

90th President of APS

Dennis Brown



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In my role as the Director of the Office of Research Career Development (ORCD) at the Massachusetts General Hospital (MGH), I find myself giving individualized advice to scientists ranging from postdoctoral fellows right up to the full professor level. One of my recommendations is that a person should continually challenge him-/herself to do something new to avoid stagnation and to open up new areas of opportunity. So, despite some misgivings (see below), I listened to my own

advice and agreed to have my name placed on the ballot for the APS Presidency. I sincerely thank the APS membership and leadership for their confidence in me, and it goes without saying that I will do my very best to help the society increase its influence and standing as real science struggles to be heard and respected in this “post-truth” era. (If you have not heard this phrase before, Google it.)

So, given the opportunity to be the President of such an important and eminent society, what went through my mind, and why did I have some hesitation before accepting? I have been a member of the APS for over two decades and had been active in various aspects of the Society, most notably in publications, for several years even before paying my annual dues. My first appointment was as an Editorial Board Member of *AJP-Renal* in 1987, soon after coming to the U.S. from Geneva, Switzerland, where I had worked for 10 years. Because the next year promises to be very interesting as I juggle my last year as Editor-in-Chief of *Physiological Reviews* with the Presidency after the EB meeting in April, I sought opinions on the potential work load from colleagues who were past presidents not only of the APS but also of other societies. One of my Presidential colleagues here at MGH told me that it all depends on the quality of the staff. Well, as we all know, the APS staff is outstanding, and their directors are second to none in any professional society. This insight, therefore, went a long way toward assuring me that my task would be possible. In addition, I suspected that at some time in the not-so-distant future – perhaps as I sat in my rocking chair sipping a glass of Ensure through a straw – I would very much regret not stepping up to the plate to assume this leadership position in a society that has been very much a home for me for most of my professional life. Serving on Council for 3 years from 2011-2014 helped to show me how the Society worked, what issues it dealt with, and the many ways in which it supported not only the discipline of

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A Matter of Opinion

The Times They Are A-Changin’

First, let me apologize to Bob Dylan for using the title of his classic song for this article. However, it is important to note that the “Times Are A-Changin’” for APS and physiology. Change is important, and it serves to challenge us as individuals and forces organizations to adapt in order to move forward. In the case of the Society, change will help us to revise and restructure our efforts in order to strengthen the Society and the discipline.

Change was the driving force in our decision in 1995 to work to convert the FASEB meeting into the Experimental Biology (Duling B. The Experimental Biology Meeting: it’s our meeting. *The Physiologist* 38: 3-4, 1995).

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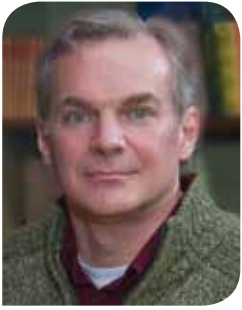
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Mentoring Forum

On Mentorship, Perseverance, and Generosity

Ormond A. MacDougald

John A Faulkner Collegiate Professor of Physiology, University of Michigan, Ann Arbor Michigan



Ormond A. MacDougald

My approach to mentorship, lab management, and career development reflects not only my ideals but also the influence of many individuals during my training, and lessons learned from my trainees. The most significant figure in this regard was my postdoctoral advisor, M. Daniel Lane. As detailed in an *In Memoriam* written by Lane

lab trainees (Mandrup et al. In memoriam: M. Daniel Lane, 1930-2014. *Trends Endocrinol Metab* 25: 437-439, 2014.), "Dan was a fantastic mentor who set a great and inspiring example as a scientist and leader, and who took exceptionally good care of his trainees from the minute they arrived until long after they left his lab." The lab culture he created, along with our devotion to him and his wife Pat "glued several generations of alumni together as a large extended family, a legacy that will last for years." He was a unique example of how to be a highly successful scientist, while also being universally recognized as a kind and caring man.

Why Do We Mentor?

I think of mentorship as a personal relationship in which I use my experience and knowledge to help others by providing guidance and promoting personal development. It is important to note that mentoring is not strictly an altruistic act – as researchers we create new knowledge and trained personnel, and to optimally train personnel requires more than just providing lab space and a supply budget. The thought and energy put into mentoring students and postdoctoral fellows often pays dividends back to the research enterprise and helps with recruiting new lab members. In addition, skills such as active listening that are honed while becoming a better mentor also transfer to other parts of our professional and personal lives. My experience has been that, when I put the requisite time and energy into mentoring, it ends up being among the most rewarding and enjoyable parts of my day.

How to mentor is a more difficult question to address, and what follows are a few of my thoughts on this subject, some of which I hope will resonate with you. Although I've written this essay in the context of running a lab, most of the suggestions are applicable to broader contexts. When I think about the skills and habits associated with mentoring, many of these can be attributed to common sense; however, it's a little like my experience reading books on financial planning or time management – simply reading about them periodically and having them in mind helps to keep me doing the right thing and from slipping into bad habits such as getting "too busy" to spend time with my trainees.

Although it would be great if we all had the mentoring skill set of Dan Lane, each of us has our own specific limitations in this department. Thus we soldier on with our given personality and emotional quotient. As with many challenges in life, we do our best to play on our strengths while working furiously to shore up our weaknesses. One factor we do have control over is actively thinking about our trainees and considering what we can do to help them develop and achieve their goals. It also helps to view these relationships as lifelong, which adds a layer of commitment and endurance that demands focus and respect. When all is said and done, the interactions we have had with trainees, although more difficult to quantify than many other aspects of our professional lives, may be among the most important accomplishments of our careers.

Be Transparent

In any relationship, it's important that there be trust, and an important foundation for trust is transparency. Set the stage by discussing very early on what your expectations are of your trainee. Give honest and regular feedback, and not just in areas that need improvement. Don't be afraid to cheerlead their successes to them, as well as to others! Discuss and debate ethical and responsible conduct of research, and be open about the problems of fraud and irreproducible results within science as a whole, and how these may be relevant within your lab.

The relationship also requires active and open participation from the mentee, which will help both of you determine whether the path the trainee is on is consistent with his or her skills and goals. Sometimes you need to have tough, open conversations, and even if the results of your discussion hurt, the process itself does not need to be hurtful. I was fortunate to have mentors who were forthcoming about their prior professional and personal life experiences, and I emulate that approach. Although I try not to give unsolicited advice, my hope is that my mentees will learn both from situations I have handled well and from mistakes I have made.

I also think it is important as mentors to be transparent about the reality associated with a life in academia – the challenges of research and running a lab, the shortage of time, the vagaries of grant funding, and the demands ongoing elsewhere in your life. How can they learn about lab management if we don't discuss the budget? We don't do our trainees any favors by shielding them from some of the less desirable aspects of the job – they need to go in with their eyes open. Having said that, I feel the competitive job market and tight NIH grant budgets have created too much angst and negativity toward careers in biomedical research, and I continue to stress what a privilege it is to be in that small part of society whose job is to create new knowledge and to train the next generation of scientists – and to note the many perks of a life in academia, where you are paid to be surrounded by bright and interesting people, have the opportunity to travel the world, and where you have tremendous flexibility in your work schedule.

Be Realistic

It would be great if all our trainees became biomedical researchers at major institutions and went on to win Nobel Prizes, but that obviously sets the bar more than a little high. Every trainee has a unique skillset and his or her own ambitions, and it's really important for trainees to get on a path through life that is right for them. Although it's not always easy, I try to meet them where they are at and where they are headed. This takes careful listening and not simply projecting onto them what my hopes and dreams are for their role in my lab. It becomes easier as I get to know them better, and I try to take an active interest in what is ongoing in their life. As faculty, we are professional decision-makers, but, in the case of trainees, it's important to

suspend judgment and give them space to figure out their own path. It's also unrealistic to think that you can serve as a mentor to all. For some individuals, the "fit" or "chemistry" is such that you simply aren't the right person to serve as a mentor – and that's okay.

Keep the Long View in Mind

Although micromanagement is a perfectly viable approach to having a productive lab, I don't feel that it's the best training approach. It's tempting to take the easy road out and tell our trainees what to do, but that is only good in the short term. Empowering our trainees to make and take responsibility for their own decisions will help them become independent in the long run. We all learn by making mistakes, and a period of "chasing butterflies" is often critical for trainees to hone their instincts for what experiments will work and which are unlikely to succeed – for balancing decisions of risk and yield.

In addition to the mentoring advice above, I would also like to share two additional thoughts with you.

Persevere

When I first started at the University of Michigan as a young assistant professor, my chairman assigned Christin Carter-Su, a former winner of the Bodil Schmidt-Neilson award, to be my official departmental mentor. In my first meeting with Christy, she asked me, "What does it take to become a full professor at the University of Michigan?" After stammering something about the importance of recruiting, hard work, creativity, strategic planning, and other stream-of-consciousness, she replied, "Yes to all those, but what it really takes is perseverance." She warned me that there would be bumps in the road – rejected papers, grants not funded, lectures gone awry – but that those happened to everyone and shouldn't be taken personally. Christy also told me that how I handled those bumps would be the difference between success and failure – don't let them get me down, view them as challenges to be met, and learn from them rather than give up. It was great advice that I share with my trainees and which I am happy to share here.

In addition to those challenges mentioned above, you may encounter someone – could be your boss, a colleague, or perhaps even a trainee – with whom your

relationship is intractable, despite your best efforts. Although this could be an excellent opportunity to work on your diplomacy, patience, and people skills, sometimes this is a situation that you just need to persevere through. If serious enough, it may even be necessary to extract yourself from the situation. The reality is that we often learn just as much or even more from negative situations than from positive ones. Thus even difficult relationships can be formative and positive if you carefully note which behaviors you choose to emulate.

Be Generous

One of Dan Lane's great traits was his generosity. Some of my fondest memories from my time in his lab were the times spent in his home – the celebrations for trainees when they graduated or got jobs, the warm ambience and atmosphere of his Christmas parties, or the time at his kitchen table going through my fellowship application. I have tried to emulate Dan's generosity by opening my home to those around me. And, like him, I also try to be generous with my time. Consistency of behavior and ample time spent with mentees are important

for developing a relationship and trust. Students and fellows also benefit tremendously if you are generous with your professional and personal network, since this will help them open doors and achieve their goals.

I have benefited tremendously from people in my life who have given freely of their time, energy, and finances. Although I can't in many cases pay them back directly, I try to pay the debt forward to the next and future generations. If you feel similarly, please mentor those coming up behind you and also give what you can to financially support their education and research opportunities. In these uncertain times at the NIH, philanthropy is becoming more and more integral to our funding of biomedical research and all stages of education. ●

Many thanks to my former and current trainees, as well as Christy Carter-Su, for their editorial and other comments.

Ormond A. MacDougald Biography

Ormond A. MacDougald is the John A. Faulkner Collegiate Professor of Physiology at the University of Michigan. After receiving his BS (Agr) from the University of Guelph, he obtained an MS and PhD from Michigan State University, and postdoctoral training with Dan

Lane at Johns Hopkins University School of Medicine in Biological Chemistry. His long-standing research interests have centered around adipocyte differentiation and metabolism. Ormond is a previous recipient of the Henry Pickering Bowditch Lectureship

and the Bodil M. Schmidt-Nielsen Distinguished Mentor and Scientist Award from the APS. When not in the lab, Ormond spends time with his wife and four children, and loves to putter in his wood shop.

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physiology but biomedical science in general at all possible levels, from tiny tots having PhUn weeks, to established researchers whose main concern is PhUn-ding.

So what were my reservations? Obviously, the Presidency represents a considerable time commitment, and my major concern was for the well being of the MGH Program in Membrane Biology (PMB), which I direct. Some faculty in the PMB are well established with their own funding, but others still in the development phase depend on support from my own grants and from the mentorship that they need to grow to independence. Like too many others throughout the country, we have minimal “hard” salary support from the institution, and I understand perfectly well the stress and anguish currently being felt by soft-money scientists whose livelihoods depend on constantly writing and submitting grants to support their work. A major question was, therefore, whether I could balance this presidential position with the ongoing need to continue to be productive and generate funding for the lab. Sometimes, in dark moments, I ask myself why I left a stable institutional salary funding environment in Switzerland to take up an almost entirely soft-money position in the U.S. But the many international members of the APS will have no problem in identifying other serious funding issues that are prevalent in science across the globe, with one or two notable exceptions, so I always consider myself fortunate to be in such an exciting environment here at MGH. In the end, the opportunity to work with such a talented and passionate group of people dedicated to all aspects of scientific endeavor within APS was just too alluring, and so here I am with the questions, what can we do to help our members, and how can we promote our discipline?

APS Takes a Look in the Mirror

The first action in trying to help others is often one of self-assessment. Last year, the current President, Past-President, and I wrote a commentary in *Physiology* with the title “APS takes a look in the mirror” (Reckelhoff JF, Brown D, Molina PE. APS takes a look in the mirror. *Physiology* 31: 384-385, 2016). It describes an ongoing process of self-analysis by the APS, performed in conjunction with an outside professional group called Minding Your Business (MYB). This process began last year as Jane Reckelhoff was writing her own presidential commentary for *The Physiologist*. Interested parties can

read our entire editorial, including the methods used for data gathering from members and non-members alike. Some of the most interesting findings – both positive and negative – are as follows.

The APS is reliable, well respected, and trustworthy. This is comforting and reflects the solid foundation on which the Society has been built over many years. It reflects a commitment to the physiological sciences that has been part of the tradition of APS for over a century, and it reflects the commitment of a dedicated leadership and staff to membership support, outreach, and education.

The APS is not perceived by the majority as innovative or dynamic. This perception goes hand in hand with the overall trend away from what we would recognize as traditional physiology over the years. The perception is that we have not shaken off the cobwebs that have accumulated during the past 125 years of our history; the factors that combine to make the APS well respected and trustworthy also contribute to the negative perception that we are “behind the times.” While we must address this concern head on, those of us who know the society more intimately can appreciate the leadership positions the APS has taken in many areas relevant to the membership, including publication trends, education outreach, science advocacy, and animal welfare. Thus the idea that APS is stuck in a time warp, like Dickens’ Miss Havisham in her yellowing wedding dress, could not be further from the truth. Our job now is to ensure that the Society transmits a more positive modern, progressive image to the community that more closely reflects the reality of its efforts. We are hoping that MYB will help us to achieve this important goal.

