications Comm Symp</i> Communicating with the Media (Alan Alda Center for Communicating Science) <b>Goodman</b>
209		1:00 PM-3:00 PM <i>Science Policy Comm Symp</i> Reproducibility in Research: What Are the Problems? How Can We Fix Them? What Happens if We Don't? <b>Northcott</b>	
210A	8:00 AM-12:00 PM <i>Education Comm Symp</i> It's All in Your Head – A Refresher Course on the Brain and Systems Control <b>Young/Rodenbaugh</b>		
210B			5:30 PM-6:30 PM <i>Cannon Award Lecture</i> <b>Yanagisawa</b>
211		1:00 PM-5:00 PM Second Annual APS PG Group Conference	
212			3:00 PM-5:00 PM <i>NCAR Section Award</i> Data NCARnation <b>Dick</b>

## Sunday, March 29, 2015

Room	8:00-10:00 AM	10:30 AM-12:30 PM	3:15-5:15 PM
205B	CV Section FT Cardiovascular Responses to Trauma <b>Hester</b>	Physiologists in Industry Comm Symp Targeting Gut Microbiome in Human Diseases and as Novel Therapeutics <b>Moreno Quinn/Intapad</b>	MCS Landis Award Lecture <b>Fukumura</b>
205C	CV Section FT Cerebrovascular Abnormalities in Hypertensive Disease <b>Dorrance/Warrington</b>	10:30 AM-12:30 PM NCAR Section Symp Angiotensin Type 2 Receptors in the Brain: A Functional Coming-of-Age in Cardiovascular Control <b>Sumners/Bruce</b>	2:00 PM-3:00 PM CAMP Section Davson Lecture <b>Aperia</b>  3:15 PM-5:15 PM CV Section FT Vascular Endothelial Cell Insulin Resistance: A New Target for Reducing Vascular Risk in Diabetes? <b>Pierce</b>
206A	NCAR Section FT NCAR Trainee Featured Topic <b>Xia/Haack</b>	CV Section Symp New Insights into Vascular Function from In Vivo Vascular Imaging <b>Wier/Zhang</b>	E&M Section Symp The Yin/Yang of Estrogen Signaling in the Control of Energy Homeostasis <b>Kelly</b>
206B	EEP Section FT New Insights into the Physiology and Pathophysiology of Diving and Hyperbaric Environments <b>Florian</b>	CAMP Section and AJP:Cell Symp Morphogen Signaling Pathways in Tissue Patterning and Disease Processes <b>Adams/Yuan</b>	CNS Section Symp Gliotransmission and Behavior <b>Parpura</b>
207	PG Group Symp Revolutionary Systems – Medicine Approaches to Understand Disease and Drug Response Physiology <b>Blackman</b>	AFMR Symp Omics of Brain Injury <b>Lo</b>	PG Group FT Physiologic Effects of Sex Chromosome Complementations and Chromosome Y Genetic Variants <b>Deschepper</b>
208	CV Section Symp Cardiopulmonary Consequences of Perinatal Exposures <b>Rogers/Velten</b>	CNS Section FT Spinal Plasticity <b>Dale</b>	CV Section Symp The Role of Store-Operated Calcium Entry in Cardiovascular Physiology and Disease <b>Lompré/Collins</b>
209	Hypoxia Group Symp Molecular Oxygen: At the Crossroads of Inflammation and Metabolism <b>Haase</b>	BMES Symp Frontiers in Cell Engineering <b>Li</b>	NCAR Section Featured Topic Baroreflex and Chemoreflex Controls of the Human Cerebral Circulation <b>Rickards</b>
210A	CV Section Symp Ion Channels in Health and Disease <b>Jaggar/Navedo</b>	10:30 AM-11:30 AM Teaching Section Bernard Lecture <b>Macknight</b>	3:15-4:15 PM WEH Section Starling Lecture <b>Reckelhoff</b>  4:15 PM-5:15 PM WEH Section New Investigator Award Lecture <b>Grobe</b>

## Sunday, March 29, 2015, cont.

210B	<i>TPIG Oral</i> Translational Physiology: Focus on Obesity, Hypertension, and Diabetes <b>Andresen</b>	<i>Cross Sectional Symp</i> The Host-Microbe Interface and Control of Barrier Function: The Path from Pathology to Therapy <b>McCormick</b>	<i>President's Symp Series</i> <i>Physiology: Answers to Big Questions Symp</i> The Future of Diabetes Research <b>Hall</b>  5:45 PM-6:45 PM Bowditch Award Lecture <b>LaMarca</b>
211	<i>Teach Section FT</i> Innovations in Classroom Teaching <b>Miller/Golden</b>	<i>Renal Section FT</i> Immune Cells, The Kidney and Hypertension <b>Sullivan/Bell</b>	<i>Renal Section Symp</i> Control of Electrolyte Balance by Novel Pathways in Intercalated Cells <b>Sansom/Grimm</b>
212	<i>WEH Section FT</i> The Heart of the Matter: Menopause, Sex Steroids, and Cardiovascular Disease <b>Reckelhoff/Wenner</b>	<i>Resp Section Symp</i> Mechanochemical Background in the Intact Lung and the Role of Contextual Cell Biology for the Study of Lung Injury and Repair <b>Kuebler/Waters</b>	<i>Resp Section FT</i> Respiratory Related Disorders in Aging and Neurodegeneration <b>Greising/Sieck</b>

## Monday, March 30, 2015

Room	8:00-10:00 AM	10:30 AM-12:30 PM	3:15-5:15 PM
205B	<i>CV Section Symp</i> The Physical Biology of Thrombus Formation <b>McCarty/Neeves</b>	<i>CV Section and the MCS FT</i> Kaley Lecture and Complementary Presentations <b>Nelson</b>	3:15 PM-4:15 PM Renal Section Gottschalk Lecture <b>Kleyman</b>  5:30 PM-6:30 PM <i>APS and The Physiological Society (UK) Conversation</i> A Conversation with Denis Noble and Michael Joyner on the Integration of Evolutionary Biology with Physiological Science <b>Paterson</b>
205C	<i>Publications Comm Symp</i> Publishing 101: How to Get Your Work Published and Avoid Ethical Minefields <b>Sigmund/Scherman</b>	<i>CNS Section Symp</i> Brainstem Mechanisms Underlying Cardiorespiratory Signaling: From Synapses to Circuits <b>Derbenev/Andresen</b>	3:15-4:15 PM CNS Section Erlanger Lecture <b>Deisseroth</b>  4:15 PM-5:15 PM <i>CNS Section Minisymposium</i> Modern Methods to Understand Brain Connections and Neural Function <b>Deisseroth</b>
206A	<i>EEP Section Symp</i> Limitations to and Potential of Exercise for the Spinal Cord Injured <b>Taylor</b>	<i>Resp Section FT</i> Lung Epithelium and Endothelium: Injury, Repair, and Remodeling <b>Zhao/Petrache</b>	<i>AFMR Symp</i> Protecting and Restoring Functional Beta Cell Mass in Type 1 Diabetes: Research from Bench to Bedside <b>Evans-Molina/Fueger</b>

Monday, March 30, 2015, *cont.*

206B	<i>Renal Section FT</i> Recent Advances in Renal Physiology and Kidney Disease I <b>Welling</b>	<i>WEH Section FT</i> Hypertension: Developing Concepts <b>Sullivan/Ryan</b>	<i>CAMP Section Symp</i> Organoids and Physiology – The Way of the Future and Beyond? <b>Hamilton/Rodrigues</b>
207	<i>WEH Section Symp</i> Gastro-Renal Communication <b>Jose</b>	<i>Hypoxia Group FT</i> Cellular, Molecular and Systems Integration Underlying Adaptation and Maladaptation to Hypoxia <b>Ramirez/Singh</b>	<i>WEH Section FT</i> Water, Electrolyte, and Blood Pressure Homeostasis: Neural and Humoral Regulators and Stressors <b>Gao/Veelken</b>
208	<i>CV Section FT</i> Cellular Membrane Repair in Cardiovascular Physiology and Pathophysiology <b>Weisleder</b>	<i>GI&amp;L Section FT</i> Targeting Colonic Contents for Treatment of Disease <b>Keely</b>	<i>CV Section Symp</i> Treating Cardiovascular Disease with Exercise: Mechanistic Insight Translated from Animal Models <b>Emter/Libonati</b>
209	<i>CAMP Section FT</i> Ion Channels and Transporters in Health and Disease <b>O'Grady/Sarathy</b>	<i>NCAR Section FT</i> Hypothalamic Autonomic Control of Metabolism <b>Jiang/Zsombok</b>	
210A	8:00 AM-9:00 AM NCAR Section Ludwig Lecture <b>Mitchell</b>  9:00 AM-10:00 AM NCAR Section Minisym Neural Control of the Circulation during Exercise in Normal and Disease States <b>Mitchell/Smith</b>	10:30 AM-11:30 AM E&M Section Berson Lecture <b>Hardie</b>	2:00 PM-3:00 PM EEP Section Adolph Lecture <b>Laughlin</b>  3:15 PM-5:15 PM Resp Section Symp Pathogenesis of Sudden Infant Death Syndrome: Is it Just a Breathing Disorder? <b>Nattie/Paterson</b>
210B	<i>TAC FT</i> Recent Advances in Obesity Research <b>Haack</b>	<i>Cross Sectional Symp</i> Neurohormonal Mechanisms in Blood Pressure Control <b>Haywood/Cowley</b>	<i>President's Symp Series</i> <i>Physiology: Answers to Big Questions Symp</i> The Future of Obesity Research <b>Hasty</b>
211	<i>Teach Section Symp</i> Resources and Experiences in Developing Flipped Classrooms for Graduate and Medical Physiology <b>Wilson</b>	<i>Renal Section Symp</i> Novel Mechanisms in Renal Function and Blood Pressure Regulation <b>Weisz/Caceres</b>	<i>Teach Section Symp</i> What's Your Major? The Rise of the Undergraduate Physiology Degree <b>Halliwill/Wehrwein</b>
212	<i>Resp Section FT</i> Cellular Quality Control in the Lung: Role of ERAD, Autophagy, and Mitophagy in Health and Disease <b>Beers/Priolo</b>	<i>CEPS Section FT</i> CEPS Abstract-driven Trainee Featured Topic <b>Martinez/Kirkton</b>	<i>CEPS Section Symp</i> Comparative Biology of Mitochondria: From Physiology to Molecules and Back <b>Jastroch/Perocchi</b>