The APS journals have low impact factors. With some notable exceptions such as *Physiological Reviews*, *Physiology*, and *Comprehensive Physiology*, the impact factors associated with APS journals deter many authors from submitting their best work to our journals. This is true worldwide, but is especially important for our European colleagues whose funding, promotion, and tenure are often linked to impact factors of the journals in which they publish. An IF of 5 is often considered the threshold below which a journal is disqualified from consideration by many potential authors. Unfortunately, this includes the majority of APS journals, but it is worth noting that this figure is achieved and surpassed by

only the top 6% of all journals. While many of us can make persuasive arguments that impact factors are an artificial and unreliable measure of a journal's value (the APS and Marty Frank have been leaders in this crusade), it is a long and hard struggle to have such a message accepted by competitive and ambitious scientists who depend on their publication record for virtually all aspects of their professional status. We often hear that specialized society journals better meet the needs of specific groups of investigators, and indeed some of these journals have increased their impact factors considerably by increasing rejection rates or publishing mostly "fashionable" science; but this occurs at the expense of alienating large groups of "customers" who are in a good position to capture. Therefore, we at APS must continue to use innovative approaches to attract the best work into our journals, which are widely viewed as excellent and important, highly reputable resources within the scientific community. *Thus I challenge all APS members to help us meet our goal of pushing up the journal impact factors to 5 and above in the next assessment cycle.* This can be achieved if we all submit at least some of our top-quality work to APS journals, and we all cite APS articles as much as possible, even when publishing in other journals. In addition, regularly publishing in APS journals should be a criterion for retention on the editorial board of a given specialty APS journal. Having said that, we need to work to make our journals attractive to established and more junior scientists by using modern media tools for disseminating information, decreasing manuscript turnaround time, and ensuring that the peer review process is fair, balanced, and constructive. All of these initiatives are underway in our invaluable publications department, with the guidance of the Publications Committee.

Why should I join the APS rather than my specialty society? This question is one that we heard from members and non-members alike, and it is clear that such societies (American Society of Nephrology, American Heart Association, Society for Neuroscience, etc.) are very popular with a growing number of investigators who feel that they better meet their specific needs. This is also a time during which funding constraints make it financially difficult for a PI and his/her lab members to attend multiple meetings in a given year. Yet the APS strongly supports many different specialty areas through its publications and its sections. In addition, Experimental Biology provides an outstanding opportunity to experience other areas of endeavor that might lead to important cross-fertilization in research. The need to integrate different specialty fields into our science was emphasized by

David Pollock in his 2014 President's article. On the whole, we scientists usually tend to gravitate toward posters and oral sessions that are closely related to our area of expertise. But it is often an encounter with the unexpected that leads to the greatest advances and insights. So, as an APS member, you can have the best of both worlds: ample opportunity to attend like-minded sessions at EB and by participating in APS-funded subject-specific conferences throughout the year (more on this later), but also the possibility of engaging in scientific sessions sponsored by the many APS sections and interest groups, or by other FASEB societies that highlight widely different areas of science. Who knows, this might just catalyze the great leap forward in your research that you have been waiting for all these years!

Physiology is Alive and Well

There has been much wringing of hands related to the decline of physiology over the years (see the 2014 remarks by David Pollock, 87th APS President). Like the popular, late American comic Rodney Dangerfield, it is often said that physiology "don't get no respect." In fact, although the word "physiology" has indeed shown a tendency to disappear from Department and Division names in universities and academic medical centers in the U.S. and throughout the world, the number of investigators "using" physiology in their studies has probably never been greater; indeed, in the post-genomic era, the need for physiological studies has never been more important. How many of the health-related promises of large-scale genome sequencing, GWAS, and proteomic studies, etc. have floundered due to a lack of fundamental knowledge of the role of channels, transporters, enzymes, structural proteins, hormones, RNAs of various descriptions, and so forth in cell and organ function? We have a tremendous opportunity here to take advantage of the multitude of new opportunities that are being thrown our way. This should not be seen as a competition. We need to learn how to use the vast amount of archived but unexplored data sitting on servers across the globe and promote the need for physiological insights that parallel and complement these other extraordinary "big science" efforts. For example, in my own studies, we discovered many new splice variants and isoforms of one of my favourite proteins – the vacuolar ATPase – simply (well, perhaps not so simply) by interrogating a variety of datasets from across the world and without lifting a single pipette! We expect this work to provide new functional information on unexplained physiological roles of this enzyme in different cells and tissues (now we need to lift many pipettes!).

Importantly, a recent in-depth study called “The Health of Physiology” (<http://www.physoc.org/health-physiology-0>) published by The Physiological Society of the UK (in which I participated as the APS representative) concluded that, in the UK, more research than ever is being performed in areas that could be classified as “physiology,” but the investigators themselves often did not self identify as physiologists and were not in departments with the word *physiology* in their name. The amount of grant funding allocated to physiology per se was, therefore, almost impossible to calculate due to the “systems biology” approach now used by many investigators. In fact, the number of publications from the UK in “Physiology” journals remains quite stable, indicating that our important work continues to thrive and, by inference, receive funding. Encouragingly, the number of postgraduate students from physiology programs has shown a sharp increase in recent years. It more than doubled from 2002 to 2013 both at the Master’s degree and PhD levels (<http://www.physoc.org/health-physiology-0>; Fig. 7). As we shall see below, I believe that APS needs to devote more attention and resources toward postdoctoral fellows to encourage the best postgraduates to enter and remain in the physiological arena.

Not surprisingly, and as alluded to above, one of the most difficult tasks we had on this committee was to define physiology and physiology-related areas of science. In the end, we came up with a venn-like diagram in which physiology is considered as a core discipline for many overlapping basic and medical sciences, including areas such as bioengineering, sports medicine, and translational medicine, as well as more obviously related areas such as biochemistry, biophysics, and molecular/cellular biology. The problem with defining physiology is, of course, that it is indeed so broad. But this is also its strength. Our task at this time is to provide a welcoming and integrative society to all who work in the life sciences. My belief is that we need to focus on promoting the science itself (physiology and beyond) through our 12 sections and 9 interest groups, rather than attaching a particular label to an investigator and his/her area of expertise. In this way, we may succeed in broadening the scope and depth of our membership.

APS Funding for Physiology

The APS has a vigorous program of grants, fellowships, and travel awards overseen by multiple awards coordinators. But, incredibly, MYB surveys found that over 50% of APS members were unaware of 20 of the 23 awards that are given out every year – for a total amount of over \$1 million. This percentage was even smaller

for the graduate student awards – only 25% of members were aware of most of these awards. Why is this? Well, for sure the APS website is not the easiest in the world to navigate. It is complicated by the sheer number of APS activities that need to be highlighted and that I do not have the space to cover in this commentary. As I look at the APS website while writing this presidential address, it is quite easy to miss the “awards” link, which is one of many links in this complex and dense site, and the key words “grants” and “funding” do not appear at all. However, a Google search for “APS Awards” does link to the appropriate page, which lists all APS award categories. But when one looks at this page, and then pursues any of the specific links that are encountered, a mesmerizing array of different fellowships, grants, and awards appears that is very confusing. In an attempt to rectify this situation, a recent edition of the monthly APS Newsletter was dedicated to highlighting our grant and awards programs, and we will continue to expand outreach to members by e-mail also. Please read all e-mails from APS before you delete them, and if they are too long to fit on a single mobile device screen, scroll down! You may be missing a relevant funding opportunity.

I would like to see a reorganization of our funding opportunities to make the choices more user-friendly, and I would like to see a commitment to developing new awards specifically for postdoctoral fellows, who are underserved by the system as it now stands. Postdoctoral fellows are already quite differentiated, and I believe that this group represents our best hope for the future growth and success of the Society. Yes, undergraduate and graduate students are important too, but many of them will migrate into medicine, industry, or other fields. Postdocs have already made a firm decision to at least try to remain in academia (even if this will not be possible for the majority), and I propose that we should establish a new “APS postdoctoral fellowship” category to support and encourage them. This award needs to be substantial in order to make a difference, since the new NIH salary guidelines for first year postdocs is now a little over \$47K. As pointed out by Jane Reckelhoff in her 2016 presidential message, the average age of APS members is now 53. Many younger members join the Society temporarily, presumably to qualify for funding opportunities, but are then lost as they move on with their careers. I believe that postdocs should be a major target group for new membership and that we can retain them by providing the support of our Society and investing in their future. This goal is similar to that also outlined by current President Jane Reckelhoff and Past-President Patricia Molina in their own presidential

messages. Indeed, Molina specifically called for an increase in funding for research, which has already been initiated via a major increase in funding for the APS Career Development Awards. The question of more funding for research remains to be discussed, but the philanthropic efforts of our relatively new Development Division are already bearing considerable fruit, with a large six-figure award in the neurophysiology area to be announced soon. In addition, an ongoing dialog will be needed to help guide the APS as it reevaluates the allocation of its resources to best fit the needs and wishes of its membership.

APS Conferences

As pointed out by several previous Presidents in their inaugural commentaries, the APS runs a program of small conferences, much akin to the well known Gordon, FASEB, or Keystone meetings. Although this facet of APS activity is a major asset to members (and non-members), we hope to expand it in the coming years, because, according to the MYB survey, 65% of our members are unaware that APS supports conferences other than EB. Our ultimate goal is to have the APS conferences recognized in the same breath as the others mentioned above, so we need you – our members – to come up with outstanding proposals that can be sponsored by our Society. The amount of money allocated by APS to these symposia is actually equal to or sometimes greater than that provided by these other organizations, and the dollar amount does not even include all of the important work done by Linda Allen and her staff in arranging the events. Up to \$30K is available for speaker support for each meeting, pending a positive review by the Conference Committee, and up to \$2,000 for travel awards. Full details can be found at <http://www.the-aps.org/mm/Conferences/APS-Conferences/Conference-Committee/Plan>. The conferences that are scheduled for this year are “Cardiovascular Aging,” Aug. 11-14 in Westminster, CO; “Physiological Bioenergetics – Mitochondria from Bench to Bedside,” Aug. 27-30 in San Diego, CA; and “Physiology and Pathophysiological Consequences of Sickle Cell Disease,” Nov. 6-8, Washington, DC. This is in addition to a major financial input into the upcoming IUPS conference “The Rhythms of Life” in Rio de Janeiro, Brazil (Aug. 1-5). We also expanded our outreach by providing support for the African Congress of Physiological Sciences that was held in Lagos, Nigeria in September 2016, and we are in discussions with the Cuban Physiological Society about supporting the Pan American Congress of Physiological Sciences in Havana in 2019. These events also tie in with our efforts to encourage diversity among APS members,

an initiative that is close to the heart of Past-President Patricia Molina.

I mentioned above that APS is often seen as “competing” for membership and publications with other established societies that are more focused in their scope. Rather than trying to go head-to-head with these important scientific entities, MYB suggested – to wide agreement among APS leadership – that we endeavor to establish more close ties to them. This would be to the advantage of all of us at a time of increasingly limited resources. What better way to kick-start such interactions than by developing joint conference programing? Indeed, APS co-sponsored a workshop with the American Society for Human Genetics at their Fall Vancouver meeting in 2016, and they will jointly sponsor a session with APS at EB in Chicago this year. We will be exploring similar possibilities with the leadership of other societies as we move forward and would appreciate any suggestions that APS members might have in this respect.

The New APS Strategic Plan

Finally, circling back to the beginning of this article, the interaction with MYB is intended to inform the development of a new strategic plan for APS that will take us forward through the next few years. Our last planning activity was in 2011, which may not seem a long time ago, but in the current rapidly changing biomedical research, publishing, and regulatory environment, it seems an age away. The last plan laid out goals and strategies for increasing the awareness of physiology among educators and the public, attracting and retaining membership, strengthening our publications, enhancing scientific interaction and exchange, and overall increasing the visibility of physiology in the health and life sciences. In her 2016 article, Jane Reckelhoff examined these efforts in more detail. While we have achieved many of our goals, some remain elusive, whereas others, including our response to the onslaught of federal and local regulatory requirements in research, represent moving targets. This requires APS to be flexible and nimble as it addresses the current and future needs of its members. It requires us to indeed take a look in the mirror and respond deftly and decisively to what we see. This will not, nor is it supposed to be, a comfortable exercise, because retaining the status quo is always the easier option. That being said, the leadership of the APS, and the superb directors and staff, are committed and poised to reevaluate our mission and to shape our future strategy so that it best fits and satisfies the needs of our members. Based on these considerations, APS leadership will hold a new round of strategic planning

meetings in which we will strive to think outside of the box, with the help of MYB. The first meeting planned for February 2017 in Houston will already have taken place by the time you read this article. We propose to make this entire process transparent and will be seeking input from our membership as we proceed with our discussions and recommendations. I am honored and delighted to be a part of this process and would be pleased to hear from you with any suggestions or comments as we move forward.

In conclusion, the APS is many things to many people, and there is simply not enough space here to allow a meaningful discussion of everything that the Society contributes to physiology and science. Much of the work that it achieves is done under the radar and is never seen by the bulk of the membership, although it may be felt indirectly. A vast number of committee members from institutions throughout the U.S. and the world donate a considerable amount of their time to make the Society better, and they work closely with

the permanent staff in various departments of the APS organization. In some respects, these interactions are similar to the collaborations that occur between transient elected congressional representatives and more permanent civil servants who are necessary to keep our governments running. Our departments include a successful educational programs group, a crucial “watchdog” science policy team, a thriving publications enterprise, and a marketing and communications outreach department all led by talented and experienced individuals and many colleagues who are too numerous to acknowledge here. All of this activity occurs under the watchful eye of the purse-keeper Robert Price (Deputy Executive Director, Finance and Administration), who is entrusted with keeping the Society in excellent financial shape – which it is. And, of course, last but not least, is our irreplaceable Executive Director Marty Frank, who has admirably piloted the APS ship in conjunction with Council and the Presidents for more than 31 years now. I look forward to my role in guiding the APS vessel over the next year and to seeing you all at EB in Chicago. ●

Dennis Brown Biography

Dennis Brown is Professor of Medicine at Harvard Medical School and is Director of the Program in Membrane Biology in the Division of Nephrology at the Massachusetts General Hospital. He also serves as the Associate Director of the MGH Center for Systems Biology. He was born in a small fishing town on the east coast of England, called Grimsby, which was made famous recently by the wretched Sacha Baron Cohen movie “The Brothers Grimsby,” and before that by being the name Disney gave to the butler in “The Little Mermaid,” and by being the title of a tongue-in-cheek song “Grimsby” on the 1974 Elton John album *Caribou*. There is also a Grimsby in Canada, near Niagara Falls on the southern side of lake Ontario. He received his PhD from the University of East Anglia, Norwich (pronounced Norrich), UK in 1975 and then spent 10 years working under the direction of Lelio Orci at the University of Geneva Medical School in Switzerland, where he eventually became an assistant

professor. He moved to the MGH in 1985 to work with Dennis Ausiello in the Renal Unit, and has remained there ever since.

Dennis Brown is a cell biologist/physiologist who specializes in the use of state-of-the-art imaging techniques to follow and dissect physiologically relevant membrane protein trafficking events in epithelial and non-epithelial cells. He is an internationally recognized authority on vesicle trafficking and polarity in epithelial cells, with special focus on water channels (aquaporins) in principal cells and vacuolar proton pumping ATPase function in intercalated cells of the kidney collecting duct. His work is aimed at understanding basic cell physiology and signaling pathways in order to develop novel therapeutic strategies for kidney disease. In particular, he has made significant contributions toward our understanding of the cell biology of vasopressin (antidiuretic hormone) action and aquaporin 2

trafficking that inform the development of strategies to bypass defective vasopressin signaling in nephrogenic diabetes insipidus. Most recently, for example, his lab reported that the EGFR inhibitor Erlotinib significantly ameliorates the diuretic action of lithium in a mouse model (Cheung et al., *JASN*, 2016). In recent years, he has also had an extensive collaboration with his colleague Sylvie Breton on transport and trafficking processes in epithelia of the male reproductive tract (epididymis) that are essential for male fertility. He has published over 370 articles in peer-reviewed journals.

He has been very active in the scientific publishing domain, starting as an editorial board member for *AJP-Renal* in 1987-1989, where he was an associate editor from 1995 to 1997. He was on the editorial board of *AJP-Cell* from 1990 to 1995 and then was an associate editor from 1996 to 2002, after which he became Editor-in-Chief of *AJP-Cell* until July

2008. He is currently the Editor-in-Chief of *Physiological Reviews* (2009-2016). He has previously served on the editorial board of the *Journal of Biological Chemistry* (2003-2009), the *Journal of Membrane Biology* (2004-2009), the *Journal of the American Society of Nephrology* (1990-1995), and the *Journal of Histochemistry and Cytochemistry* (1991-1995). He was the U.S. Editor for the Springer Verlag monograph series "Anatomy, Embryology and Cell Biology" from 1996 to 1999 and was on the editorial board of *Histochemistry and Cell Biology* from 1991 to 2003.

He has received numerous awards, including the Carl Gottschalk Award for excellence in nephrology research from the APS Renal Section in 1999 and the Hugh Davson Award for excellence in cell biology research from the APS Cell Section in 2011, and he was an Established Investigator of the American Heart Association from 1987 to 1992. He was the invited plenary lecturer on aquaporins at the Silver Anniversary meeting of the American Society of Nephrology (ASN) in 1992. He gave the Robert Schrier endowed lecture at the 2008 ASN meeting, the Suk-Ki Hong Endowed Lectureship in Physiology at the University of Buffalo in 2008, the Dunaway Burnham Endowed Lectureship at Dartmouth College in 2005, and was the Daniel Kline Endowed lecturer in Systems Biology and Physiology at the University of Cincinnati in 2009. He gave the prestigious Robert Pitts Lecture in Renal Physiology at the 2013 meeting of the International Union of Physiological Sciences in Birmingham, UK. In 2011, he was elected to serve a 3-year term on the National Council of the American Physiological Society. Finally, in July 2013, he was awarded an honorary Doctor of Sciences degree by his alma mater,

the University of East Anglia (UK), for his outstanding contributions to cell biology and physiology.

He is the Director of the MGH Office for Research Career Development (ORCD) and has a long track record of developing young scientists, both basic researchers and clinical investigators. Many of these are in leadership positions in universities in the U.S. and throughout the world. He was awarded the prestigious A. Clifford Barger "Excellence in Mentoring" award from Harvard University in 2005 and received the HMS Dean's Award for the Advancement of Women in Science in 2012. He is a member of the MGH Executive Committee on Research (ECOR), the central body for research governance at MGH. He was course director of the joint Harvard/MIT Division of Health Sciences and Technology (HST) course on Pathophysiology of the Kidney from 1999 to 2009 and lectures on the kidney in the Leder Human Biology and Translational Medicine course at HMS. In addition, in his capacity as ORCD Director, he organizes and lectures in a wide array of courses on the Responsible Conduct of Research and research career development. He has a particular interest in scientific digital imaging and frequently presents a lecture on this topic entitled "Image Manipulation in Research: Is a Picture Still Worth 1,000 Words?"

He has obtained continuous support from the NIH since arriving in the U.S. in 1985, and one of his current grants on V-ATPase trafficking received "MERIT" Award status (10 years of support) in 2008. He is also the PI of a recently renewed RO1 on aquaporin 2 trafficking and a co-investigator on three other RO1s in the PMB. In addition, he directs a Core facility that provides sophisticated microscopy services to MGH and

the Boston research community, and he is the Microscopy/Cell Biology Core Director on three P30 grants at MGH (in the areas of Diabetes, Inflammatory Bowel Disease, and Nutrition) that support this Core. Over the last decade, he has received six NIH Shared Instrumentation Grants to provide state-of-the-art imaging equipment to the MGH community.

Finally, Brown has served on numerous NIH study sections and was the chair of the NIH KMBD (Kidney Molecular Biology and Development) Study Section for 3 years from June 2010 until June 2013. He is currently on the Scientific Advisory Committee of the Mount Desert Island Biological Laboratory in Maine, and a Lung Biology COBRE Center at Dartmouth Medical School, New Hampshire. He is on the advisory committee for the NIH Precision Medicine Initiative "Rebuilding the Kidney."

Dennis and his wife of 40 years, Andrea (also a PhD), have three grown children: Eleanor, who teaches high school honors French and Spanish in a Boston suburb; Christopher, who obtained a PhD from Harvard and now works for Alnylam Pharmaceuticals in Cambridge (U.S.); and Marielle, who is in the last year of study for her anthropology DPhil in Cambridge (UK). In his spare time, he is an avid photographer, soccer fan, reader of nonfiction books and biographies, and a vinyl audiophile. He coached high-level town and select team soccer; his Charles River United boys team won three Massachusetts State Championships and two U.S. Eastern Region I Championships in the mid 1990s. He has supported Manchester United for as long as he can remember, in addition to his hometown team, Grimsby Town.

*Continued from page 65:**The Times They Are A-Changin'*

Unfortunately, a number of factors, detailed below, have contributed to the Society's desire to take a hard look at the Experimental Biology meeting to make sure that it is still meeting the needs of our members, non-members interested in the physiological sciences, and our graduate students and postdoctoral fellows. To determine whether the Society's annual meeting is meeting your need, the Society will be sending you a survey before the Chicago meeting. A Task Force constituted by the Council, with the assistance of Robert Hester and Wolfgang Kuebler, chairs of the Joint Program Committee and the Section Advisory Committee, respectively, will use your input to help the APS revise and restructure the annual meeting.

One of the factors leading to our decision to take a hard look at our annual meeting was the decision by the American Society of Nutrition (ASN) to pull out of the Experimental Biology meeting despite their prior commitments. Their initial plan to meet independently from 2016 to 2018 was modified once they recognized the financial impact of their decision. Instead, they decided to break from EB from 2018 to 2020, and subsequently the EB societies were informed by the ASN Executive Officer that ASN would not be rejoining EB in 2021. APS responded, as did ASBMB, to identify ways to provide nutrition scientists with a venue to present their work within our respective societies. In response, the APS created the Nutrition Physiology Interest Group, with representation on the Joint Program Committee, and an allocation of space on the program to organize scientific sessions at the meeting.

The recent restructuring of FASEB contributed additional challenges for APS and the EB meeting. As was reported earlier, FASEB's executive director has resigned, and an interim executive director has been reviewing FASEB operations to improve its financial well-being. As a result of the review, it was decided that FASEB's Office of Scientific Meetings and Conferences (OSMC) should be restructured, and its director was released. That has placed considerable pressure on the six societies participating in EB 2017, but even more pressure on the five societies remaining with EB who have been encouraged by FASEB to secure another company to manage the EB 2018

meeting. Doing so presents significant challenges and may call into question our ability to maintain the EB structure. At the same time, decisions need to be made whether the five remaining EB societies (APS, ASBMB, ASPET, ASIP, and AAA) will continue to meet together beyond 2020.

Of course, the decision by ASN to pull out of the meeting starting in 2018 also provides a unique opportunity for the EB meeting. Although we are committed to holding our meeting in San Diego, Orlando, and San Diego in 2018, 2019, and 2020, respectively, we do not have any commitments beyond 2020. The smaller meeting footprint resulting from ASN's departure should allow the EB meeting to book venues in less-expensive cities. It is important to do so because, increasingly, the cost of hotel rooms has skyrocketed, making it difficult for our members and students to spend a week at the meeting in order to sample all that is offered on the program. In addition to rising costs, Council recognizes that, in a world where time is money, the length of the meeting may be a contributing factor to decreasing attendance.

The Council has charged the Task Force to take a hard look at our annual meeting and explore how to strengthen it. It is a difficult task because, over the years, APS has added interest groups and committees to the program, providing them with opportunities to present sessions at the meeting. For EB 2017, the scientific program starts officially with the Cannon Lecture on Saturday, April 22 at 5:30 PM, but, in reality, there are sessions starting at 8:00 AM on Saturday. The APS provides full-day programming through the Nobel Prize lecture at the end of the day on Wednesday, April 26.

Not surprisingly, attendance at our annual meeting falls off considerably after Tuesday, even though there are generally 600-700 poster presentations and a full complement of oral scientific sessions on Wednesday. Robert Hester noted that many individuals who have their posters scheduled on Wednesday don't even show up to present their work.

There are many hurdles to overcome in order to restructure the EB meeting: both internally for APS

and among the participating societies. We want to be flexible to new advances in the discipline while maintaining sufficient core programming to ensure a successful event; we need to define a balance between scientific and professional development sessions; we need to ensure constituent groups – such as those represented by the APS Sections – continue to view the APS annual meeting as their home. It is for that reason that the Council created a Task Force to “blow-up” the meeting by taking a really hard look at how best to create a meeting that meets the needs of as many of our members as possible. The APS annual meeting is not only a meeting for our established investigators but an opportunity to recognize the contributions of the students and post-docs who work in our laboratories, and APS provides approximately \$1 million in awards to make the recognition possible.

As noted earlier, to effectively restructure and revise our annual meeting, the Task Force needs your input. Therefore, please respond to the survey that will be distributed in March before the annual meeting in Chicago. Everyone is urged to respond, whether you traditionally attend the Experimental Biology meeting or not. If you don’t attend the EB meeting, we want to know why and what you like about the meetings that you do attend. If you attend the annual meeting, we want to know what you think are its strengths and its weaknesses. With your input, it is our hope that we can eliminate 1 day of the meeting, strengthen its program offerings, and meet the needs of the membership. Thank you in advance for your input as we strive to take advantage of changing times. ●

Martin Frank



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Report from the Bodil Schmidt-Nielsen Honorary Symposium

Jørgen Frøkiær

Aarhus University, Aarhus, Denmark

Bodil Schmidt-Nielsen (1918-2015) was an eminent renal and comparative physiologist who did pioneering research within a large variety of areas, which tremendously improved the understanding of mammalian physiology. In particular, Bodil Schmidt-Nielsen contributed to the understanding of the physiology of the urinary concentrating mechanism, and she pioneered studies setting new standards for understanding water balance in animals living in diverse environments. To honor her many contributions to physiology, the first Bodil Schmidt-Nielsen Honorary Symposium was held in Copenhagen, Denmark on September 16, 2016. The symposium was made possible by a grant from the Novo Nordisk Foundation. The symposium was divided into four sessions, each focusing on the particular contributions Bodil Schmidt-Nielsen provided to physiology.

Bodil Schmidt-Nielsen was born in Denmark, and she had a remarkable career. Her scientific career may have been predetermined. She was the youngest daughter of

two distinguished scientists. Her father was the Nobel Laureate August Krogh, and her mother Marie Krogh was a medical doctor who worked closely together with August Krogh to solve important physiological questions. From early childhood, Bodil Schmidt-Nielsen was regularly exposed to her parents' discussions of research. She trained as a dentist and graduated from the School of Dentistry in Copenhagen, where she also became the first dentist with a doctor of science degree in dentistry. In her thesis studies, she focused on the impact of saliva on the turnover of calcium and phosphate in teeth. From the beginning, Bodil Schmidt-Nielsen became a very dedicated scientist, and she announced that she "would rather starve as a scientist than live a comfortable life as dentist"!