## Tuesday, March 31, 2015

Room	8:00 AM-10:00 AM	10:30 AM-12:30 PM	3:15 PM-5:15 PM
205B	<i>GI&amp;L Section FT</i>	<i>CV Section FT</i> Wiggers Award Featured Topic <b>Spaan/Chilian</b>	<i>Renal Section Symp</i> Emerging Role of AMPK in Kidney Epithelial Transport, Metabolism and Disease <b>Singh/McDonough</b>
205C	<i>Physoc, JPhys, and APS Symp</i> Voltage-gated Calcium Channels and the Function of Excitable Cells: From Basic Mechanisms to Disease <b>Dolphin</b>	<i>E&amp;M Section Symp</i> Rejuvenating the Beta Cell <b>Lynch/Samson</b>	GI&L Section Davenport Lecture <b>Lund</b>
206A	<i>E&amp;M Section FT</i> Diet, Nutrition, and Adipose Tissue: You are What You Eat <b>Yosten</b>	<i>NCAR Section FT</i> Interactions Between Cardiovascular and Ingestive Behavioral Signals at the Circumventricular Organs <b>Collister/Ferguson</b>	<i>MBG Symp</i> Membrane Repair in Muscle Cells: Molecular Mechanisms and Therapeutic Approaches <b>Michele/Metzger</b>
206B	<i>CNS Section FT</i> CNS Mechanisms of Blood Pressure Regulation <b>Wainford</b>	<i>WEH Section FT</i> The Biology of Oxygen Homeostasis and Hypoxia <b>Polichnowski/Evans</b>	<i>CAMP Section Symp</i> Cation Channels Controlling Intracellular Functions <b>Kozak/Brueggemann</b>
207	<i>Careers in Physiology Committee Symp</i> Resilience is Power: Dealing with the Ups and Downs of Your Scientific Career <b>Wehrwein/Schnackenberg</b>	<i>EEP Section FT</i> Sex Hormone Effects on Autonomic and Endothelial Function <b>Stachenfeld</b>	<i>EEP Section Symp</i> Muscle Atrophy, Hypertrophy and MicroRNA <b>Carson/Wang</b>
208	<i>ETG FT</i> Epithelial Transport: Cell Biology <b>Møller</b>	<i>ETG FT</i> Epithelial Transport: Pathophysiology <b>Bomberger/Rieg</b>	<i>ETG Symp</i> Autophagy: Importance in Health, Epithelial Transport and Aging <b>Levi/Klein</b>
209	<i>CAMP Section FT</i> Cell Signaling: Proteins, Pathways and Mechanisms <b>Jones/Bradbury</b>	<i>CAMP Section FT</i> Oxidative Stress: Mechanisms and Responses <b>White/Yaddanapudi</b>	<i>E&amp;M Section Symp</i> Inflammation in Obesity is not All Bad <b>Ye/McGuinness</b>
210A	<i>NCAR Section Symp</i> Autonomic Denervation in Cardiovascular Disease: Mechanisms and Therapeutic Potential <b>Zucker/Paton</b>	10:30 AM-11:30 AM Resp Section Comroe Lecture <b>Raj</b>	2:00 PM-3:00 PM CV Section Berne Lecture <b>Ping</b>  3:15 PM-4:15 PM CEPS Section Krogh Lecture Sponsored by Novo Nordisk Fndn. <b>DeVries</b>

Tuesday, March 31, 2015, *cont.*

210B		Cross Sectional Symp "Omics" and Epithelial Systems Physiology <b>Delpire/McCormick</b>	3:15 PM-5:15 PM <i>President's Symp Series</i> <i>Physiology: Answers to Big Questions Symp</i> The Future of Hypertension Research <b>Jacob</b>  5:45 PM-7:00 PM APS Business Meeting
211	<i>Renal Section FT</i> Recent Advances in Renal Physiology and Kidney Disease II <b>Welling/Ilatovskaya</b>	<i>GI&amp;L Section FT</i> Inflammatory Responses in Gastrointestinal and Liver Cancer: Current Insights into Mechanism and Treatment <b>Rao</b>	<i>PG Group</i> Trainee Highlights in Physiological Genomics <b>Kriegel/Cai</b>
212	<i>EEP Section Symp</i> Exercise at the Molecular Level: Myokines and Other Novel Therapeutic Opportunities <b>White</b>	<i>CEPS Section FT</i> The Cost of Physiological Plasticity <b>Hindle/van Breukelen</b>	<i>Resp Section Symp</i> The Brain on Intermittent Hypoxia <b>Watters/Dougherty</b>
Westin Hotel, Room TBD			1:00 PM-2:00 PM <i>History Group Lecture</i> <b>Ryan</b>

## Wednesday, April 1, 2015

Room	8:00 AM-10:00 AM	10:30 AM-12:30 PM	2:30 PM-4:30 PM
205B	<i>Women in Physiology Committee Symp</i> Mentoring for Diverse Careers: Mentor and Protégé Perspectives <b>Dwinell/Mathis</b>	<i>NCAR Section FT</i> Refreshing Perspectives on the Role of the Chemoreflexes in the Control of Cardiorespiratory Functions: New Pathways and Players <b>Marcus</b>	
205C	<i>Pan-American Physiological Societies Symp</i> Salt-Sensitive Hypertension: The Brain or the Kidney to Blame <b>Antunes/Reyes</b>		
206A	<i>TPIG Symp</i> Translational Strategies for Musculoskeletal Regenerative Medicine <b>Mendias/Funai</b>	<i>TAC Symp</i> Scientists as Supervisors: Hiring, Firing, and Beyond <b>Banek/Steiner</b>	
206B	<i>MBG FT</i> Neuromuscular Diseases: Novel Therapeutic Strategies <b>Ljubicic</b>	<i>CV Section FT</i> Molecular Regulators of Skeletal Muscle Angiogenesis in Health and Disease <b>Haas/Gustafsson</b>	<i>CV Section FT</i> Systemic and Pulmonary Vascular Function at High Altitude/Hypoxia: Learning from Maladaptations <b>Scherrer</b>

## Wednesday, April 1, 2015, cont.

207	<i>EEP Section Symp</i> Who can Tolerate Blood Loss? New Insights into Mechanisms of Compensation to Hemorrhage <b>Convertino/Hinojosa-Laborde</b>	<i>EEP Section FT</i> Sympathetic Control of the Vasculature in Clinical Populations <b>Alexander/Greaney</b>	<i>EEP Section FT</i> Autophagy in Muscle <b>Hood</b>
208	<i>GI&amp;L Section Symp</i> Wanted and Unwanted Paracellular Passage in Intestinal Epithelia <b>Fromm/Schulzke</b>	<i>Resp Section Symp</i> Neonatal Lung Development and Adult Lung Homeostasis: Common Molecular Mechanisms in Lung Disease <b>Nelin/Abman</b>	<i>CV Section FT</i> Autophagy and miRNA in Diabetic Heart Failure <b>Mishra</b>
209	<i>E&amp;M Section FT</i> Circadian Clock in Metabolic Regulation <b>Wang</b>	<i>MBG FT</i> Muscle Diseases: Recent Advances in Disease Mechanisms <b>Beedle/Selsby</b>	
210A	<i>Resp Section and CEPS Section FT</i> Evolution of Air Breathing <b>Harris/Wilson</b>	<i>History Group Symp</i> Neuroplasticity in Space: Reflections from the STS-90 Neurolab Space Shuttle Crew <b>Dean</b>	
210B		<i>Cross Sectional Symp</i> Contributors to the Slowed Aging Phenotype: Exercise and other Common Mediators <b>Hamilton</b>	4:45 PM-5:45 PM <i>President's Symp Series</i> <i>Physiology: Answers to Big</i> <i>Questions Lecture</i> APS Nobel Prize in Physiology or Medicine Lecture <b>Lefkowitz</b>
211	<i>CV Section Symp</i> The Pathophysiology of Drug- induced Vascular Injury (DIVI) <b>Wamhoff/Turk</b>	<i>GI&amp;L Section Symp</i> Enteric Nervous System Regulation of GI Function <b>Mittal</b>	<i>AFMR Symp</i> Emerging Concepts in Hypoxia- related Disease Signaling <b>Rasouli/Colgan</b>
212	<i>AFMR Symp</i> From Basic Science to Precision Medicine: The Use of Genomic, Epigenomic and Translational Research to Develop Personalized Treatments <b>Payne/Colburn</b>	<i>CEPS Section Symp</i> Effects of a Changing Climate on Insect Physiology <b>Greenlee/Harrison</b>	<i>Biomedical Engineering Society</i> <i>Symp</i> Vascular Bioengineering <b>Dai/Tien</b>

# Mark Your Calendars for Professional Development Symposia at Experimental Biology 2015!

## It's All in Your Head – A Refresher Course on the Brain and Systems Control (Medical Education Refresher Course)

Get an update on content from leading experts in the field: The Brain and the Cardiovascular System (Roger Dampney, Univ. of Sydney), The Brain and the Immune System (Francois Abboud, Univ. of Iowa), The Brain and the Respiratory System (Gordon Mitchell, Univ. of Florida), and The Brain and the Gut (Michael Gershon, Columbia Univ.).

[the-aps.org/refresher-brain](http://the-aps.org/refresher-brain)

Saturday, March 28: 8:00 AM - 12:00 PM

Boston Convention Center, Rm. 210A

## Resilience is Power: Dealing with the Ups and Downs of Your Scientific Career (Career Symposium)

A career in science is filled with challenges that can often have nothing or little to do with the research itself. Hear from experts in the psychology of resilience as well as scientists who can offer advice on adaptability and resilience specific to the discipline.

**Speakers:** Suniya Luthar, Howard Adams, Jennifer Pollock, Magdalena Alonso-Galicia.

[the-aps.org/resilience](http://the-aps.org/resilience)

Tuesday, March 31: 8:00 AM - 10:00 AM

Boston Convention Center, Rm. 207

## Mentoring for Diverse Careers: Mentor and Protégé Perspectives (Mentoring Symposium)

Get information on how to approach your mentor or advisor about taking “alternative” career paths and how to handle these situations if a mentee approaches you for advice on a non-traditional career path.