Bodil Schmidt-Nielsen's contribution to physiology in general and in particular to her visionary, innovative, and original contributions to how the urinary concentrating mechanism works was the main theme for The Honorary Symposium. Bodil Schmidt-Nielsen



Group picture of attendees at the Bodil Schmidt-Nielsen Honorary Symposium held in Copenhagen, Denmark

served as an inspiration and mentor for many, and she remained active in science almost to the end of her life. She published her last scientific paper in 2011 in *Acta Physiologica*, Scandinavia, and the paper was entitled “On the Function of the Mammalian Renal Papilla and the Peristalsis of the Surrounding Pelvis.” In this informal personal review, she enthusiastically provided the background for how she developed her ideas about the concentrating mechanism of the mammalian renal papilla. Her interest in how some mammalian kidneys can produce highly concentrated urine goes back to 1947-1948 when she first worked with desert rodents in Arizona. Bodil Schmidt-Nielsen and her first husband Knut Schmidt-Nielsen were given the exciting problem of finding out how desert rodents manage to exist entirely without drinking water. This led to a life-long interest in the role of urea for urine concentration, and her last original studies were done in close collaboration with Mark Knepper at the NIH, where they also did pioneering experiments to study the physiological effect of the peristalsis.

Thus it was appropriate that Mark Knepper gave the first talk at the symposium. The talk was entitled “Following Bodil Schmidt-Nielsen: Urea Transporters, the Renal Pelvis and Renal Water Conservation.” In his comprehensive lecture, Knepper discussed and emphasized the importance of the combined roles of urea transporters and renal pelvic contractions on the renal concentrating mechanism, which Bodil Schmidt-Nielsen was the first to propose. The next talk was given by William H. Dantzler from the University of Arizona, who was one of the first students of Bodil Schmidt-Nielsen. His talk was entitled “Urine Concentrating Process of the Mammalian Renal Inner Medulla,” and Dantzler provided a comprehensive lecture on the current understanding of the role of the three-dimensional architecture of the thin limbs of Henle’s loop on urine concentration. The next session consisted of three lectures focusing on the molecular physiology of different transporters and channels for the urinary concentration and their pathophysiological implications. Søren Nielsen (Aalborg University, Denmark) gave a lecture on the role of renal aquaporins for urinary concentration, and, among other aspects, he emphasized the importance gene-knockout studies have provided for understanding the role of the different renal aquaporins for urine concentration. Jeff M. Sands (Emory University School of Medicine),



Meeting attendees focusing on the presentation of one of the invited speakers

who also was one of Bodil Schmidt-Nielsen’s students, lectured on the molecular physiology of urea transporters and highlighted novel treatment possibilities for nephrogenic diabetes insipidus using metformin. Robert A. Fenton (Aarhus University, Denmark) gave a comprehensive lecture on the hormonal regulation of the kidney distal tubule and focused in particular on the implications for blood pressure modulation.

Bodil Schmidt-Nielsen was the American Physiological Society’s 48th president, and she became the first woman president of the Society. Martin Frank (Executive Director of the American Physiological Society) gave a thorough presentation of Bodil Schmidt-Nielsen’s unique personality as physiologist and mentor as well as her interest in science policy, which gave her a very unique position in the American Physiological Society.

Bodil Schmidt-Nielsen was intrigued by the fact that small mammals were able to survive in hot and dry deserts. Tobias Wang (Aarhus University) gave a very inspiring lecture on the translation of physiology from rodents and larger animals, including giraffes to humans, with particular focus on kidney function and temperature regulation on the savanna and desert. Lise Bankir (Inserm, Paris) has had a life-long interest in kidney function. In her talk, she discussed the possible role of aquaporin-3 and ENaC in regulating urea-to-sodium ratio in the urine.



Martin Frank presenting a talk of the role of Bodil Schmidt-Nielsen within the APS



Tobias Wang presenting a talk of the comparative nature of Bodil Schmidt-Nielsen's research



Lise Bankir presenting a talk on the role of aquaporin-3 and ENaC in regulating urea-to-sodium ratio in the urine

The last session consisted of three lectures devoted to different aspects of membrane transport. Boye L. Jensen (University of Southern Denmark) gave an impressive lecture on the translational aspects of the role of proteolytic activation of ENaC in hypertension. Then Stine Falsig Pedersen gave a talk on the increased acid extrusion as an adaptation driving cancer progression. The final scientific contribution was given by Nanna MacAulay (University of Copenhagen), who gave a lecture entitled "Brain Water Transport – Can We Learn from Kidney Physiology?"

In addition to her many scientific publications, Bodil Schmidt-Nielsen was also author of a biography of her parents' lives in science. The book is entitled *August and Marie Krogh – Lives in Science* and is published by Oxford University Press, and is freely available in digital version for APS members. Many of the lectures highlighted the enormous influence Bodil Schmidt-Nielsen had as a mentor for others. The significance

of this is also reflected by the American Physiological Society's endowment fund to honor Bodil Schmidt-Nielsen by establishing an endowment fund to maintain the Bodil Schmidt-Nielsen Distinguished Mentor and Scientist Award.

Bodil Schmidt-Nielsen was very fond of the Danish writer and scientist Piet Hein, who was famous for his so-called "Gruks." At the end of his talk, Mark Knepper appropriately honored Bodil Schmidt-Nielsen with the following Gruk:

**"It may be observed, in a general way, that life would be better, distinctly
If more of the people with nothing to say were able to say it succinctly." ●**

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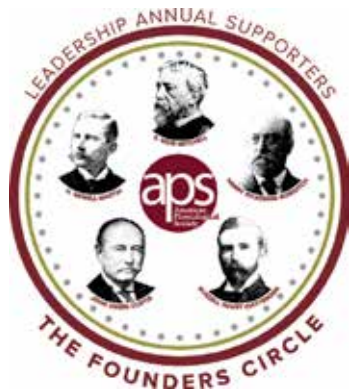
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APS supports numerous awards that foster the professional development of early career, established, and senior physiologists. Many of these awards are supported through endowment gifts from physiologists and friends who have created a lasting legacy through their gifts.

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Beverly Petterson Bishop Award for Excellence in Neuroscience
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Giles F. Filley Memorial Awards for Excellence in Respiratory Physiology and Medicine
Giles F. Filley* and family

G. Edgar Folk Senior Physiologists Award
G. Edgar and Mary* Folk and colleagues

Steven M. Horvath Professional Opportunity Awards
The Family of Steven M. Horvath*

Barbara A. Horwitz and John M. Horowitz Outstanding Undergraduate Abstract Awards
Barbara A. Horwitz and John M. Horowitz

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The 1887 Legacy Circle

Commemorating the year of the Society's founding, The 1887 Legacy Circle honors those who have made a major gift (\$25,000 and above) or who have arranged for a bequest or other planned gift to support the work of the Society.



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Please notify us if you have already arranged to make a bequest or other planned gift for the Society since we would like to provide recognition of your intended support. If you are considering a major or planned gift, please contact our Development Officer, John R. Van Ness, at jvanness@the-aps.org or (301) 634-7406 for any questions or assistance you may need. ●

Chapter News

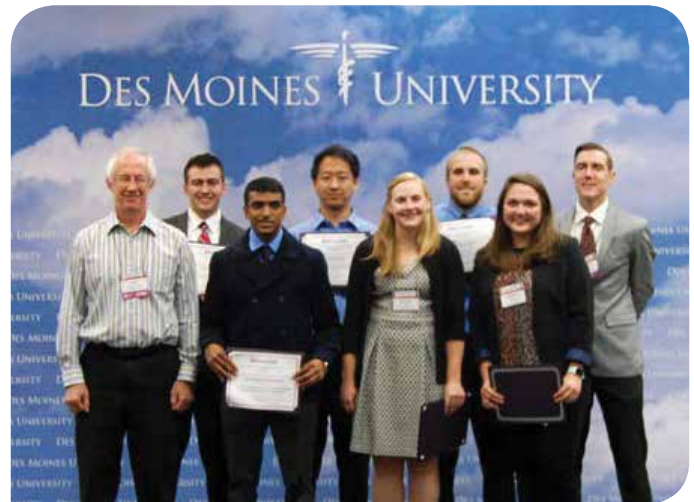
The 21st Annual Meeting of the Iowa Physiological Society

James A. Lang
IPS President 2016

The 21st Annual Meeting of the Iowa Physiological Society (IPS) was held on Saturday, October 29 at the Olsen Medical Education Center on the campus of Des Moines University (DMU) in Des Moines, IA. The meeting was financially supported by the parent organization, the American Physiological Society, DMU, and multiple corporate sponsors that included Nikon, DSI, ADInstruments, and Elsevier. The Continuing Medical Education Department, notably Vanessa Ross and Christina Billings, at DMU importantly supported the organization and implementation of the meeting. All IPS officers were present at the meeting and included James Lang (President; DMU), Michael Lyons [Past-president; Iowa State University (ISU)], Rasna Sabharwal [President-Elect & Secretary/Treasurer; University of Iowa (UI)], and Francesca Di Sole (Secretary/Treasurer-Elect; DMU).

In the morning, the meeting began with opening remarks from IPS President James Lang from the Department of Physical Therapy at DMU. After which, a series of six 5-minute student oral presentations commenced, starting with Brianna Tan (UI), Brittany Duong (DMU), Matthew Peters (UI), Samuel Engman (DMU), Runping Wang (UI), and Hannah Spaulding (ISU). A question-and-answer session for the six speakers followed, and the audience was referred to each of their posters for further discussion. After student presentations, Colin Young delivered the keynote research presentation entitled "A View from the Top – Metabolic and Cardiovascular Diseases in Obesity," highlighting recent and innovative work performed in his lab at George Washington University. His presentation was followed by a 45-minute break for poster viewing and visiting the sponsor tables. Then, the teaching keynote presentation entitled "Learning is the Last Thing We Do" was delivered by Rick Mills, DVM, LMSW. He introduced a case-applied learning platform that can found at <http://www.whenknowingmatters.com/>. Lunch and poster viewing followed.

In the afternoon, two 30-minute research presentations followed: one from LiLian Yuan (DMU) entitled "Effect of Stress on Brain-Gut-Microbiome Axis" and then one from Meredith Luttrell (Drake University) entitled "Post-Exercise Vasodilation – Role of Histamine, Age, and Training Status." A 45-minute break for poster viewing followed. Then, Kevin Kregel (UI) delivered the Research Advocacy presentation entitled "Advocacy for Science – Making a Compelling and Understandable Case," after which, the audience



The undergraduate and graduate poster and oral presentation awards winners. On the far right is James Lang, President of IPS. On the far left is Mark Chapleau, board member and research mentor



James Lang introducing the research keynote speaker, Colin Young

divided into two workshop sessions: one led by Mills, which further elaborated on his educational software platform and the other led by a panel of discussants. This panel was led by Catharine Young (British Embassy), Jackie Brittingham (Simpson College), and Robert Clements (DPM '20 student at DMU). Following the workshop sessions, a poster award social commenced and consisted of refreshments/appetizers and the announcement of the poster and oral student presentation awards. The following were the winners:

- 1st place graduate student oral presentation: Brittany Duong (DMU)
- 1st place undergraduate student oral presentation: Matthew Peters (UI)
- 1st place graduate poster presentation: Hannah Spaulding (ISU)
- 1st place undergraduate poster presentation: Madison Sturgeon (UI)
- 2nd place graduate poster presentation: Tianyi Wei (UI)
- 2nd place undergraduate poster presentation: Sandeep Kowkuntla (UI)
- 3rd place graduate poster presentation: Alex Brodjeski (UI)
- 3rd place undergraduate poster presentation: Brianna Tan (UI)

After the poster award social and a few closing remarks from the president, the business meeting commenced. In attendance were James Lang, Rasna Sabharwal (UI), Mark Chapleau (UI), Harold Stauss (UI), Francesca Di Sole (DMU), Ron Torry (Drake), and Michael Lyons (ISU). Topics of discussions included an update on IPS funds, planning for the 2017 annual IPS meeting, the development of an advisory committee to provide more senior leadership to the section, the addition of a student representative position, using social media to promote IPS, and the implementation of a recently awarded APS Chapter Activity grant. Last, Rasna Sabharwal assumed her role as President and Francesca Di Sole as Secretary/Treasurer for 2017. There are candidates being considered by the IPS board for President-elect, and this will be announced before the end of the year.

As the 2016 IPS chapter president, it has been my great pleasure to serve in this role and strive to promote the section and APS as well as interact with my colleagues in the region. It is my hope to continue to support IPS leadership as they endeavor to advance IPS in the region. ●



Matthew Peters, winner of the undergraduate student oral presentation, giving his talk



A panel of moderators (front of the room from left to right: Jackie Brittingham, Catharine Young, and Robert Clements) having a discussion with students and faculty regarding careers as researchers

Ohio Physiological Society Meeting 31st Annual Meeting

The 31st annual meeting of the Ohio Physiological Society (OPS) was hosted by the Department of Physiology and Cell Biology at The Ohio State University Wexner College of Medicine in Columbus, OH, on November 19, 2016. This year's meeting was organized by Noah Weisleder, who served as President of the OPS. The OPS was founded in 1986 and was the first American Physiological Society (APS) chapter in 1995. The OPS was established with the purpose of enhancing and advancing the field of physiology as a coordinated discipline consisting of the many subdisciplines working at the molecular, cellular, and organ system levels of organization in both basic and applied areas. This mission was in full view at this year's meeting, which brought together more than 130 attendees, with over 70 posters presented by trainees at levels of experience ranging from high school students to postdoctoral fellows. Poster presentations were complemented by platform presentations from trainees and early career faculty. These attendees came to Columbus from 17 different Ohio colleges and universities in all four corners of the state. With such a broad representation, it was a very robust meeting that addressed several aspects of physiology and related fields.

The day began with a series of short talks provided by trainee speakers who were selected from the submitted abstract. Jennifer Petrosino (Ohio State University), Rachel Lane (Findlay University), Holly C. Cappelli (Northeast Ohio Medical University), and Eric J. Reid

(Wright State University) presented in the first session on topics ranging from pericardial fat accumulation to sodium channel activity in Huntington's Disease. The second session featured talks from Subhra S. Nag (Cleveland State University), Breana Cervantes (Ursuline College), Brian Paleo (Ohio State University), and Ameet Chimote (University of Cincinnati) on the effects of hypoxia, potassium channel function, and plasma membrane repair.