**Speakers:** Lisamarie Collins, Jessica Schwartz, Maria Urso.

[the-aps.org/mentoringdiversecareers](http://the-aps.org/mentoringdiversecareers)

Wednesday, April 1: 8:00 AM - 10:00 AM

Boston Convention Center, Rm. 205B

## Scientists as Supervisors: Hiring, Firing, and Beyond (Trainee Symposium)

Supervisory and management skills are essential for scientists' success both inside and outside of research. Learn about 1) hiring and firing (finding the right employees), 2) resource and personnel management, and 3) conflict resolution.

**Speakers:** Michael B. Reid, Kim Barrett, Francine Montemurro.

[the-aps.org/supervisor](http://the-aps.org/supervisor)

Wednesday, April 1: 10:30 AM - 12:30 PM

Boston Convention Center, Rm. 206A

## Graduate Program Recruitment Opportunity

Graduate programs, don't miss the opportunity to recruit undergraduate students for your next graduate student cohort.



Graduate departments and programs talk with undergraduate students about advance degree opportunities at their institutions

### 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](http://www.the-aps.org/ugposter)  
or contact Melinda Lowy, Senior Programs Manager, Higher Education  
([mlowy@the-aps.org](mailto:mlowy@the-aps.org); 301-634-7787).

# Publications

## Author Survey 2014

Christina N. Bennett and Rita Scheman

This summer, the APS Publications Department conducted a comprehensive author survey to obtain data on what our author community perceives to be the strengths and weaknesses of our journals. If you participated in the survey, we sincerely thank you for sharing your thoughts and experiences in publishing with us. The information will help to inform what new initiatives should be implemented to ensure author satisfaction with APS journals, supporting increased quality submissions to the journals.

The survey was distributed to APS members, corresponding authors who had published in APS journals within the last 3 years, active reviewers, and authors who had recently published in competitor journals, and consisted of 20 closed and 5 open-ended questions. Over 23,000 invitations were sent out via SurveyMonkey, and the response rate was 11% (2,586 responses, of which 68% were from APS members). Questions were formulated to target and isolate responses by 1) all active author respondents, 2) APS journal authors, 3) authors by journal, and 4) non-APS authors. Here are the main findings of the survey by category.

### Submissions to APS Journals

To learn about author/member perceptions on publishing in APS journals, respondents were asked about their submission activities within the past 3 years. Of those 2,444 respondents who indicated that they had actively published within the past 3 years, 77% had submitted their work to APS journals, and 76% of 1,869 respondents stated that their submissions to APS journals had remained the same or increased in number within the past 3 years. Of the 18% (330 respondents) who said that their submissions had decreased within the past 3 years, the main reasons cited were problems with peer review, changed research focus, fees/cost too high, and impact factor too low. The main reason stated by those who did not submit their work to APS journals was that their studies are out of scope (53% of 437 respondents).

### Author Satisfaction with APS Journals

To assess author/member satisfaction with major journal attributes, respondents were asked to rate their overall satisfaction as an author of their most recent original research article published in APS journals. Overall, APS author respondents are satisfied or very satisfied with the journal scope (95% of 2,179

responses), the editors (90%), and the speed of the peer review process (86%). APS author respondents are also satisfied or very satisfied with the editorial and the publication processes of the APS journals (90% of 760 responses) (Table 1). APS author respondents were less satisfied or not at all satisfied with the costs associated with APS journals, including the submission fee (26%), costs of publication (34%), and fees for immediate open access (35%).

### Manuscript Rejection Experience with APS Journals

Rejection of a manuscript can be particularly challenging for both

**Table 1- Survey Question: Please rate your overall satisfaction as an author with the following features that are standard across all APS journals. *Very satisfied or satisfied responses only.***

Answer Options	Very satisfied or satisfied	Response Count
Helpfulness of editorial staff	95%	752
Quality of online presentation	95%	748
Unrestricted article length	94%	748
Quality of figure preparation	94%	753
Unrestricted number of figures	94%	753
Quality of ethics review	94%	745
Instructions to authors	93%	755
Quality of copyediting	93%	750
Quality of print publication	93%	749
Online submission process	90%	757
Providing public access to your article after 6 or 12 months	87%	750
Supplemental data policy (only large data sets/files/videos accepted)	75%	746
Submission fee	74%	754
Cost of publication	66%	754
Immediate Open Access option (with publishing charge)	65%	735
<b>Answered Question</b>		<b>760</b>

editors and authors. A series of questions aimed to assess how authors perceive their peer review experience with rejected manuscripts. About 58% of 1,034 respondents reported that they had had an article rejected from an APS journal. Respondents were satisfied or very satisfied with the speed of the peer review process (80% of 1,044 responses). However, nearly 50% of respondents were not satisfied with the helpfulness of reviewer comments or the scope of requests for additional experiments. Likewise, 60% of respondents were not satisfied with the reason for rejection. When asked about what influences their decision as to where to publish their next original research article, 70% of 2,260 respondents cited helpfulness of reviewer comments as most important. Targeted journal scope and high Impact Factor were also considered to be very important.

## Conclusions

APS is proud of its long history in journal publishing and strives to remain a highly attractive choice for authors who want to share original research with their community. We are pleased that authors are generally satisfied with APS journals. A key goal of the survey was to obtain constructive criticism, and the survey revealed that authors would like a better peer review experience (Table 2). In the coming months, APS editors and staff plan to develop training modules for our editorial board members and associate editors. APS editors and reviewers work hard to make the peer review process a positive educational experience for

the authors, whatever the decision. We want to ensure that our editors and reviewers have the training and tools they need to provide a quality assessment of the manuscripts submitted to our journals for publications. Likewise, we want to ensure that our authors receive comments on their manuscripts that are constructive, relevant, and serve to improve the presentation and clarity of the study.

Results from the survey also identified a level of dissatisfaction with the cost of publication (Table 2). We recognize that research budgets are tight and that sharing your work with the right audience is critical to future funding. APS is currently exploring its fee structure in consideration of the priorities of authors and responses within this survey.

Another survey finding was that there is a population of active authors and APS members who perceive their work to be out of scope for APS journals. If you are an APS member and feel that your work is not within the scope of the APS journals, we want to hear from you.

The issue of Impact Factor was also identified as a major concern of many authors (Table 2). We have heard from you, too, that the Impact Factor does not accurately reflect the high quality of APS journals. Nevertheless, our editors have been working hard, through editorially sound means, to increase the Impact Factor of their journals, because they are well aware of the pressures that some of our authors and members are under to publish their work in journals with an Impact Factor greater than 5. This is particularly challenging, since APS journals have both a long citation life as well as a proud history of inclusivity – embracing important areas of research that may be highly focused, wherein the numbers of citations do not respond to popular metric demands. Indeed, we want APS journals to be your home where you serve as authors, reviewers, and editors. Please send your best work to our journals to help us make positive impacts in the field, ones that are much more impactful than a number. ●

**Table 2- Survey question: What could APS do to improve your level of satisfaction as an APS author?**

Open-ended response categories	Response Percent
<i>Improve review system/reviewer interactions</i>	21%
<i>Reduce cost/remove submission fee</i>	18%
<i>Improve impact factor</i>	16%
<i>No specific suggestions/don't change</i>	15%
<i>Increase speed of review/publication process</i>	7%
<i>Improve submission/production process</i>	7%
<i>Change open access policies</i>	4%
<i>Adjust editorial focus/ed board/associate editors</i>	3%
<i>Change supplemental data policies</i>	1%
<i>Miscellaneous</i>	7%
<b>Total comments: 531</b>	

## Joe Named Editor of *Physiological Genomics*



Bina Joe

Bina Joe has been named editor of *Physiological Genomics*, effective July 1, 2015. Bina is a Professor of Physiology and Pharmacology and the founding Director of the Center for Hypertension and Personalized Medicine at the University of Toledo College of Medicine. She is also a Fellow of the American Heart Association. She received her PhD from the University of

Mysore in India. After a brief postdoctoral fellowship at the Indian Institute of Science in Bangalore, she worked briefly in AstraZeneca India before moving to the U.S. as an International Fogarty Scholar to conduct Molecular Genetics research on arthritis in the Intramural Research Division of the National Institutes of Health, Bethesda, MD. For the past 15 years, she has been instrumental in leading the Research Program on Physiological Genomics at the University of Toledo. Her research centers on the genetics of hypertension, which is continually funded through multiple grants from the NHLBI/NIH. She is the recipient of several Research

Awards, including the Young Scholar Award from the American Society of Hypertension and the Lewis K. Dahl Memorial Lecture Award from the American Heart Association Council on Hypertension. Her research work is published in several top-tier journals, including PNAS, *Cell*, and *Nature Communications*. Bina has mentored several research assistant professors, postdoctoral fellows, and graduate students, many of whom have won various accolades in their careers. She continues to serve on multiple NIH and other international review panels, is the Scientific Organizer of several international conferences in the U.S. and U.K., and is currently engaged in various leadership activities to promote research in her institution. Besides being an internationally recognized researcher, she has taken on multiple leadership positions within the American Physiological Society and the American Heart Association. Notably, she has contributed substantially to the development of the Physiological Genomics group of the American Physiological Society and was recognized with a Distinguished Service Award. Bina has been a member of the APS for over a decade, has served on the editorial board of *Hypertension*, and has been an associate editor for *Physiological Genomics*. ●

## Mentoring or Working with Students with Disabilities

This collection in the Life Science Teaching and Resource Community (LifeSciTRC) provides articles and resources for researchers mentoring or working with students with disabilities.

Visit <http://www.lifescitrc.org/collection.cfm?collectionID=2420> for more information.

## Bunnett Named Editor of *AJP-GI*



Nigel Bunnett

Nigel Bunnett has been named editor of the *American Journal of Physiology–Gastrointestinal and Liver Physiology*, effective July 1, 2015. Nigel was educated in England, receiving a BSc in Animal Physiology and Nutrition from the University of Leeds, and a PhD from the Institute of Animal Physiology (Babraham Institute), the University of Cambridge. Nigel spent the next 30 years of

his career on the West Coast of the United States as a postdoctoral fellow at the University of California, Los Angeles, and then as a junior faculty member at the University of Washington, Seattle. In 1987, he joined the University of California, San Francisco, and he remained there for almost 25 years, becoming Professor of Surgery and Physiology, Vice Chair of Surgery, and Director of the UCSF Center for the Neurobiology of Digestive Diseases. Nigel relocated to Monash University, Melbourne, in 2011, where he holds appointments as a National Health and Medical Research Council (NHMRC) Australia Fellow, Professor of Pharmacology and Medicine, and Deputy Director of the Monash Institute of Pharmaceutical Sciences.

Nigel's research focuses on understanding the mechanisms of inflammation and pain, which underlie diseases of global relevance. He is particularly recognized for his work on defining the functions and regulation of G-protein-coupled receptors and transient receptor potential ion channels, two major

classes of cell-surface proteins that are essential for the transmission of inflammation and pain. His laboratory studies receptors for neuropeptides, proteases, and bile acids that regulate multiple pathophysiological processes in the gastrointestinal tract, pancreas, and liver, many of which are also controlled by transient receptor potential ion channels. Nigel's work is clinically informed and translationally relevant. His appointments in basic science and clinical departments have facilitated studies of the mechanisms of digestive disease, and with colleagues in pharmaceutical sciences he is seeking to develop treatments for diseases that are major causes of human suffering.

Nigel's work has been reported in >300 research papers, reviews, and chapters, and is funded by the NHMRC, the Australia Research Council, and the National Institutes of Health (NIH). His contributions have been recognized by awards including an Australia Fellowship, an NIH MERIT Award, the Novartis Neurogastroenterology Award, the Jansen Award for Basic Research in Gastroenterology, and the Victor Mutt Award for Research in Regulatory Peptides. Throughout his career, Nigel has been committed to medical, graduate, and undergraduate education, and he has received numerous awards in recognition of his dedication to teaching. Nigel has served on editorial boards of the *American Journal of Physiology*, *Journal of Biological Chemistry*, *British Journal of Pharmacology*, and *Regulatory Peptides*. He was a member of the Clinical and Integrative Gastrointestinal Pathobiology NIH Study Section and has served on NHMRC Grant Review and Fellowship Panels. ●

## Calls for Papers

### **Physiological Genomics**

- Cellular Plasticity
- Gut Microbiota in Health and Disease
- Systems Biology and Polygenic Traits

### **Journal of Neurophysiology**

- Control of Autonomic Function: Insights From Neurophysiological Studies in Conscious Animals (Including Humans) (Submission deadline: July 1, 2015)
- Neuronal Diversity: Categorizing Types of Neurons (Submission deadline: July 1, 2015)
- Neurophysiology of Tactile Perception: A Tribute to Steven Hsiao (Submission deadline: June 1, 2015)
- Neurobiology of Deep Brain Stimulation (Submission deadline: March 1, 2015)
- Decision Making: Neural Mechanisms (Submission deadline: March 1, 2015)
- Correlating Neuronal Activity and Neural Imaging (Submission deadline: March 1, 2015)

### **Advances in Physiology Education**

- Pre-Professional Education in Transition

### **American Journal of Physiology – Cell Physiology**

- Cell and Molecular Processes in Cancer Metastasis (Submission deadline: June 30, 2015)
- Cell Signaling: Proteins, Pathways and Mechanisms (Submission deadline: June 30, 2015)
- Cellular Responses to Hypoxia (Submission deadline: June 30, 2015)
- Omic and Systems Biology Approaches in Neurodegenerative Diseases (NEW Submission deadline: June 30, 2015)
- Stem Cell Biology (Submission deadline: June 30, 2015)
- STIM and Orai Proteins in Calcium Signaling (NEW Submission deadline: June 30, 2015)

### **American Journal of Physiology–Endocrinology and Metabolism**

- Islet Biology (NEW Submission deadline: March 31, 2015)
- Novel Aspect of Adipocyte Biology (NEW Submission deadline: March 31, 2015)
- CNS Control of Metabolism (NEW Submission deadline: March 31, 2015)
- Endocrine and Metabolic Dysfunction during Aging and Senescence (NEW Submission deadline: March 31, 2015)
- Metabolic Control by Inflammation and Immunity (NEW Submission deadline: March 31, 2015)
- Mitochondrial Dynamics and Oxidative Stress in Disease (NEW Submission deadline: March 31, 2015)

### **American Journal of Physiology–Gastrointestinal and Liver Physiology**

- Innovative and Emerging Technologies in GI Physiology and Disease
- Intestinal Stem Cells in GI Physiology and Disease
- Physiology and GI Cancer

## Calls for Papers, continued

### **American Journal of Physiology–Heart and Circulatory Physiology**

- Cardiovascular Responses to Environmental Stress  
(Submission deadline: May 15, 2015)
- Exercise Training in Cardiovascular Disease: Mechanisms and Outcomes  
(Submission deadline: May 15, 2015)

### **American Journal of Physiology–Lung Cellular and Molecular Physiology**

- Sex Differences in the Respiratory System
- Nanoparticles and the Lung: Friend or Foe?  
(Submission deadline: March 1, 2016)
- Biomarkers in Lung Diseases: From Pathogenesis to Prediction to New Therapies
- Bioengineering the Lung: Molecules, Materials, Matrix, Morphology, and Mechanics
- Translational Research in Acute Lung Injury and Pulmonary Fibrosis

### **American Journal of Physiology–Regulatory, Integrative and Comparative Physiology**

- Oxygen as a Regulator of Biological Systems  
(Submission deadline: April 30, 2015)

### **American Journal of Physiology–Renal Physiology**

- Juxtaglomerular Apparatus–New Mechanisms and Functions  
(Submission deadline: June 30, 2015)
- Lower Urinary Tract Symptoms  
(NEW Submission deadline: June 30, 2015)
- For a complete list of current Calls for Papers, visit the APS homepage and click on the tab for Calls for Papers.

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

## Finding and Applying for Grant Funding

This collection in the Life Science Teaching and Resource Community (LifeSciTRC) provides resources related to the grant search and grant writing.

Visit <http://www.lifescitrc.org/collection.cfm?collectionID=2581> for details.

# ACDP News

## Association of Chairs of Departments of Physiology Leadership Retreat Highlights

The Association of Chairs of Departments of Physiology (ACDP) held its annual Leadership Retreat at Gamboa Rainforest Resort in Gamboa, Panama, on December 4-7, 2014.

President Nick Delamere (University of Arizona) developed a program focused on issues being currently faced by department chairs and the discipline of physiology.

Research talks included the eighth annual Arthur C. Guyton Lectureship given by Gordon Mitchell (Univ. of Florida, formerly Univ. of Wisconsin) on "Harnessing Intermittent Hypoxia-induced Spinal Motor Plasticity: Breathing and Walking After Spinal Injury." The new chair research presentation was by Donald Gill (Pennsylvania State Univ., Hershey) on "Transducing Calcium Signals." He also touched on his background as having been a chair twice but for departments in two different disciplines.

The 2014 ACDP Distinguished Service Award was presented to Michael Joyner (Mayo Clinic), who gave a much discussed talk entitled "Chasing Mendel vs. the Future of Physiology." Because of his challenge to the group, it was agreed that a new report on the future of physiology in medical education would be drafted in conjunction with APS.

Three workshops were held based on topics selected by last year's attendees. The first was led by Michael Sturek (Indiana Univ.) and Gordon Mitchell on "Quantifying Faculty Effort and Eking Out Departmental Resources."

A presentation by Thomas Pressley (Texas Tech Univ.) on "Winds of Change: 3-Year Medical School, Online Teaching and Other Interesting Developments" started off the discussion of teaching medical students. This was followed by a workshop led by Pressley and Michael Joyner on "Physiology's Place in the Academic Medical Center."

The third workshop was on "Undergraduate Teaching and the Physiology Pipeline," led by Christopher Minson (Univ. of Oregon) and Patricia Molina (Louisiana State Univ., New Orleans). As part of his presentation, Minson presented data collected by a group of undergraduate educators led by Erica Wehrwein (Michigan State Univ.). After discussion, the group decided to work on a base curriculum for an undergraduate physiology program that could be finalized at the 2015 Leadership Retreat. Also discussed was a certification program for undergraduate physiology programs.

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



ACDP President Nick Delamere presents Gordon Mitchell (*right*) with the 2014 ACDP Guyton Lectureship Award



ACDP President Nick Delamere presents Klaus Winter (*left*) with a certificate of appreciation for his Smithsonian lecture



ACDP Council. *Back (left to right):* Janice Urban, Nicholas Delamere, Michael Sturek, T. Richard Nichols, Pieter de Tombe, Kebreten Manaye, M. Bishr Omary, D. Buck Hales. *Front (left to right):* Chris Cheeseman, Charles Wood, Elsa Mangiarua. Not pictured: Muthu Periasamy, Joseph Metzger, R. Clinton Webb

One of the highlights of having the meeting in Panama was the nearby Smithsonian Tropical Research Institute. Many of the attendees had the pleasure of touring Barro Colorado Island, the largest forested island in the Panama Canal waterway, which is part of the Barro Colorado Nature Monument. All attendees and guests had the experience of visiting a research station near

the hotel to hear Klaus Winter, a Smithsonian Senior Staff Scientist, talk about his research on tropical plants that exhibit different modes of photosynthesis, varying mechanisms of stress tolerance, and differences in resource-use efficiency.

Officer elections were held with the following results. T. Richard Nichols (Georgia Institute of Technology) was elected President-elect; D. Buck Hales (Southern Illinois Univ.) and Kebreten F. Manaye (Howard Univ.) were elected to 3-year terms as Councilor. R. Clinton Webb (Georgia Regents Univ.) was re-elected to another 3-year term as Council of Faculty and Academic Societies (CFAS) representative; and Elsa I. Mangiarua (Marshall Univ.) was elected to a 1-year term as CFAS representative to fulfill an unexpired term.

Muthu Periasamy (Ohio State Univ.) was thanked for his service as Past-President. Bishr Omary (Univ. of Michigan) and Charles E. Wood (Univ. of Florida) were thanked for their service as Councilors.