The trainee talks were followed by the poster presentations where faculty judges volunteered to evaluate over 70 posters. These poster presentations were used to select the winners of the Peter Lauf



Representatives from 17 colleges and universities from around Ohio traveled to the 2016 OPS meeting



Over 130 physiologists attended the 2016 Ohio Physiological Society meeting in Columbus, Ohio

Travel Award to support presentation of their studies at the APS annual meeting. Nosayba Al-Azzam (University of Akron), Mohamed Elzarka (University of Cincinnati), Kevin McElhanon (Ohio State University), and T. Alex Ruwe (University of Cincinnati) were the recipients this year. Research Awards for particularly meritorious presentations were awarded to Taylor Banh (Ohio State University), Holly C. Cappelli (Northeast Ohio Medical University), Jae-Hoon Chung (Ohio State University), Raphael J. Crum (University of Dayton), Brian Hansen (Ohio State University), Sangeetha Kandoi

(University of Cincinnati), and Joshua L. Stricker (Wright State University).

After lunch, the APS-supported Keynote Presentation was delivered by Joseph T. Brozinick, who is a Senior Research Advisor at Eli Lilly Co. and Chair of the APS Endocrine Division. Brozinick is a leader in the efforts to identify new disease targets that regulate metabolism in skeletal muscle by insulin and muscle contraction and how these processes are altered in insulin-resistant states such as metabolic syndrome or Type 2 diabetes. At Eli Lilly Co., in collaboration with several groups, he leads efforts aimed at discovering disease progression biomarkers and biomarkers for many disease states. He also leads several external collaborations with both academia and industry. His presentation on "The Role of Sphingolipids in Muscle Insulin Resistance: Correlation or Causation?" was well received by all of the attendees and generated significant discussion following his talk.

The late afternoon sessions provided an opportunity for early career faculty and senior postdoctoral fellows to present the research underway in their laboratories. Megan Meuti presented her work on the molecular regulation of insect seasonal physiology. Perwez Alam provided a talk on how Rb1 and Meis2 genes contribute to inhibition of cellular senescence and promote cardiac repair. Maegen Ackermann's talk focused on how intercalated disc obscurins regulate intracellular signaling and effect the development of heart failure. James W. McNamara spoke on cardiac myosin binding protein-C regulation of myosin head order. After a short break, Leslie Consitt presented a talk on her studies of insulin-stimulation in the elderly and how they indicate metabolic inflexibility in this population. Kathleen Broomall talked on circadian rhythm indicators as prevention techniques for gestational diabetes. Kristin Stanford discussed her studies on exercise-induced biomarkers of brown adipose tissue activity. The final talk of the session was provided by Li Zuo, who presented on his work on the role of reactive oxygen species and breast cancer cells.

Our meeting concluded with a reception and buffet dinner at the Ross Heart Hospital. The business meeting of the OPS unanimously elected Dan Halm as the Treasurer of the OPS for a 3-year term. We were particularly grateful to have the founder of the OPS,



Award winners and officers for the OPS. Front (left to right): Peter Lauf (Founder), Nosayba Al-Azzam (Travel Award), Holly C. Cappelli (Research Award). Back (left to right): Raphael J. Crum (Research Award), Joshua L. Stricker (Research Award), T. Alex Ruwe (Travel Award), Brian Hansen (Research Award), Mohamed Elzarka (Travel Award), Noah Weisleder (President), Kevin McElhanon (Travel Award), Dan Halm (Treasurer). Not shown: Jae-Hoon Chung (Research Award), Taylor Banh (Research Award), Sangeetha Kandoi (Research Award)



Attendance was excellent throughout the day for trainee, early career faculty, and keynote lectures

Peter Lauf, join us in Columbus this year and provide some comments on the history of the OPS and his appreciation of the efforts of the organizers for this year's meeting. He also helped present the trainee travel and research awards before the dinner. Support for these awards and the conference in general was provided by grants from the APS Chapter Activity Grant Program and the OSU Margaret T. Nishikawara Merit Scholarship Fund; Nishikawara was dedicated

to graduate student training and development. By her direction, this fund continues her commitment to graduate student training by supporting the development of students pursuing a career in physiology and cell biology. The OPS would like to sincerely extend our thanks to all of the sponsors who contributed to the success of our 2016 meeting. We expect another exciting meeting next year. ●



Joseph T. Brozinick presented the APS Keynote lecture at the 2016 OPS meeting



Peter Lauf (left) and Noah Weisleder (right) recognize Brozinick (middle) for his presentation of the APS Keynote lecture

2017 Conferences

Register early
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Surface Pro 4!**

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Abstracts: March 31, 2017
Registration: June 30, 2017



Abstracts: May 5, 2017
Registration: July 24, 2017



Abstracts: June 30, 2017
Registration: October 6, 2017

**Cardiovascular Aging, New
Frontiers and Old Friends**

Westminster, CO
August 11-14, 2017
the-aps.org/CVAging

**Physiological Bioenergetics:
Mitochondria from
Bench to Bedside**

San Diego, CA
August 27-30, 2017
the-aps.org/Bioenergetics

**Physiological and
Pathophysiological Consequences
of Sickle Cell Disease**

Washington, DC
November 6-8, 2017
the-aps.org/SickleCell

The Third Annual Meeting of the Greater Washington Chapter of the American Physiological Society

The Third Annual Meeting of the Greater Washington Chapter of the American Physiological Society (dmvCAPS) was hosted by the George Washington University in Washington, DC on October 23, 2016. The meeting hosted 80 attendees, representing 10 institutions: Children's National Medical Center (CNMC), George Mason University (GMU), The George Washington University (GWU), Georgetown University (GU), Howard University (HU), John's Hopkins University (JHU), National Institutes of Health (NIH), Uniformed Services University (USU), United States Food and Drug Administration (US FDA), and Walter Reed Army Institute of Research (WRAIR). Of those attending, 23/80 (29%) were faculty members, 20/80 (25%) were postdoctoral trainees, 22/80 (27%) were graduate students, 11/80 (14%) were undergraduate students, and 4/80 (5%) were research assistants.

After an early morning of registration, breakfast, and coffee, Nikki Posnack (President dmvCAPS; Children's National Medical Center) welcomed attendees and speakers. Attendees were also greeted by a special guest Marty Frank (Executive Director of The American Physiological Society), who was also in attendance at the annual dmvCAPS meeting. The oral sessions began immediately following the opening remarks and included a range of topics from cell physiology, biomedical engineering, cancer biology, and regulatory science.

The first session was kicked off by Dexter Lee (HU), who presented his research on "Peroxisome Proliferator Activated Receptor-Alpha's Regulation of Sodium Transport and Mean Arterial Pressure During Angiotensin II Hypertension." This presentation was followed by two presentations chosen by the Conference Organizing Committee from submitted abstracts: Sabyasachi Sen (GWU) presented his research, titled "Genetically Modified Human Mesenchymal Stromal Cells (MSCs) Improve Glucose Homeostasis in Diet Induced Obese (DIO) Diabetic Mouse Models," and Amrita Pai (GU) presented her work, titled, "Cytotoxic CD8+ T-Cells Play a Role in

Hypertension-Associated Inflammatory Responses in Female Dahl Rats." Presentations were followed by a collective 10-minute question-and-answer session, moderated by Nikki Posnack (Children's National Medical Center).

The second session started with Emilia Entcheva (GWU) presenting her biomedical engineering



2016 dmvCAPS attendees



Poster presentation award winners

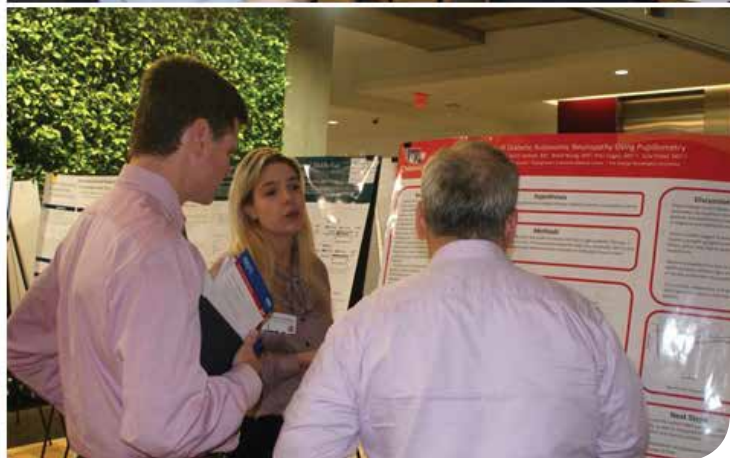
research on “Massively-Parallel All-Optical Cardiac Electrophysiology for Drug Screening.” This presentation was followed by two more presentations chosen from abstracts: Beverley Dancy (NIH) shared her research on “The Mitochondrial Interactome Visualized by Crosslinking Mass Spectrometry,” and Aaron Brown (GU) led the audience to their lunchtime break with his talk “Aldosterone and ENaC Regulation in Mice With Collecting-Duct-Principal Cell Select Knockout of the Mammalian-Target-Of-Rapamycin (mTOR).” Presentations were followed by a collective question-and-answer session, moderated by Matthew Kay (George Washington University).

After lunch, Jason Tilan (GU) presented his research, titled “Beyond Hemostasis: Investigating the Role of Platelets in Ewing Sarcoma Metastasis.” Following was the final of the presentations chosen from abstracts, with Cassandra Moshfegh (GWU) talking about the “Effects of Essential Oil on Fear Memory and the Immune Response: A Potential Alternative Therapy

for Post-Traumatic Stress Disorder (PTSD).” The final speaker of the afternoon, Ronald Brown (US FDA), spoke about the “Use of Computational Toxicology in Regulatory Science” and inspired the attendees to ask many questions. A collective question-and-answer session was moderated by Luther Swift (George Washington University).

A highlight of the afternoon session was the “Minute to Win It.” In this session, each poster presenter was given 60 seconds to tell the audience about his/her research, why it is important, and convince conference attendees to visit his/her poster to learn more. The enthusiastic trainees embraced this opportunity and spoke with passion, clarity, and brevity. This session energized the attendees for the poster session that immediately followed.

The poster session featured a total of 60 posters, which were grouped into three categories: undergraduate/pre-graduate students, graduate students, and



Poster presentation session

postdoctoral trainees. Poster judges were extremely impressed with the work of these junior scientists. A total of seven winner and two runner-up awardees were chosen, who received printed awards along with \$100 prizes for winners and \$60 for runners-up. Winners were announced by dmvcAPS President Nikki Posnack at the end of the poster session.

The business meeting followed the awards ceremony and was chaired by Nikki Posnack. Treasurer Sarah Kuzmiak-Glancy (George Washington University) discussed the Chapter's expenses, donations, and budget for the current year. Secretary Kara Garrott (George Washington University) discussed current membership numbers and updates being made to the registration process and Chapter website. Additional discussion was focused on forming and updating committees to assist with the next dmvcAPS annual meeting, sponsorship, and community outreach – including PhUn week. Attendees expressed

enthusiasm regarding the level of research conducted by trainees and the diversity of the institutions represented at the 3rd annual dmvcAPS meeting. Based on a formal follow-up poll, attendees are eager to organize a 4th annual conference in Fall 2017, with the goal of increasing interaction and networking opportunities between trainees and more senior members of the society.

dmvcAPS would like to thank the generous sponsors who helped make this meeting possible. Our sincerest appreciation and gratitude to The American Physiological Society, Data Sciences International, Emka Technologies Inc., Zeiss, Nikon, The George Washington University Department of Biomedical Engineering, The George Washington University Department of Pharmacology and Physiology, and Georgetown University Pharmacology Department for their support. ●



"Minute to win it" session, and special guests

ACDP

Association of Chairs of Departments of Physiology 2016 Leadership Retreat Highlights

The Association of Chairs of Departments of Physiology (ACDP) held its annual Leadership Retreat at Riu Palace Hotel in Cabo San Lucas, Mexico, on December 5-11, 2016.

President T. Richard Nichols (Georgia Institute of Technology) developed a program focused on issues being currently faced by the discipline of physiology and maintaining the pipeline of students through encouraging undergraduate physiology education.

Research talks included the 10th Annual Arthur C. Guyton Lectureship given by Monika Fleshner (Univ. of Colorado) titled "The Neurobiology and Physiology of Exercise-Induced Stress Robustness." The new chair research presentation was by Christopher Waters (Univ. of Tennessee Health Science Center) on "Mechanobiology in Acute Lung Injury."

The 2016 ACDP Distinguished Service Award was presented to Susan Barman (Michigan State Univ.), who gave a talk on "My Journey as an Integrative Physiologist," highlighting many of the APS programs she has been involved with and continues to champion (see "Barman Honored at Annual ACDP Meeting" on p. 97).

Two workshops were based on topics following up on those discussed by last year's attendees. The first was on "Creating Recommended Curriculum Guidelines for Undergraduate Physiology Education," led by Erica Wehrwein (Michigan State Univ.). Participants participated in round-table discussions on possible guidelines. Wehrwein is the founder of a new Physiology Majors Interest Group within APS and plans to hold a meeting of interested members in 2017. The second workshop was on "Fundamental Concepts for Undergraduate Physiology" led by T. Richard Nichols (Georgia Inst. of Technology) and Dixon Woodbury (Brigham Young Univ.). Again, lively round-table discussions were held to try to develop a short list of overriding concepts that should be taught in any undergraduate physiology curriculum. Work continues on that topic, and a report will be forthcoming on that final list.

Another workshop was on "Animal Issues in Research Reproducibility" led by Gaylen Edwards (University of Georgia College of Veterinary Medicine), which generated an animated discussion among attendees.