President-elect Michael Sturek (Indiana Univ.) announced the 2015 ACDP Leadership Retreat will be Dec. 3-6 at Dreams Sugar Bay Hotel in St. Thomas. As details are available, they will be added to the 2015 meeting webpage at [www.acdponline.org/](http://www.acdponline.org/).



Gamboa Rainforest Resort Hotel

The Leadership Retreat is open to chairs of departments of physiology or related areas, graduate directors in physiology or related areas, medical/osteopathic/veterinary physiology course directors, and undergraduate program directors. The meeting will build upon this year's topics and will continue to focus on leadership issues and other areas of broad interest to those audiences. ●

## Joyner Honored at Annual ACDP Meeting

The highest award given by the Association of Chairs of Departments of Physiology (ACDP), the Distinguished Service Award, was presented to Michael J. Joyner, Frank R. and Shari Caywood Professor of Anesthesiology, Department of Anesthesiology, Mayo Clinic, during the organization's 2014 Leadership Retreat at Gamboa Rainforest Resort in Panama. Nick Delamere (Univ. of Arizona), President of ACDP, presented the award.

Joyner was selected to receive the ACDP Distinguished Service Award for his constant thoughtful and demanding look at the future of the discipline of physiology and its place in medical education, as well as for his contributions to scientific discovery and the promotion of the discipline of physiology.

Joyner received a BS in Nutrition and Food Science at the University of Arizona. He remained there for his MD degree. He completed both his internship and his residency at Mayo Graduate School of Medicine, Mayo Clinic College of Medicine, before joining the Department of Anesthesiology as first a consultant and then a faculty member. Joyner also has joint appointments in the Departments of Physiology and Biomedical Engineering and of Molecular Pharmacology and Experimental Therapeutics. Joyner has been the Frank R. and Shari Caywood Professor of Anesthesiology at the Mayo Clinic since 2009. He was named the Director of Consortia Development at the Mayo Clinic Center for Translational Science Activities in 2012.

Joyner has been the recipient of a multitude of awards during his career for his teaching, mentorship, and research from both universities and various societies. He was named a Distinguished Mayo Investigator by the Mayo Clinic in 2010. The American Society of Anesthesiologists gave him both their FAER Honorary Lecture Award and their Mentorship Award in 2011. APS honored him with the Edward F. Adolph Distinguished Lectureship Award in 2011, followed by the Walter B. Cannon Award (APS's highest award) in 2013 and the Bodil M. Schmidt-Nielsen Distinguished Mentor and Scientist Award in 2014.

Joyner has mentored almost 100 undergraduate students, 20 medical students, 10 medical residents, 5



ACDP President Nick Delamere presents Michael Joyner (left) with the 2014 ACDP Distinguished Service Award

graduate students, 30 postdoctoral fellows, and several visiting scientists in his lab. He also writes a blog on Human Limits at [drmichaeljoyner.com](http://drmichaeljoyner.com).

Joyner's research focuses on how humans respond to various forms of physical and mental stress during activities such as exercise, hypoxia, standing up, and blood loss. He and his team study how the nervous system regulates blood pressure, heart rate, and metabolism in response to these forms of stress. They also are interested in how blood flow to muscle and skin responds to these stressors. These responses are studied in young healthy subjects, healthy older subjects, and people with conditions such as heart failure. Joyner is personally interested in the role of integrative approaches in science as a powerful tool to integrate and critique data from reductionist approaches.

By studying normal physiology and how it is affected by aging, sex, and disease, Joyner is able to gain insight into what body systems are potential therapeutic targets for intervention. This research also provides insight into the many complex mechanisms that operate together to keep us healthy and able to adapt to the demands of life – or fail in a way that makes us unable to adapt.

Because of his scientific endeavors, his dedicated service to the field of physiology, and his distinguished service to APS and other scientific organizations, the ACDP was proud to present its 2014 Distinguished Service Award to Michael J. Joyner.

# Book Review

## Career Options for Biomedical Scientists

Kaaren Janssen, Richard Sever, et al.

New York: Cold Spring Harbor Laboratory Press, 2015,  
224 p., \$42.75 (hardcover)  
ISBN: 978-1936113729

With fewer faculty positions available to biomedical scientists, many will look for careers outside of academia. To help them navigate the job market, the authors of *Career Options for Biomedical Scientists* have created a valuable resource explaining the types of careers available to life scientists with a PhD. Each chapter focuses on a career track and is written by a researcher who transitioned to that field. It is intended for job seekers with a scientific background and provides valuable information on getting your foot through the door, the desired skills for each job, and lessons learned from the authors' experiences.

The chapters on scientific societies and science policy careers provide readers with practical advice on finding a job in policy. The authors suggest staying abreast of science policy issues and looking for fellowships or volunteer opportunities at scientific organizations or professional societies. Seeking out experiences outside of the laboratory demonstrates a broad interest and passion for this line of work. As a postdoctoral fellow who transitioned to policy work, I found the authors' firsthand descriptions of job responsibilities, career progression, and work settings for science policy specialists to be particularly helpful and relevant.

The book covers a total of 13 career options, including teaching, core facility management, and academic administration. These jobs are typically found within

universities and require good working relationships with students and faculty. Client-focused careers such as patent law and management consulting are also featured and call for additional job training beyond a PhD degree. For scientists with entrepreneurial spirits, there is a chapter on biotech start-ups written by the co-founder of Rib-X Pharmaceuticals, Inc. Careers in communication are highlighted at the end of the book and feature medical communication, science journalism, and scientific publishing.

Although there are many different careers presented in the book, a common theme emerges among them – the scientific skills acquired during one's graduate studies is not lost. For example, being able to interpret large data sets is a valuable skill for a researcher, as well as a management consultant assessing the profitability of a company. Being able to break down complex scientific concepts is vital to both a graduate student and a journal editor reviewing an article. These skills are pertinent to other professions and desirable to employers.

The overview of jobs and tips provided in *Career Options for Biomedical Scientists* will help prepare graduate students, postdoctoral fellows, and even mid-career scientists for careers beyond the bench. The book is an informative read and a great addition to laboratories and career-development offices. ●

Linda Yang  
The American Physiological Society

## 2015 Books Received

*The Physiological Measurement Handbook*

Edited by John G. Webster

Boca Raton, FL: CRC Press, December 11, 2014, 616 p., 275 B/W illus. \$149.95 (hardback)

ISBN: 9781439808474

# Mentoring Forum

## Mentoring for Diverse Careers: A Mentee Perspective

Lisa Stow



Lisa Stow

During my graduate and postgraduate training, I was offered one path forward: the path to tenure track in academia. I received little to no support for a career outside of academia. At least one of my mentors told me point blank that it was a mistake to pursue an “alternate” career path. Although a tenure-track academic position is certainly a worthy aspiration for a young

graduate or postgraduate student, it should by no means be considered the only path to success or career satisfaction. With dwindling grant funding and fewer than 10% of PhDs landing these coveted positions, I think it is time to reconsider how we define success and how we train young scientists to achieve success.

Perhaps part of the problem is generational. After all, the mentors whom we rely on for guidance and support for career development were also provided zero guidance on careers outside of academia. The industry landscape was certainly quite different 10, 20, and 30 years back. Nonetheless, there is a very real stigma associated with careers outside of academia. One gets the feeling that assumptions will be made: maybe you couldn't get funded; maybe you couldn't publish your results; maybe you've been lured by a billion-dollar pharmaceutical enterprise to your intellectual death; or worse, maybe you failed so miserably in academia all you could get was a sales position.

My experience and that of many of my peers in industry demonstrate that these ideas are antiquated. Certainly, great work and scientific contributions come from academia. In fact, my company and many others partner with our academic counterparts to help drive R&D and design better products and technology. However, for those who feel that there is no admirable career outside of academia, I challenge them to look around their labs. Look around the conferences. Look around the hospitals. Biotechnology companies have

provided cutting-edge instruments, kits for almost any reaction, custom reagents, on-the-spot professional technical support, and so much more. Meanwhile, pharmaceutical and medical device companies are responsible for the vast majority of the major medical advances of our time.

As I was completing my postdoctoral training, I was often told that a career as a medical science liaison or a career in biotechnology sales was a mistake. I was told that I would never be able to return to academia and I would soon regret my decision to leave. My first industry position was as an application scientist with a major biotechnology company, a position that was customer-facing and required a significant component of technical sales. During my time with this company, I had the misfortune of dealing with *many* academicians who looked down on me for my sales position. I even had one professor go out of his way to tell me that I failed in academia and he would, therefore, be unwilling to refer to me with my professional title of “doctor.” Here is what I have to say to anyone turning their nose up at taking a job in sales or technical support: After 1 year as an application scientist where I provided technical sales support, I was far more prepared to excel at any career, including one in academia. My time in sales taught me efficiency, corporate accountability, project management, budgeting, and technical skills. Equally important, the time I spent in a client-facing position in industry opened my eyes to the number of other opportunities that existed beyond the ivory tower. Although the job wasn't what I wanted to do for the rest of my career, it was worth every second. It is worth mentioning that my salary was equivalent to that of a tenure-track assistant professor at a major research university.

After a 1-year stint in technical sales, I made the leap to medical affairs in a small but growing company. In my current position, I design clinical trials and other research collaborations. I work with academics, government agencies, and other companies to design smarter clinical and translational studies that will lead to faster advancements in cancer treatment. My job is stimulating, intellectually rewarding, and challenging.

To put it simply, I love what I do. And if ever a day comes when I stop loving what I do, I have plenty of options out here in industry.

I hope the tides are changing and that perhaps more academic institutions are catching on that young scientists need to be prepared for the other 90% of career options available to them. Certainly, I receive weekly e-mails from other post docs and graduate students asking for advice on how to make “the transition.” Here is my advice for those who want it: NETWORK! Work with recruiters if possible and don’t listen to the negative. I found each of my positions by making direct connections with people who worked for the company or recruiters who staffed the companies in which I was interested. I heard a hundred times that what I needed was industry experience. Both my husband and I lost out on opportunities to other candidates who had industry experience. However, we persevered, and I am here to tell you that it is possible to make the leap to industry. Just keep networking. For academic institutions that recognize the need to prepare their trainees for diverse careers, consider partnering with industry to create a path to industry post doc positions and internships. I applaud the APS Women in Physiology Committee for organizing a symposium on this topic at the upcoming Experimental Biology meeting in Boston. I would

encourage mentors and mentees to attend “Mentoring for Diverse Careers: Mentor and Protégée Perspectives” on Wednesday, April 1, 2015 at 8 AM in Convention Center Room 205B to hear more on this topic.

*Lisa Stow is currently a Medical Science Liaison at Champions Oncology, where she is responsible for managing personalized TumorGraft (patient-derived xenograft) technology for clinical and research-based initiatives. Stow is passionate about patient advocacy and advancing personalized medicine in a responsible and ethical manner.*

*Stow received her undergraduate, graduate, and postdoctoral training at Emory University and the University of Florida. She received her PhD in physiology and functional genomics from the University of Florida College of Medicine in 2009. Stow’s background includes extensive experience in technical sales, molecular biology, physiology, and translational medicine. She is also President and founder of a 501c3 that has implemented over \$100,000 for breast cancer research at the University of Florida. ●*

To comment on this article or ask a question of the author, please go to [the-aps.org/forum-diversecareers](http://the-aps.org/forum-diversecareers).

## New from Cold Spring Harbor Laboratory Press *Exclusive Offer for APS Members*



### Career Options for Biomedical Scientists

Edited by Kaaren Janssen, *Cold Spring Harbor Laboratory Press* and Richard Sever, *Cold Spring Harbor Laboratory Press*

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Columbus, OH

**Albert Van Der Vliet**

Univ. of Vermont, Burlington, VT

**Wietske Van Der Zwaag**

EPFL. Lausanne. Switzerland

**Benjamin H. Vandendriessche**

Case Western Reserve Univ.,  
Cleveland, OH

**Thomas Voets**

KU Leuven, Leuven, Belgium

**Kazuhito Watanabe\***

Univ. of Tsukuba, Tsukuba City, Japan

**Christopher Charles Wendler**

Univ. of Florida, Gainesville, FL

**Dao Xiang**

Naval Med. Res. Inst., Shanghai, China

**Yong Xu**

Baylor Coll. of Med., Houston, TX

**Xu Yan**

Victoria Univ., Melbourne, Australia

**Michael Yartsev**

Princeton Neuroscience Inst.,  
Princeton, NJ

**Fu-Ming Zhou**

Univ. of Tennessee, Memphis, TN

**Margaret Zimmerman**

Tulane Univ., New Orleans, LA

## New Graduate Student Members

### Dustin Ryan Allen

Southern Methodist Univ., Dallas, TX

### Dana Almohazey

Univ. of Southern California,  
Glendale, CA

### Nicole Christine Aurigemma

Pennsylvania State Univ.,  
State College, PA

### Paymon Azizi

Sickkids, Markham, Canada

### Erica Bell

East Carolina Univ., Greenville, NC

### John Townsend Bentley

Univ. of Michigan, Ann Arbor, MI

### Emily Bergbower

Johns Hopkins Univ. Sch. of Med.,  
Baltimore, MD

### Emanuele Bernardi

Univ. degli studi di Torino, Boves Italy

### Adam Joseph Berrones

Univ. of Kentucky, Lexington, KY

### Johnathan Michael Borland

Georgia State Univ., Atlanta, GA

### Elizabeth Bowles

Missouri Univ. of Sci. and Tech.,  
Lake Spring, MO

### Andrew Chapp

Michigan Tech. Univ., Houghton, MI

### Yang Chen

Rutgers New Jersey, South Orange, NJ

### Rachel C. Childers

The Ohio State Univ., Columbus, OH

### Robert Patrick Clayton

Univ. of Texas, Galveston, TX

### Lindsay Elizabeth Wendel Clegg

Johns Hopkins Univ., Baltimore, MD

### Xiaofei Cong

Virginia Tech, Blacksburg, VA

### Cheryl De Vallière

Univ. Hospital Zurich,  
Zurich, Germany

### Sarah Elizabeth Deemer

Texas Woman's Univ., Denton, TX

### Daniel Justin Dellostritto

Northeastern Ohio Univ. Coll. of Med.,  
Ravenna, OH

### Evan Devallance

West Virginia Univ., Morgantown, WV

### Katie M. Di Sebastiano

Univ. of Waterloo, Waterloo, Canada

### Marlou L. Dirks

Maastricht Univ., Maastricht,  
The Netherlands

### Yvonne Andrea Dzal

Univ. of British Columbia,  
Vancouver, Canada

### Juliana Massiel Falero Perez

Univ. of Wisconsin, Madison, WI

### Scott Kohman Ferguson

Kansas St. Univ., Manhattan, KS

### Patrick Ferrara

East Carolina Univ., Greenville, NC

### Allison Lynn Fisher

California State Polytechnic Univ.,  
Pomona, Laguna Hills, CA

### Katiria M. Flores

Univ. of Connecticut, Storrs, CT

### Kimberley Mei Ling Fong

Indiana Univ. Sch. of Med.,  
Indianapolis, IN

### Steven James Forrester

Temple Univ., Arnold, MD

### Giliard Lago Garcia

Univ. of Brazil, Brasília, Brazil

### Jennifer E. Gilda

Univ. of California-Davis, Davis, CA

### Casey A. Gilman

Univ. of Massachusetts-Amherst,  
Northampton, MA

### Sarah Marie Haeger

Univ. of Colorado at Denver,  
Denver, CO

### Hesamedin Hakim Javadi

Univ. of Cincinnati Coll. of Med.,  
Cincinnati, OH

### Victoria L. Halperin Kuhns

John Hopkins Univ., Catonsville, MD

### Trevor Hardigan

Georgia Regents Univ., Augusta, GA

### Bronson Adonis Haynes

Eastern Virginia Med. Sch.,  
Virginia Beach, VA

### Xiao Chen He

Univ. of Mississippi Med. Ctr.,  
Jackson, MS

### Kwangseok Hong

Univ. of Missouri-Columbia,  
Columbia, MO

### Stephen James Hurst

Thomas Jefferson Univ.,  
Philadelphia, PA

### Hyun Tae Hwang

Univ. of California-Davis, Davis, CA

### Borbala Nora Javor-Duray

VU Med. Ctr., Amsterdam

### Sarah E. M. Jenkin

The Univ. of British Columbia,  
Vancouver, Canada

### David Mark Jensen

Medical Coll. of Wisconsin,  
Milwaukee, WI

### Sheetal Srikant Joshi

Wayne State Univ., Detroit, MI

**Sharath C. Kandhi**  
New York Med. Coll., Guilderland, NY

**Sarah M. Keesom**  
Indiana Univ., Bloomington, IN

**Jacqueline Kiwata**  
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Los Angeles, CA

**Namiko Kobayashi**  
Univ. of Tsukuba, Tsukuba-Shi, Japan

**Deepak Kumbhare**  
Virginia Commonwealth Univ.,  
Richmond, VA

**Katherine Labarbera**  
Univ. of Massachusetts-Amherst,  
Amherst, MA

**Kasey Lansford**  
Univ. of Georgia, Athens, GA

**Jakob Del Lauver**  
Univ. of Toledo, Toledo, OH

**Rebecca Lazelle**  
OHSU, Portland, OR

**Matthew Leatherwood**  
Auburn Univ. at Montgomery,  
Montgomery, AL

**Amanda Joy Lee**  
Univ. of Hawaii, Honolulu, HI

**Kyuwan Lee**  
West Virginia Univ., Morgantown, WV

**Kent Allen Lemaster**  
West Virginia Univ., Morgantown, WV

**David G. Litvin**  
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Cleveland, OH

**Kelly J. Lum-Naihe**  
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**Neeti Maan**  
LSUHSC Shreveport, Shreveport, LA