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



ACDP President T. Richard Nichols (left) presents Monika Fleshner (right) with the 2016 ACDP Arthur Guyton Lectureship Award



Charles Wood, incoming President, ACDP



Dixon Woodbury presenting his limerick for the attendees



ACDP Council. Back (left to right): Edward Morrison, Michael Sturek, Christopher Hardin, V. Gustavo Blanco, Nick Delamere, D. Buck Hales. Front (left to right): Pieter de Tombe, Kebreten Manaye, T. Richard Nichols, Charles Wood, Janice Urban, Marlene Wilson, Elsa Mangiarua. Not pictured: R. Clinton Webb

specifically focusing on what APS has been undertaking with the rebranding initiative, upcoming strategic planning meeting, changes to the Experimental Biology meeting, and transitions coming to FASEB.

Officer elections were held with the following results. Janice H. Urban (Rosalind Franklin Univ. of Med. & Sci., Chicago Medical School) was elected President-elect; Elsa I. Mangiarua (Joan C. Edwards School of Medicine, Marshall Univ.) was reelected to a second 3-year term as Secretary-Treasurer; and V. Gustavo Blanco (Kansas Univ. Medical Center) and Christopher Hardin (University of Missouri) were elected to 3-year terms as Councilors.

Michael Sturek (Indiana Univ. School of Medicine) was thanked for his service as Past-President. Elsa I. Mangiarua (Joan C. Edwards School of Medicine, Marshall University) was thanked for her service as Secretary-Treasurer, as well as her willingness to serve a second term. Pieter P. de Tombe (Loyola Univ. Chicago Medical School) and Janice H. Urban (Rosalind Franklin Univ. of Med. & Sci., Chicago Medical School) were thanked for their service as Councilors.

President-elect Charles E. Wood (Univ. of Florida College of Medicine) announced the 2017 ACDP Leadership Retreat will be Nov. 30 to Dec. 3 at Hilton Rose Hill Resort in Montego Bay, Jamaica. As details are available, they will be added to the 2017 meeting webpage at acdponline.org/.

As a fitting end to the Leadership Retreat, Dixon Woodbury (Brigham Young Univ.) presented the attendees with a limerick:

ACDP Meeting 2016 at Riu Palace Cabo San Lucas Resort

*Richard Nichols headed up our big show;
Helped make our discussion to flow.
We answered the "What"
for undergraduate –
Fundamental concepts they should know.
The highlight of Chris Waters dictation?
Visualized pulmonary pulsation!
Want a rat stressor?
ask Monika Fleshner,
She taught us all physio integration.
Erica helped us to address
Curriculum guides with success.
From Gaylen Edwards
came clear the watchwords:
Beware of lab animal stress!
With Sue Barman we all took a stroll,
To learn of neuronal control.
Finally, Marty Frank,
with all his swank,
Expounded APS and its role.
We leave now our Cabo Resort
For travel to Cabo Airport.
Next year we convene,
and hope to been seen
At the sunny Jamaica Seaport.
– Dixon Woodbury*



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 on this year's topics and will continue to focus on leadership issues and other areas of broad interest to those audiences. ●

Riu Palace Cabo San Lucas Hotel

Barman Honored at Annual ACDP Meeting



President T. Richard Nichols (left) presents Susan Barman (right) with the 2016 ACDP Distinguished Service Award

The highest award given by the Association of Chairs of Departments of Physiology (ACDP), the Distinguished Service Award, was awarded to Susan Barman, Professor in the Department of Pharmacology & Toxicology at Michigan State University (MSU). T. Richard Nichols (Georgia Institute of Technology), President of ACDP, presented the award

during the organization's 2017 Leadership Retreat at RIU Palace Hotel in Cabo San Lucas, Mexico.

Barman was selected to receive the ACDP Distinguished Service Award for leadership in the discipline of physiology, educating the next generation of physiologists, outstanding research, and service to national and international organizations, especially to APS.

Barman earned her PhD in Physiology at Loyola University Medical School in Maywood, IL, and she did her postdoctoral work at MSU before joining the faculty. She rose through the ranks, being named Professor in 1995.

Her research interest has been on neural control of the cardiovascular system, with an emphasis on the role

of the brain stem in determining the level and pattern of sympathetic nerve activity. Her research was consistently funded by the NIH, including receipt of a MERIT Award. She now does collaborative work with NIH-funded researchers at University of Pittsburgh and Wayne State University.

Sue became a member of the APS as a graduate student, and her passion for the discipline has never waned. For at least the past 20 years, she has had a presence on a steering committee, standing committee, or the Council of the APS, including serving as its 85th president. In many of these roles, she has been an advocate for promoting activities that benefit trainees and junior physiologists. In 2015, she was elected to the inaugural class as a Fellow of the APS.

Her current service to the APS includes membership on the Finance Committee, the Book Committee, Strategic Planning Group for Women in Physiology, Chair of the Beverly Petterson Bishop Neuroscience Award Committee, the Editorial Advisory Board for *Comprehensive Physiology*, and the editorial boards of *American Journal of Physiology – Heart and Circulatory*, *American Journal of Physiology – Regulatory, Integrative, and Comparative Physiology*, and *Journal of Neurophysiology*. She is Chair of the Membership and Fundraising Committee of the Michigan Physiological Society, a Chapter of the APS. She is also an author of the neurophysiology content of *Ganong's Review of Medical Physiology*.

Because of her scientific endeavors, her dedicated service to the field of physiology, and her distinguished service to APS, the ACDP was proud to present its 2016 Distinguished Service Award to Susan Barman.

People and Places

Chris Kevil Named Vice Chancellor for Research at LSU Health Shreveport



Chris Kevil

APS member Chris Kevil has been named vice chancellor for research at Louisiana State University (LSU) Health Sciences Center in Shreveport. Kevil will represent LSU Health Shreveport in research matters on the local, state, and federal levels, and will facilitate translational research opportunities for the center. Kevil is also the

Malcolm Feist Chair in Cardiovascular Research and holds grants from the National Heart, Lung, and Blood Institute and the American Diabetes Association. For more information, visit http://lsuhscshreveport.edu/News_Items/chris-kevil-named-vice-chancellor-for-research-. ●

David A. Brown Named Associate Professor at Virginia Tech



David A. Brown

APS member David A. Brown has been named Associate Professor of Human Nutrition, Foods, and Exercise in the Virginia Tech College of Agriculture and Life Sciences. Brown's research combines cardiac physiology and mitochondrial biology. He was previously the course director for medical physiology at the Brody School of Medicine at East

Carolina University. Read the full press release at <http://vtnews.vt.edu/articles/2016/12/10416-newfacultyalsbrown.html>. ●

Election Results

The American Physiological Society announces the results of the election of officers for 2017. Jeff Sands of Emory University School of Medicine is the new President-Elect. The three newly elected Councillors taking office on April 6, 2016 are Charles Lang (Pennsylvania State University College of Medicine), Merry Lindsey (University of Mississippi Medical Center), and Ron Lynch (University of Arizona Health Science Center). The Councillors will each serve a 3-year term. ●



Jeff Sands, President-Elect



Charles Lang, Councillor



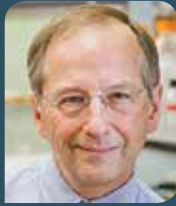
Merry Lindsey, Councillor



Ron Lynch, Councillor

Experimental Biology

Experimental Biology 2017 Distinguished Lectures



Physiology in Perspective: The Walter B. Cannon Memorial Award Lecture

Michael Welsh

Univ. of Iowa Roy J. and Lucille Carver Col. of Med.

Insights into the Pathogenesis of Cystic Fibrosis Lung Disease

Saturday, April 22, 2017, 5:30 PM

Supported by Sucampo



Claude Bernard Distinguished Lectureship of the APS Teaching of Physiology Section

Jeffrey D. Karpicke

Purdue Univ.

Retrieval-Based Learning: Simple Strategies for Helping Students Learn

Sunday, April 23, 2017, 10:30 AM

Supported by ADInstruments



Hugh Davson Distinguished Lectureship of the APS Cell and Molecular Physiology Section

Jennifer Lippincott-Schwartz

HHMI Janelia Research Campus

Emerging Fluorescence Technology to Study Cell Architecture and Dynamics

Sunday, April 23, 2017, 2:00 PM



Ernest H. Starling Distinguished Lectureship of the APS Water and Electrolyte Homeostasis Section

Peter Bie

Univ. of Southern Denmark-Odense

Mechanisms of Sodium Balance

Sunday, April 23, 2017, 4:15 PM



Henry Pickering Bowditch Award Lecture

Brant Isakson

Univ. of Virginia

Coordinating Tissue Function Through Heterocellular Communication

Sunday, April 23, 2017, 5:45 PM



Carl Ludwig Distinguished Lectureship of the APS Neural Control and Autonomic Regulation Section

Robin McAllen

Florey Inst. of Neuroscience and Metal Health

Mapping the Diversity of Central Autonomic Control

Monday, April 24, 2017, 8:00 AM



Solomon Berson Distinguished Lectureship of the APS Endocrinology and Metabolism Section

Wolfgang Langhans

ETH Zurich

GLP-1 in Energy Homeostasis: There is More than Meets the Eye

Monday, April 24, 2017, 10:30 AM



Edward F. Adolph Distinguished Lectureship of the APS Environmental and Exercise Physiology Section

W. Larry Kenney

Penn State Univ.

Skin-Deep Insights into Vascular Aging

Monday, April 24, 2017, 2:00 PM



Carl W. Gottschalk Distinguished Lectureship of the APS Renal Section

Paul Welling

University of Maryland Med. Sch.

Protecting Potassium Balance at All Costs: Molecules to Man

Monday, April 24, 2017, 3:15 PM



Joseph Erlanger
Distinguished
Lectureship of
the APS Central
Nervous System
Section

Jeff Lichtman

Harvard Univ.

Does Connectomics Make Sense?

Monday, April 24, 2017, 3:15 PM



Julius H. Comroe, Jr.
Distinguished
Lectureship of the
APS Respiration
Section

Peter D. Wagner

Univ. of California, San Diego

*Lung and Muscle Heterogeneity:
Consequences for Oxygen Transport
Limitation*

Tuesday, April 25, 2017, 10:30 AM



**History of
Physiology Lecture**

Jack Rall

Ohio State Univ.

*The XIIIth International Physiological
Congress in Boston in 1929: American
Physiology Comes of Age*

Tuesday, April 25, 2017, 1:00 PM



Robert M. Berne
Distinguished
Lectureship of the
APS Cardiovascular
Section

Benjamin D. Levine

Texas Health Presbyterian
Hospital Dallas

*Astronauts, Athletes, and Aging.
A TripTik Guide to the Cardiovascular
Adaptation to Physical Activity*

Tuesday, April 25, 2017, 2:00 PM



August Krogh
Distinguished
Lectureship of the
APS Comparative
and Evolutionary
Physiology Section

Warren Burggren

Univ. of North Texas

*Developmental Plasticity, Epigenetics
and Evolution: A Comparative
Physiologist's Od(d)yssey*

Tuesday, April 25, 2017, 3:15 PM

*Supported by Novo Nordisk
Foundation*



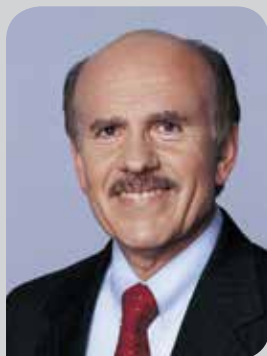
Horace W. Davenport
Distinguished
Lectureship of the
APS Gastrointestinal
and Liver Physiology
Section

John L. Wallace

Antibe Therapeutics and
Univ. of Calgary

*Why the GI Tract Does Not Digest
Itself: A Davenport-Inspired Journey*

Tuesday, April 25, 2017, 3:15 PM



APS Nobel Prize Award Lecture

Louis Ignarro

UCLA Sch. of Med.

The Road to Stockholm: A Nobel Mission

Wednesday, April 26, 2017, 4:45 PM

Upcoming EB Symposia

Mark your calendars for professional development symposia at Experimental Biology 2017! Check the symposia web sites for more information.

Saturday,
April 22, 2017,
8:00 AM-12:00 PM

Curricular Innovation in Sex and Gender Based Medical Physiology Education

(Medical Education Refresher Course sponsored by the Education Committee)
Organizers: Karie Scrogin, Jennifer Sasser

Location: Convention Center, Room W190A

the-aps.org/refresher-sexandgender

Get an update on curricular innovation in sex- and gender-based medical physiology education content from leading experts in the field: **Where We Are, and Where We Need to Go in Sex/Gender Difference Medical Education** (Marjorie Jenkins, Internal Medicine, Texas Tech University Health Sciences); **Sex and Gender Differences in Pain Perception** (Todd Vanderah,

Pharmacology, University of Arizona); **Sex Differences in Fetal Programming: Consequences for Multiple Generations** (Kent Thornburg, Medicine, Oregon Health and Sciences University); **Educating the Educators: Examples From Sex and Gender Differences in Cardiovascular Disease** (Virginia Miller, Surgery, Mayo Clinic)

Sunday,
April 23, 2017,
10:30 AM-12:30 PM

2017 Mentoring Symposium: Choosing the Right Lab and Personnel for Your Career

(Sponsored by the Women in Physiology Committee)
Organizers: Karen L. Edelblum, Brandi Wynne

Convention Center, Room W192A

the-aps.org/choosing-a-lab-and-personnel

Every new graduate student, postdoc, or faculty member must make difficult decisions regarding the people we choose to work with. These choices will affect not only productivity and chances for success, but also our sense of well-being. Thus these decisions are among the most important we make. As a trainee, you will choose which mentor to work with to complete your studies, and, as an investigator, you will choose which trainees to employ in your laboratory. There are many factors associated with identifying an ideal mentor/mentee relationship, whether you are the applicant looking for a position or the investigator hiring to fill a position. The Women in Physiology Symposium for 2017 will focus on the key aspects of this complicated decision-making process. To address this, we will discuss the crucial points that newly minted PhD students will want to consider when choosing a lab to facilitate success as a postdoctoral fellow, whether they follow career paths in academia or in industry. For a new faculty member, the decision of whom to hire as a postdoc is just as critical for the success of a fledgling lab; therefore, we will also discuss important factors to be considered when

interviewing postdoc candidates. Last, despite the best effort of both the applicant and the investigator, not every candidate or prospective mentor will be the perfect match. Our final speaker will discuss the best exit strategies to employ when it is time to sever the mentee/mentor relationship. This will be discussed from both the perspective of the mentor in letting trainees move on to a different position, as well as the position of the trainee, whose needs may not be fulfilled by their current mentor. A panel discussion will take place following the last seminar. The goal of this symposium is to provide you with the tools to help make these important decisions of your career. Presentations include: **Selecting a Good Mentor and Lab for an Academic Postdoc** (Karen Sweazea, Arizona State University); **Selecting a Good Lab for a Postdoctoral or Research Experience in Industry** (Bryan Clay, Pfizer Inc.); **Selecting a Postdoc for Your Laboratory** (R. Clinton Webb, Medical College of Georgia at Augusta University); **How to Let Go and Make Go** (Marshall "Chip" Montrose, University of Cincinnati).

Monday,
April 24, 2017,

10:30 AM-12:30 PM

the-aps.org/teachingcareer

2017 Career Symposium: The Many Facets of a "Teaching Career"

(Sponsored by the Career Opportunities in Physiology Committee)

Organizers: Clintoria R. Williams, Josef Brandauer

Convention Center, Room W192C

This symposium is targeting scientists pursuing an academic career that includes teaching. Teaching has become a desired and required component of many academic careers. Teaching requirements and expectations vary significantly between institutions and even departments. In order for job candidates to reach an informed decision regarding the institution that is the best fit for their career goals, an understanding of these requirements and expectations is needed. The specific goals of this symposium are for participants to be able to 1) identify clues within job announcements that will provide hints about teaching expectations, 2) learn about teaching expectations at various institution types (regional, research intensive, liberal arts, and historically black colleges and universities), and 3) provide insight into strategies for "successful teaching" from instructors at various career stages and institution types. Specific questions

that panelists will address include: How to determine whether a teaching career is the right choice? How to prepare for a teaching career at any level? How to find the right fit in regard to institution and department? How to balance teaching-research life? How to determine the value of teaching in the evaluation process for promotion? Presentations include: **How to Dissect a Job Announcement: Dirty Little Secrets** (Erica Wehrwein, Michigan State University); **Educating the Teacher-Scholar for Successful Teaching** (Carissa Krane, University of Dayton); **Teaching-Research Balance in the Changing Classroom** (Dexter Lee, Howard University); **Perspectives from a Liberal Arts College** (Lara DeRuisseau, LeMoyne College); **Educating the Educator in Medical School** (David Harris, University of Central Florida).

Wednesday,
April 26, 2017,

10:30 AM-12:30 PM

the-aps.org/kick-start-your-funding

2017 Trainee Symposium: Kick Start Your Funding: Looking Beyond NIH and NSF

(Sponsored by the Trainee Advisory Committee)

Organizers: Jennifer Steiner, Kristi Streeter

Convention Center, Room W192C

Funding for scientific research is becoming progressively harder to obtain, and competition continues to grow. Despite the increased challenge to gain federal funding (i.e., NIH), many universities and other institutions require their applicants to have funding when applying for faculty positions, regardless of their career stage. As such, an enormous amount of pressure is placed on trainees to obtain funding before looking for a position as an independent scientist. In addition, early career investigators who have already transitioned to independent positions also experience similar pressures and difficulties in obtaining funding. In recognition of the funding crisis as well as the increasingly competitive job market for trainees and early career investigators, the goal of this symposium is to provide information on funding sources outside of the NIH and NSF. We will have four speakers, with each representing less traditional funding mechanisms including 1) industry, 2) private foundations, 3) crowd-funding, and 4) military funding. Each speaker will identify how to find funding within their genre, provide information and tips for writing successful grant proposals, and compare and contrast their organization

with how other funding mechanisms (i.e., NIH) work. To provide such information, we have invited speakers who have successfully obtained funding (Dr. Leon, military) as well as representatives from companies or private foundations that either have grant programs or regularly fund product research. We will also have a representative to discuss fund-raising opportunities via crowd-funding websites. This symposium will be conducted in the typical format of 25-minute presentations followed by 5 minutes of questions, with additional interactions to be encouraged following all four speakers' presentations. The presentations are: **Seeking Funding Outside the Norm: Unique Opportunities Within Military Research Programs** (Lisa Leon, U.S. Army Research Institute of Environmental Medicine, Thermal Mountain Medicine Division); **Successfully Securing Funding and Collaborating with Industry** (Eugene Shek, Lilly China Research and Development Co., Ltd.); **Cancer Funding from a Private Foundation** (Charles Saxe, The American Cancer Society); **Crowd Funding Your Science** (Melissa Wilson Sayres, Arizona State University).

Experimental Biology 2017

April 22–26, 2017, Chicago, IL

PHYSIOLOGY PLATFORM SESSIONS

Saturday, April 22, 2017

Room			
W375A			5:30 PM–6:30 PM <i>APS Lecture</i> Physiology in Perspective: The Walter B. Cannon Memorial Award Lecture Welsh
W190A	8:00 AM–12:00 PM <i>Education Committee Refresher Course</i> Curricular Innovation in Sex and Gender Based Medical Physiology Education Scrogin/Sasser	2:15 PM–5:15 PM <i>WEH Section Award Session</i> WEH Trainee Award Finalists and Data Diuresis	
W196B	9:30 AM–11:30 AM <i>MCS Symp</i> President's Symp: (Not) Lost in Translation: Bridging the Gaps Between Microcirculatory Basic Science and Clinical Science Chillian	1:00 PM–3:00 PM <i>MCS Symp</i> Depression and its Effects on Microvascular Function and Vascular Adaptation Chantler/Olfert	6:00 PM–8:00 PM MCS Poster Discussion and Reception Jackson
W196C	9:00 AM–5:00 PM <i>ETG Group Special Session</i> Pre-EB Meeting of the ETG Group Young Investigators Symp		
W196A		1:00 PM–3:00 PM <i>Techniques Workshop Program Workshop</i> Choosing the Right Diet for Your Animal Model Lund/Ney	
W190B			3:15 PM–5:15 PM <i>Techniques Workshop Program Workshop</i> Using Ultrasound to Teach Cardiovascular Physiology and Anatomy Silverthorn/Guttmann
W192B	1:00 PM–3:00 PM <i>AFMR Symp</i> Small GTPases: Basic Science to Translational Research Zhao/Birukova	3:15 PM–5:15 PM <i>AFMR Symp</i> New Insights into Insulin Resistance- Molecular Mechanisms and Therapeutic Implications Prabhakar/Hawkins	3:30 PM–5:30 PM <i>Microcirculatory Society (MCS) Symp</i> Investigating Microvascular Physiology and Pathophysiology Using Novel Techniques Stokes/Gavins
W193			3:00 PM–5:00 PM <i>NCAR Section Award Session</i> DATA NCARnation

Saturday, April 22, 2017, cont.

Room			
W194B		1:00 PM–5:15 PM <i>Physiological Genomics Group Special Session</i> Fourth Annual Physiological Genomics Group Conference	
W192C		1:00 PM–3:00 PM <i>Science Policy Committee Symp</i> Why Scientific Rigor Matters and Ways to Improve It Sutliff	
W192A			3:00 PM–5:00 PM <i>Communications Committee Symp</i> New Models of Science Communication: Increasing Reproducibility and Transparency Crecelius/Serrador

Sunday, April 23, 2017

Room	8:00-10:00 AM	10:30 AM-12:30 PM	3:15-5:15 PM
W375A	<i>ACSM Symp</i> A Roadmap for the Future of Exercise Science: Key Research Directions Bouchard	<i>President's Symp Series</i> Sex Differences in Physiology and Pathophysiology Prieto	<i>Integrative Physiol Symp Series</i> Hypoglycemia: Neural Pathways of the Glucose Counter-Regulatory Response, Hypoglycemia Unawareness and Its Treatment Verberne 5:45 PM–6:45 PM Henry Pickering Bowditch Award Lecture Isakson
W190A	<i>GIL Section Special Session</i> John Forte Session of the GIL Session	10:30 AM–11:30 AM Teaching Section Bernard Lecture Karpicke 2:00 PM–3:00 PM Cell Section Davson Lecture Lippincott-Schwartz	3:15 PM–4:15 PM <i>WEH Section Lecture</i> WEH New Investigator Award Lecture 4:15 PM–5:15 PM WEH Section Lecture WEH Section Starling Lecture Bie
W196B	<i>CV Section FT</i> Sex Differences in Obesity and Cardiovascular Disease Belin de Chantemele/Loria	<i>EEP Section Symp</i> Cerebral Function of Permanent Residents of High Altitude: Problems and Solutions West/Simonson	3:15 PM–4:15 PM MCS Landis Award Lecture 4:30 PM–5:30 PM MCS Business Meeting Chillian
W196C	<i>NCAR Section Symp</i> Cardiac Sensory Afferents: The Cornerstone for Autonomic Reflex Processing in Health and Disease Shivkumar/Wang	NCAR Section Young Investigator Awards Young/Sabharwal	<i>CV Section FT</i> Immune Cells Involved in Cardiovascular Disease Mitchell/Madhur

Sunday, April 23, 2017, cont.

W196A	Nutrition Group Symp From Cancer-Causing Villain to Health-Promoting Hero: Taking a U-turn on Dietary Nitrite and Nitrate? Keen/Hast	Resp Section Symp Ventilatory Control and Function Following Perinatal Insults Bailey/Revill	Resp Section FT Epigenetic Regulation of Lung Development, Injury, and Repair Rogers/Tipple
W190B	EEP Section Symp SIRT1 in Muscle Health and Disease Ljubicic	CV Section FT Vascular-Mediated Mechanisms of Cognition and the Role of Exercise Baynard	E&M Section Symp Stressing the Beta Cell: The Good and The Bad Corbett
W192B	CV Section Symp Mathematical Modeling of Cardiac Excitability and Arrhythmias Hund/Ripplinger	Physiol in Industry Committee Symp Nitric Oxide Pathway Modulation for Therapeutic Intervention and Exercise Enhancement Mattson	NCAR Section FT Ion Channel Modulation: Contributions to Autonomic Dysfunction in Cardiovascular and Metabolic Diseases Chen/Toney
W193	Teaching Section Symp Inclusive Practices for Diverse Student Populations Johnson	Muscle Biology Group Symp The Role of Ribosome Biogenesis in Skeletal Muscle Hypertrophy McCarthy	ETG Group Symp MicroRNAs in Kidney and Epithelial Transport Physiology, Development and Disease Loffing/Cai
W194B	Renal Section FT Renal Section Young Investigator Award FT Pochynyuk	Renal Section Symp Mining Protein-Protein Interactions to Study Renal Transporter Regulation Chen/Brown	PG Group Symp Single Cell Analysis and Genomic Approaches Coller
W192C	WEH Section FT Stress and Physiological Responses Throughout Life Pollock/Taylor	PG Group Award Session Trainee Highlights in Physiological Genomics	Cell Section FT Cellular Mechanisms of Stress and Inflammation Bomberger/White
W192A	TransPhys Group FT Translation Physiology Showcase: Focus on Sex differences in Obesity and Blood Pressure, Developmental Programming, and Women's Health	Women in Physiol Committee Symp Choosing the Right Lab and Personnel for Your Career Edelblum/Wynne	CEPS Section Trainee-Driven FT

Monday, April 24, 2016

Room	8:00-10:00 AM	10:30 AM-12:30 PM	3:15-5:15 PM
W375A		President's Symp Series Women's Health Research Brooks	Integrative Physiol Symp Series Engineering for Health: Integrating Engineering and Physiology to Combat Disease Yosten
W190A	8:00 AM-9:00 AM NCAR Section Ludwig Lecture McAllen 9:00 AM-10:00 AM NCAR Section Ludwig MiniSymp	E&M Section Berson Lecture Langhans	2:00 PM-3:00 PM EEP Section Adolph Lecture Kenney 3:15 PM-4:15 PM Renal Section Gottschalk Lecture Welling

Monday, April 24, 2017, cont.