**Bhargavi Manda**  
UTHSC, Memphis, TN

**Kelsey Jolen Markham**  
Texas Tech Univ. Hlth. Sci. Ctr.,  
Lubbock, TX

**Timothy Robert Matsuura**  
Univ. of Minnesota,  
Columbia Heights, MN

**Rachel McCormick**  
Univ. of Liverpool, Liverpool,  
United Kingdom

**Mary Adrienne McGinn**  
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New Orleans, LA

**Jonathan Matthew Memme**  
York Univ., Newmarket, Canada

**Ramlah Farouk Muhammad**  
Northwest Univ. Kano Nigeria,  
Kano, Nigeria

**Ryan K. Mui**  
Michigan State Univ., East Lansing, MI

**Robert Len Murray**  
North Carolina State Univ.,  
Raleigh, NC

**Jayakrishnan Nair**  
Univ. of Florida, Gainesville, FL

**Josephine Andrea Napoli**  
Univ. of Hawaii, Manoa Mililani, HI

**Margaret Nelson**  
East Carolina Univ., Greenville, NC

**Daniel S. Nelson**  
Univ. of Utah, Orem, UT

**Rintaro Nishimura**  
Chiba Univ., Chiba, Japan

**Dipanwita Pati**  
Univ. of Florida, Gainesville, FL

**Francois Potus**  
Criucpq, Quebec, Canada

**Laura Ema Kvetuse Ratcliffe**  
Univ. of Bristol, Sidcup, United  
Kingdom

**Robert M. Restaino**  
Univ. of Missouri, Columbia, MO

**Amanda Ross**  
Pennsylvania State Univ. Coll. of Med.,  
Hershey, PA

**Ahlam Salameh**  
Case Western Reserve Univ.,  
Cleveland, OH

**Courtney Scerbak**  
Univ. of Alaska-Fairbanks,  
Fairbanks, AK

**Brooke Marie Shafer**  
Univ. of Illinois at Chicago, Chicago, IL

**Robin C. Shoemaker**  
Univ. of Kentucky, Lexington, KY

**Asitha Tharanga Silva**  
Oklahoma State Univ., Stillwater, OK

**Fianne Lia Polly Sips**  
Eindhoven Univ. of Tech., Eindhoven,  
The Netherlands

**Dheeraj Soni**  
Univ. of Illinois at Chicago, Chicago, IL

**Lindsey Katharine Stavola**  
Yale Univ., New Haven, CT

**Mike Stembridge**  
Cardiff Metropolitan Univ., Cardiff,  
United Kingdom

**Emily Stevenson**  
Baker IDI, Hawthorn, Australia

**Glenn M. Stewart**  
Griffith Univ., Griffith, Australia

**Ashley Stoehr**  
Univ. of Massachusetts,  
Dartmouth Cranston, RI

**Kristyn E. Sylvia**  
Indiana Univ., Bloomington, IN

**Ashwini Tiwari**  
Georgia State Univ., Lilburn, GA

**Kristen D. Turner**  
East Carolina Univ., Greenville, NC

**Jennifer Allison Valcin**  
Univ. of Alabama, Birmingham, AL

**Justin Scott Van Hoorebeke**  
The Univ. of California-Davis,  
Davis, CA

**Eliana Garcia Vaz**  
Lund Univ., Malmö, Sweden

**Katherine Suzanne Wainright**  
University of Missouri,  
Columbia, MO

**Xinhui Wang**  
Univ. of Missouri, Columbia, MO

**Hui Wang**  
Baylor Coll. Of Med., Houston, TX

**Esther A. H. Warnert**  
Cardiff Univ., Cardiff, United Kingdom

**Erica Marie Waters**  
Indiana Univ., Bloomington, IN

**Sang Ouk Wee**  
Univ. of Illinois at Chicago, Chicago, IL

**Keon Dewayne Wimberly**  
Univ. of Florida, Gainesville, FL

**Yi Xin**  
Univ. of Pennsylvania,  
Philadelphia, PA

**Alice Yeh**  
Tulane Sch. of Med., New Orleans, LA

**Zachary Zabarsky**  
Wake Forest Univ. Winston, Salem, NC

**Nathan A. Zaidman**  
Univ. of Minnesota, Minneapolis, MN

### Undergraduate Student Members

**Gabrielle Dillon**  
Drake Univ., Rochester, MN

**Artem Gordon**  
Hunter College, Brooklyn, NY

**Roberto Gutierrez**  
Univ. of California, Riverside, Lake  
Elsinore, CA

**Genevieve Kocoloski**  
Univ. of Dayton, Nashport, OH

**Kasey Llorente**  
Elon Univ., Elon, NC

**Matthew Allan Miller**  
Univ. of Kansas, Lawrence, KS

**Joyann Elaina Oakman**  
Ursinus College, Covington, PA

**Brian Pickering Olivet**  
Nazarene Univ., Chebanse, IL

**Grégoire Ruffenach**  
Laval Univ., Québec, Canada

**Brian Shkolnik**  
New York Med. Coll., Yorktown, NY

**Kaylyn Davis Tousignant**  
Elon Univ., Elon, NC

### Affiliate Members

**Kate Earl**  
Inst. of Ageing and Chronic Disease,  
Liverpool, United Kingdom

**Kumar Rama Mullangi**  
Chegg Study, Burlington, IA

**Manthri Sumanth**  
College of Med. & Hlth. Sci.,  
Adigrat, Ethiopia

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[www.apsebmeeting.org](http://www.apsebmeeting.org)

### APS President's Symposium Series Physiology: Answers to Big Questions • APS Nobel Prize Lecture

**Date:** Wednesday, April 1, 2015, 4:45-5:45PM  
**Location:** Boston Convention and Exhibition Center  
Room 210 B/C  
**Speaker:** Robert J. Lefkowitz, M.D.  
Howard Hughes Medical Institute  
Duke University Medical Center  
"Seven Transmembrane Receptors"



# People and Places

## 2015 Bodil M. Schmidt-Nielsen Distinguished Mentor and Scientists Awardee

The Women in Physiology Committee is pleased to announce that Jennifer S. Pollock, University of Alabama at Birmingham, is the 2015 Bodil M. Schmidt-Nielsen Distinguished Mentor and Scientist Awardee. For more information, please visit <http://www.the-aps.org/schmidt-nielsen>. ●



Jennifer S. Pollock

## Shu Chien Receives UC-San Diego Roger Revelle Medal



Shu Chien (second from right)

APS member and University of California (UC)-San Diego bioengineering professor Shu Chien has received the Roger Revelle Medal from UC-San Diego Chancellor Pradeep K. Khosla with the citation: "Shu Chien is widely known as an exceptional researcher, instructor, mentor, and citizen of the university and his professional community."

Chien received the Roger Revelle Medal, which recognizes current and former faculty for sustained, distinguished, and extraordinary service to the campus, at UC-San Diego's annual Founders Dinner celebration on November 15, 2014.

This recognition tops a long list of previous awards given to Chien. "We congratulate Shu and thank him for his tireless service to the Department of Bioengineering,

and for his tremendous energy, vision, and effective leadership. We are proud to call him one of our own," said Geert Schmid-Schönbein, professor and chair of the bioengineering department at UC-San Diego Jacobs School of Engineering.

Shu Chien received the National Medal of Science from President Barack Obama in 2011 in recognition of his contributions in the field of cardiovascular physiology and bioengineering. As a professor of bioengineering and medicine, Chien is a world leader in the study of how blood flow and pressure affect blood vessels. His research has led to the development of better diagnostic tests and treatments for atherosclerosis as well as other diseases. Chien played a crucial role in forming the Jacobs School's Department of Bioengineering and building it into a world-class institution that is ranked no. 1 for biomedical engineering by the National Research Council. As director of the UC-San Diego Institute of Engineering in Medicine, he is leading efforts to further strengthen research and educational collaborations between all departments of the Jacobs School of Engineering, the School of Medicine, and the Skaggs School of Pharmacy. Chien is one of only a few scholars who are members of all three U.S. national institutes – the National Academy of Sciences, National Academy of Engineering, and the Institute of Medicine. He has served in leadership positions in the Federation of American Societies for Experimental Biology, the American Physiological Society, and other professional societies. ●

## Barrett to Present Bayliss-Starling Prize Lecture

Kim E. Barrett, APS Past-President, has been selected by The Physiological Society to present the prestigious Bayliss-Starling Prize Lecture at Hodgkin-Huxley House, London, in 2015. This is one of The Physiological Society's most prestigious named lectures, and it will be published in the *Journal of Physiology*. ●

## Merchant and Omary Receive Research Mentor Awards

APS members Juanita Merchant and Bishr Omary have received Research Mentor Awards from the University of Michigan School of Medicine.

Merchant is the H. Marvin Pollard Professor of Gastrointestinal Science and a professor of medicine and molecular and integrative physiology. Her research focuses on the fields of regulatory peptide and gastrointestinal tract physiology and pathophysiology.

Omary is also the H. Marvin Pollard Professor of Gastrointestinal Science and chair of the Department of Molecular and Integrative Physiology. His research interests cover epithelial biology of the liver, intestine, and pancreas; genetic and proteomic studies related to liver disease; hepatocyte inclusions; and pathogenesis and therapeutic strategies in liver and pancreatic disorders. ●

### APS Supports Local and Regional Science Fairs



**Would you like to be a science fair judge at your local school and present an APS award?**



Each year the APS sponsors awards at local and regional science fairs on a first come, first serve basis. The APS awardee receives an APS t-shirt, pin, and a Certificate of Achievement for the best physiology-related project. The student's teacher receives a copy of the APS book, *Women Life Scientists: Past, Present, and Future* and an APS teacher resource packet. Any APS member who participates as a judge in a local or regional science fair at an elementary, middle, or high school is eligible to apply and receive APS support for one award per year.

To request an award package, visit the APS Science Fair website or contact Kristine Vowels ([kvowels@the-aps.org](mailto:kvowels@the-aps.org)) at the APS Education Office.

**[the-aps.org/education/sciencefair](http://the-aps.org/education/sciencefair)**

# Positions Available

**Department Chair:** The Department of Biology ([www.twu.edu/biology](http://www.twu.edu/biology)) at Texas Woman's University ([www.twu.edu](http://www.twu.edu)) invites applications and nominations for the position of Department Chair, beginning as early as June 2015. Applicants must have a PhD in Molecular or Cellular Biology or a closely related discipline, as well as a record of research, external funding, teaching, and service appropriate for a tenured appointment at the rank of professor. Preference will be given to candidates with experience in a doctoral-level training program. A collaborative leadership style and membership in professional organizations are desirable. The successful candidate will appreciate a multidisciplinary environment and have a commitment to excellence in undergraduate and graduate education. The Chair will teach in her/his area of specialization and maintain an active research program. The position is a 12-month administrative appointment with responsibilities for overseeing programs leading to the BS in biology

(including a degree with emphasis in research), the BS in medical technology, the MS in biology, and the PhD in molecular biology. The department has 13 full-time faculty, 3 laboratory coordinators, and currently has ~475 undergraduate, 15 masters, and 35 doctoral students. Review of applicants will continue until the position is filled. To apply, please submit a cover letter, curriculum vitae, names and contact information for three references, copy of graduate transcripts, and statements of administrative philosophy and research agenda via e-mail to [Facultyjobs@twu.edu](mailto:Facultyjobs@twu.edu) (include position title and job code 15AS-BIO01 in the subject line). Confidential inquiries may be directed to Dr. Abigail Tilton at [atilton@twu.edu](mailto:atilton@twu.edu). Texas Woman's University, an AA/EEO/VEVRAA employer, supports diversity. Men and women, and members of all racial/ethnic groups and abilities, are encouraged to apply. All offers of employment will be contingent on the candidate's ability to provide documents that establish

## **FACULTY AND VICE-CHAIR OF RESEARCH POSITION DEPARTMENT OF SURGERY CARDIOVASCULAR-RENAL RESEARCH CENTER University of Mississippi Medical Center**

The Department of Surgery and the Cardiovascular-Renal Research Center (CRRC) at University of Mississippi Medical Center invites applicants for a state supported, tenure track faculty position at the rank of Assistant, Associate, or full Professor. The applicant must have a Ph.D. and/or M.D. degree with appropriate research experience and extramural research funding. Special consideration will be given to candidates with strong backgrounds in one or more of the following areas: 1) vascular biology, 2) ischemia-reperfusion injury 3) organ transplantation biology. The successful candidate is expected to develop a nationally recognized research program, manage departmental research activities and mentor post-doctoral M.D. and Ph.D. fellows within the Department of Surgery. The large group of CRRC scientists offers excellent opportunities for collaboration at molecular, cellular or systems levels of integration. The department offers generous laboratory space in a new state-of-the-art building and excellent core facilities within the CRRC. New faculty members receive highly competitive salaries and start-up packages. Applicants should send a curriculum vitae, a statement of research plans, previous and current extramural research funding, and the names of at least three references to: Dr. Joey Granger, Director, Cardiovascular-Renal Research Center, University of Mississippi Medical Center, 2500 North State Street, Jackson, MS 39216-4505. E-mail: [jgranger@umc.edu](mailto:jgranger@umc.edu). Equal opportunity employer, M/F/D/V

proof of identity and eligibility to work in the U.S. All positions at Texas Woman's University are deemed security-sensitive and require background checks and verification of academic credentials

**Assistant/Associate Professor:** The Department of Cellular and Integrative Physiology is seeking applications from candidates for a faculty position at the level of Assistant or Associate Professor. Candidates should employ modern genetic, cellular, molecular, electrophysiological, and/or integrative approaches to address questions related to physiology or pathophysiology. We are interested in individuals who apply new and innovative state-of-the-art techniques to address and complement the integrative approaches already ongoing in the department. Priority will be given to candidates with an extramurally funded research program. The successful candidate will also be expected to contribute to teaching medical and graduate students.

Outstanding candidates in all areas of physiology will be considered, with special consideration given to investigators who will complement existing strengths of the department, which include cardiovascular, cardiopulmonary and renal physiology. Candidates must have a PhD, MD, or other equivalent doctoral degree with relevant postdoctoral experience. Highly competitive salary and startup packages, including new state-of-the-art laboratory space, are available. The Department of Cellular and Integrative Physiology is nationally and internationally recognized in the areas of neural control of circulation, renal physiology, and integrative physiology. The department is located in a new building, the Durham Research Center (289,000 sq. ft.), which houses 116 research laboratories. An adjacent second tower (264,000 sq. ft.) with 100 research laboratories further enables multidepartmental and multidisciplinary research interactions. Omaha boasts a metro area population of over 800,000, with a vibrant downtown

**RESEARCH FACULTY POSITION  
DEPARTMENT OF EMERGENCY MEDICINE  
CARDIOVASCULAR-RENAL RESEARCH CENTER  
University of Mississippi Medical Center**

The Department of Emergency Medicine and the Cardiovascular-Renal Research Center (CRRC) at University of Mississippi Medical Center invite applicants for a state supported, tenure track faculty position at the rank of Assistant, Associate, or full Professor. The applicant must have a Ph.D. and/or M.D. degree with appropriate research experience and extramural research funding. Special consideration will be given to candidates with strong backgrounds in one or more of the following areas: 1) vascular/endothelial biology, 2) microcirculation (in vitro flow based and in vivo techniques to monitor and assess), 3) mitochondrial function (tissue prep, oximetry, individual complex assays), 4) platelet function/coagulation (TEG, platelet mapping). The successful candidate is expected to develop a nationally recognized research program, manage departmental research activities and mentor post-doctoral M.D. and Ph.D. fellows within the Department of Emergency Medicine. The large group of CRRC scientists offers excellent opportunities for collaboration at molecular, cellular, or systems levels of integration. The department offers generous laboratory space in a new state of-the-art building and excellent core facilities within the CRRC. New faculty members receive highly competitive salaries and start-up packages. Applicants should send a curriculum vitae, a statement of research plans, previous and current extramural research funding, and the names of at least three references to: Dr. Joey Granger, Director, Cardiovascular-Renal Research Center, University of Mississippi Medical Center, 2500 North State Street, Jackson, MS 39216-4505. E-mail: [jgranger@umc.edu](mailto:jgranger@umc.edu). Equal opportunity employer, M/F/D/V

area, excellent art and entertainment opportunities, outstanding school system, and low cost of living. For more information about the department, please visit our website at <http://www.unmc.edu/physiology/>. Applications must be submitted online at <http://unmc.peopleadmin.com/postings/21443>. For additional information on the position, please contact Matthew C. Zimmerman, PhD, Chair, Search Committee, Department of Cellular and Integrative Physiology, University of Nebraska Medical Center, 985850 Nebraska Medical Center, Omaha, NE 68198-5850; e-mail: [mczimmerman@unmc.edu](mailto:mczimmerman@unmc.edu); phone: 402-559-7842. Individuals from diverse backgrounds are encouraged to apply.

**Educator:** The Department of Physiology at Georgia Regents University is seeking faculty of all academic ranks to fill a position as an educator to advance the MCG UME mission both within the department and as part of interdisciplinary educational initiatives. Depending on the qualifications of the selected candidate, this position will be offered as either On Tenure Track or as a Non-Tenure Type Position. We seek creative, innovative educators who will contribute uniquely to the educational team at MCG. Each faculty member will have a partial assignment to the Eii (Education Innovation Institute) and contribute to educational research, faculty development, or both. Each educator will have some interdisciplinary educational focus and will contribute to small group teaching. The successful candidate will be expected to participate in all academic, scholarly, and service functions within the department and university. Search Committee: faculty will be reviewed by an interdisciplinary search committee for positions within academic departments. Reporting: faculty members will report to the departmental chair. Requirements: doctoral

degree (MD, PhD, PharmD, or equivalent); board certification for physicians; educational experience in UME or other health sciences-related educational programs. All candidates are required to successfully pass a background check review. For specific positions, the final candidate may be subject to a (pre-employment) physical, drug screen, and/or credit check. The final candidate will be required to provide proof of completed academic degree in the form of an original transcript. Those candidates trained by a foreign institution will also be required to provide an educational/credential evaluation. Preferred experience in: significant experience in undergraduate medical education; educational research; faculty development; curricular design; assessment; use of educational technology; LCME Self-Study and accreditation process. Application: a faculty application is available at <http://www.gru.edu/facultyjobs/>; job opening 8960, position number 12725. This position is also responsible for promoting a customer-friendly environment and providing superior service to our patients, students, faculty, and employees. Georgia Regents University of Augusta is a patient- and family-centered care institution, where employees partner everyday with patients and families for success. Georgia Regents University of Augusta is a tobacco-free environment, and the use of any tobacco products on any part of the campus, both inside and outside, is strictly prohibited. Georgia Regents University of Augusta is an equal-employment, equal-access, and equal-educational opportunity and affirmative-action institution. It is the policy of the university to recruit, hire, train, promote, and educate persons without regard to age, disability, gender, national origin, race, religion, sexual orientation, or veteran status. •

# Meetings & Congresses

## 2015

March 18-22

**AD/PD 2015**, Nice, France. *Information:* internet: <http://www2.kenes.com/adpd/Pages/Home.aspx>

March 19-21

**The International Society for Evolution, Medicine, & Public Health Inaugural Meeting**, Tempe, AZ. *Information:* internet: <https://sites.google.com/a/asu.edu/cemph/cemph-events/emph-society-meeting>

March 26-28

**The 9th World Congress on Controversies in Neurology (CONy)**, Budapest, Hungary. *Information:* CONy Secretariat. Tel.: +972-3-5666166; e-mail: [cony@comtecmed.com](mailto:cony@comtecmed.com); internet: <http://www.comtecmed.com/cony/2015/Default.aspx>

March 28 to April 1

**2015 Experimental Biology**, Boston, MA

May 15-20

**American Thoracic Society (ATS) 2015 International Conference: Pulmonary, Critical Care, and Sleep Medicine**, Denver, CO. *Information:* internet: <http://conference.thoracic.org/2015/>

June 6-11

**International Neuromodulation Society 12th World Congress**, Montreal, Canada. *Information:* internet: <http://www.neuromodulation.com/in-congress>

July 10-12

**National Directors of Graduate Studies in Pharmacology and Physiology**, Cincinnati, OH. *Information:* e-mail: [montromh@ucmail.uc.edu](mailto:montromh@ucmail.uc.edu); internet: <http://www.the-aps.org/ndogs2015>

August 3-7

**14th International Congress on Amino Acids, Peptides and Proteins**, Sao Paulo, Brazil. *Information:* Professor Gert Lubec, c/o Medical University of Vienna, Währinger Gürtel 18, A-1090 Vienna, Austria; e-mail: [icapp@meduniwien.ac.at](mailto:icapp@meduniwien.ac.at); internet: <http://www.meduniwien.ac.at/icaap>

September 2-5

**APS Conference: 14th International Conference on Endothelin: Physiology, Pathophysiology and Therapeutics**, Savannah, GA. *Information:* internet: <http://www.endothelins.com/Conferences/ET-14/>

September 9-12

**APS Conference: Physiological Bioenergetics: From Bench to Bedside**, Tampa, Florida

November 17-20

**APS Conference: Cardiovascular, Renal and Metabolic Diseases: Physiology and Gender**, Annapolis, Maryland

## 2016

April 2-6

**2016 Experimental Biology**, San Diego, CA.

July 21-25

**12th International Congress of Cell Biology**, Prague, Czech Republic. *Information:* internet: <http://www.cscb.cz/>



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# Meetings and Conferences

## Experimental Biology 2015

March 28-April 1, 2015 • Boston, Massachusetts

## APS Conference: 14<sup>th</sup> International Conference on Endothelin: Physiology, Pathophysiology and Therapeutics

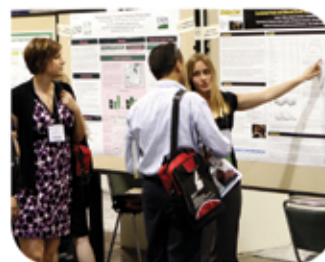
September 2-5, 2015 • Savannah, Georgia

## APS Conference: Physiological Bioenergetics: From Bench to Bedside

September 9-12, 2015 • Tampa, Florida

## APS Conference: Cardiovascular, Renal and Metabolic Diseases: Physiology and Gender

November 17-20, 2015 • Annapolis, Maryland



For more information on APS meetings, please visit:  
[the-aps.org/mm/Conferences](http://the-aps.org/mm/Conferences)



### APS Members receive discounted registration to EB and APS Conferences!

The American Physiological Society usually holds one or more specialty conferences each year. In addition, APS joins with other societies to sponsor Intersociety Meetings as interest warrants. Please send an e-mail to: [meetings@the-aps.org](mailto:meetings@the-aps.org) for questions on APS Conferences.

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