Room	8:00-10:00 AM	10:30 AM-12:30 PM	3:15-5:15 PM
W196B	<i>CV Section Symp</i> Vascular Autophagy and Endothelial Cell Nitric Oxide Generation Symons/Guterman	<i>CV Section Symp</i> Adipose Tissue and the Cardiovascular System: Interactions with Sleep and Cardiometabolic Risk Factors Covassin/Gollasch	3:15 PM–4:15 PM CNS Section Erlanger Lecture Lichtman 4:15 PM–5:15 PM CNS Section Erlanger MiniSymp
W196C	<i>WEH Section FT</i> Hypertension and Sodium Homeostasis-Developing Concepts Sandberg/Gohar	<i>WEH Section FT</i> Neural and Hormonal Modulation of Fluid Balance and Ion Homeostasis in Health and Disease Gao/Schiller	<i>Teaching Section Symp</i> Examining the Changing Landscape of Course Delivery and Student Learning Halpin/Gopalan
W196A	<i>E&M Section FT</i> Brown Fat versus Skeletal Muscle as Metabolic Targets: Activation of Thermogenesis or Glucose Oxidation Symonds	<i>Resp Section FT</i> Respiratory Control: Beyond the Diaphragm Fuller/Turner	<i>Resp Section Symp</i> The Emerging Role of Lipids in Lung Physiology and Disease Kuebler/Letsiou
W190B	<i>Hypoxia Group FT</i> Physiological Adaptation to Hypoxia and High Altitudes Iturriaga	<i>CV Section FT</i> Carl J. Wiggers Award FT Heusch/Meininger	<i>E&M Section Symp</i> Sleep, Circadian Clocks and Metabolism Van Cauter/Samson
W192B	<i>CV Section Symp</i> Ubiquitin and Ubiquitin-Like Proteins in Cardiovascular Physiology and Disease Weisleder/Wang	<i>CEP Section Symp</i> Consequences of Physiological Stressors on the Development and Function of the Cardiovascular System Gillis	<i>CV Section Symp</i> Emerging Concepts in the Local Regulation of Blood Flow Freed/Duncker
W193	<i>Teaching Section FT</i> Innovation in Teaching: Abstract Driven Osborne	<i>NCAR Section FT</i> Circumventricular Organs: A Blood-Brain Interface for Modulation of Cardiovascular and Immune Function and Fluid and Electrolyte Balance Yao	<i>WEH Section FT</i> New Animal Models and Their Utility for WEH Research Palygin/Pochynyuk
W194B	<i>GIL Section Symp</i> Posttranscriptional Regulation of Intestinal Homeostasis: Stem Cells to Cancer Hamilton/Chatterji	<i>GIL Section FT</i> Cytoskeletal Proteins in GI and Liver Diseases Snider/Toivola	<i>Cell Section Symp</i> Transport Proteins and Cellular Signaling in Choroid Plexus Epithelia Blazer-Yost/Praetorius
W192C	<i>Renal Section FT</i> Advances in Renal Physiology I Ortiz	<i>Careers Committee Symp</i> The Many Facets of a Teaching Career Williams/Brandauer	<i>PG Group FT</i> Novel Genetic Risk Factors and Early-Pregnancy Mechanisms Contributing to Preeclampsia Grobe/Young
W192A	<i>Pubs Committee Symp</i> Publishing 101: How to Get Your Work Published and Avoid Ethical Minefields Sigmund/Scherman	<i>ETG Group FT</i> Steve Hebert Lecture FT Moeller	<i>Hypoxia Group Symp</i> Intermittent Hypoxia: Molecular, Integrative, and Clinical Implications Svatikova/Schreihöfer

Tuesday, April 25, 2017

Room	8:00-10:00 AM	10:30 AM-12:30 PM	3:15-5:15 PM
W375A		<i>President's Symp Series</i> Developmental Programming of Diseases Alexander	<i>Integrative Physio Symp Series</i> Exercise Intolerance in Metabolic, Pulmonary and Cardiovascular Diseases: Did We Forget the Brain? Brassard/Bailey 5:45 PM-7:30 PM APS Business Meeting
W190A	<i>PG Group and ASHG Symp</i> Attaching Physiology to the Genome: Spotlight on Cardiovascular Genetics Lettre/Joe	10:30 AM-11:30 AM Resp Section Comroe Lecture Wagner	2:00 PM-3:00 PM CV Section Berne Lecture Levine 3:15 PM-4:15 PM GIL Section Davenport Lecture Wallace
W196B	<i>Resp Section Symp</i> Embracing the Heterogeneity of Lung Injury: A Bedside to Bench to Bedside Perspective Dudek/Shaver	<i>CV Section Symp</i> Mechanisms of Stiffening in Large and Small Vessels: From the Cytoskeleton to the Extracellular Matrix Martinez-Lemus	3:15 PM-4:15 PM CEP Section Krogh Lecture Supported by Novo Nordisk Foundation Burggren
W196C	<i>NCAR Section Symp</i> Brain Secrets Revealed by Optogenetics/Chemogenetics Approaches Rahmouni/De Kloet	<i>WEH Section Symp</i> Sodium Homeostasis in Metabolic Syndrome: Sorting out New and Old Players Ecelbarger/Tiwari	<i>Resp Section FT</i> Central Neuromodulation in the Control of Breathing Garcia/Mitchell
W196A	<i>CV Section FT</i> Novel Insights in Vascular Pathophysiology Isakson/Bagher	<i>CNS Section FT</i> New Insights Into the Role of Hypothalamic Peptides in the Control of Appetite and Energy Balance Blevins	<i>CNS Section Symp</i> Role of CNS Osmosensory Networks in the Regulation of Cardiovascular Function in Health and Disease Stern/Pires da Silva
W190B	<i>EEP Section Symp</i> Exercise Training versus Metformin for the Treatment of Cardiometabolic Diseases Schrage/Jenkins	<i>CV Section FT</i> Kaley Lecture FT: The Complications of Diabetes and the Role of Inflammation: Mechanisms and Therapeutic Opportunities Schmidt	<i>History Group Symp</i> Twenty Years of Physiological Genomics Mattson
W192B	<i>CEP Section Symp</i> Developmental Programming of Vertebrate Health and Disease by Hypoxia Galli	<i>EEP Section FT</i> Impact of Dairy Based Nutritional Interventions on Cardiometabolic Health Alexander/Miller	<i>E&M Section Symp</i> Central GLP-1 Receptors in the Regulation of Energy Homeostasis Langhans
W193	<i>CNS Section FT</i> Neuroglial Interactions in Health and Disease Gulbransen	<i>NCAR Section FT</i> Epigenetic Modifications and Autonomic Regulation Sriramula	<i>EEP Section FT</i> The Integrated Physiological Response to Heat Stress in Vulnerable Populations Sawka
W194B	<i>GIL Section FT</i> Autophagy: Driver of Microbiome Composition and Intestinal Homeostasis Theiss	<i>Cell Section FT</i> Mechanisms and Influences on Cell Signaling Worrell	<i>Cell Section Symp</i> Multi-omics to Study the Cellular Pathophysiology of Neurodegenerative Diseases Pimplikar/Tsai

Tuesday, April 25, 2017, cont.

Room	8:00-10:00 AM	10:30 AM-12:30 PM	3:15-5:15 PM
W192C	<i>Renal Section FT</i> Advances in Renal Physiology II Inscho	<i>Renal Section Symp</i> Regulation of Glomeruli Physiological Function: Podocytes and Beyond Ilatovskaya/Reiser	<i>Sex Group Symp</i> Sex Differences in Diabetes, Obesity and Blood Pressure Control Brooks
W192A	<i>Cell Section FT</i> Ion Channels and Transporters in Health and Disease Hamilton/Rodrigues	<i>Muscle Biology Group FT</i> The Hot Zone: Skeletal Muscle Changes Caused by Hyperthermia and Heat Stress Selsby	<i>ETG Group FT</i> Hans Ussing Lecture FT Klein
Location TBD		1:00 PM-3:00 PM 2014 Tang Prize in Biopharmaceutical Science Charpentier	1:00 PM-2:00 PM History of Physiology Group Lecture

Wednesday, April 26, 2017

Room	8:00-10:00 AM	10:30 AM-12:30 PM	2:30-4:30 PM
W375A	<i>Integrative Physiol Symp Series</i> The Impact of Exosomes on Muscle Atrophy, Hypertrophy and Myogenesis Wang/Mitch		4:45 PM-5:45 PM APS Nobel Prize Award Lecture Ignarro
W190A	<i>CV Section FT</i> Mitochondrial Physiology in Cardiovascular Disease Calvert/Elrod	<i>CV Section FT</i> Inflammation and Immunity and Heart Disease Halade/Thorp	<i>WEH Section Symp</i> Hydration and Vasopressin Beyond the Kidney Armstrong
W196B	<i>Physoc/APS Symp</i> The Modulation of Aging Through Altered Proteostasis Miller	<i>CV Section Symp</i> MiRNA Regulation of the Mitochondrion in Cardiovascular Disease Hollander/Thapa	<i>WEH Section Symp</i> Mechanisms of Hypertension Risk De Miguel/Abais-Battad
W196C	<i>Resp Section FT</i> Organelle Dysfunction in Pulmonary Vascular Disease: Mitochondria, Endoplasmic Reticulum, Lysosomes and Beyond Shimoda/Ryan	<i>EEP Section Symp</i> Blood Doping: Physiology, Pharmacology and Detection Challenges Bowers	<i>TransPhys Group Symp</i> Leptin Beyond Appetite Regulation Singh/Cohen
W196A	<i>Muscle Biology Group FT</i> Satellite Cells: External and Systemic Influences Brooks/Dupont-Versteegden	<i>Physoc Symp</i> Sexual Dimorphism, Plasticity and Genomic Diversity of the Paraventricular Nucleus Samson/Yosten	<i>TransPhys Group Symp</i> Vasodilation in Human Microvessels: From Bed to Bench and Back Kleinbongard/Ait-Aissa
W190B	<i>Resp Section Symp</i> Mechanisms Preserving Breathing Stability Watters/Braegelmann	<i>CEP Section FT</i> Comparative Perspectives on Hypoxia Signaling and Tolerance Scott	<i>EEP Section Symp</i> Patent Foramen Ovale: The Hole Story of Environmental and Exercise Physiology Halliwill/Lovering

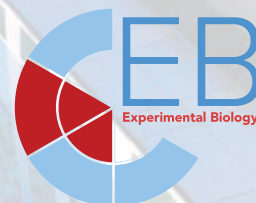
Wednesday, April 26, 2017, cont.

Room	8:00-10:00 AM	10:30 AM-12:30 PM	2:30-4:30 PM
W192B	<i>Cell Section Symp</i> Glial Cell Development, Migration, and Pathophysiology Gagnon/Sontheimer	<i>CV Section FT</i> Cardiovascular Control after Spinal Cord Injury Phillips/West	<i>E&M Section Symp</i> Fighting the Fat: Lifestyle Approaches to Protect Against Adipose Tissue and Liver Dysfunction Wright
W193	<i>CNS Section Symp</i> Non-motor Dysfunctions in Parkinson's Disease Travagli	<i>NCAR Section FT</i> Neural Control of the Heart: New Tools, New Mechanisms Chapleau	<i>EEP Symp</i> Novel Imaging Technologies in Reproductive Physiology Yamaleyeva/Lindsey
W194B	<i>GIL Section Symp</i> Environmental, Microenvironmental and Nanoenvironmental Factors Which Drive Liver Disease Pathogenesis and Progression Pritchard	<i>Renal Section Symp</i> New Insights into the Regulation of Renal Blood Flow in Health and Disease Polichnowski/Williams	<i>Cell Section Flex Session</i> Omics Approaches to Understanding Muscle Biology Burniston/Chen
W192C	<i>E&M Section FT</i> Central and Peripheral Mechanisms Regulating Body Weight and Glucose Homeostasis Zsombok	<i>Trainee Committee Symp</i> Kick Start Your Funding: Looking Beyond NIH and NSF Steiner/Streeter	Pan-American Symp TBD
W192A	<i>EEP Section FT</i> Exploiting Environmental Stressors to Improve Health and Performance Minson/Romero	<i>TransPhys Group Symp</i> Peptides and Metabolites in Cardiovascular Disease de Castro Brás/Halade	<i>ETG Group FT</i> New Insights into Renal Transport: Application of Genetic Models Rieg/Fenton

Join  at the **2017 Annual Meeting**
at Experimental Biology • April 22-26 • Chicago, IL

Learn why you should attend at <http://bit.ly/WhyAttendEB>

www.apsebmeeting.org



Education

2017 Bodil M. Schmidt-Nielsen Distinguished Mentor and Scientists Awardee



Kurt Albertine

The Women in Physiology Committee is pleased to announce that Kurt Albertine (University of Utah) is the 2017 Bodil M. Schmidt-Nielsen Distinguished Mentor and Scientist Award recipient. For more information, please visit www.the-aps.org/schmidt-nielsen. ●

2017 A. Clifford Barger Underrepresented Minority Mentorship Awardee



Caroline Appleyard

The Porter Physiology Development and Minority Affairs Committee is pleased to announce that Caroline Appleyard (Ponce Health Sciences University) is the inaugural A. Clifford Barger Underrepresented Minority Mentorship Award recipient. For more information, please visit www.the-aps.org/barger. ●

Inspire the Next Generation of Physiologists

Physiology Understanding Week (PhUn Week) is November 6-10, 2017



Start Planning your Event Now! Deadline: October 1st

- The theme for PhUn Week is Exercise & Health.
- APS provides resources to support and plan your event.
- APS Members and teachers partner NOW for preliminary planning as the school year begins!
- Online submission request form for PhUn Week Event planners is now open.



www.PhUnWeek.org



National Research Mentoring Network Professional Development Offerings



The National Research Mentoring Network (NRMN) aims to enhance the diversity of the NIH-funded research workforce. NRMN's program models emphasize the benefits and challenges of diversity, inclusivity, and culture within mentoring relationships, and more broadly the research workforce. To do so, NRMN offers evidence-based mentorship and professional development programming (Figure 1) such as MyNRMN.

MyNRMN is a powerful social networking platform for students and researchers across the biomedical, behavioral, social, and clinical sciences to connect with one another for anything from general questions about research and professional development as a scientist to scheduling more formal mentorship appointments one-on-one or as a group. Sign up today at goo.gl/bx6wXf.

NRMN offers several coaching groups for grant proposal writing. Options for those who will be working on a grant proposal *in the next year*:

1. NRMN Steps Towards Academic Research Fellowship Program (NRMN STAR)

- 35 in-person and online sessions over the course of a year
- Content begins with writing skills and grant proposal basics, such as developing a research question
- Open to postdoctoral fellows and junior faculty
- Grant Writing Experience Requirements: None to minimal grantwriting experience required
- Duration: 12 months

2. NRMN Grantwriting Uncovered: Maximizing Strategies, Help, Opportunities, Experiences (GUMSHOE)

- 3-day kick-off
- "Flipped classroom" approach where homework and lectures are done at home and the in-person meetings are highly interactive
- Coaching of trainees, group meetings, grant review
- Open to postdoctoral/residency trainees and Junior faculty
- Grant Writing Experience Requirements: None to minimal grant writing experience required
- Duration: 8 months

Options for those *currently* working on a grant proposal:

1. NRMN Grant Writers Coaching Group

- 2-day intensive workshop involving peer and coach reviews
- One-to-one coaching sessions
- Follow-up online weekly or bi-weekly group coaching sessions to support progress on the grant application
- **Option 1: F32, K- or R-series Focus**
- Open to postdoctoral fellows and junior faculty
- Grantwriting Experience Requirements: Those ready to write at program start; preparing new or resubmission of a NIH F32, K- or R-series
- Duration: 3-4 months
- **Option 2: R01-A1 (Resubmission) Focus**
- Who can apply? Junior faculty
- Grantwriting Experience Requirements: Those ready to write at program start; preparing a resubmission of an NIH R01.
- Duration: 3-4 months

2. NRMN Proposal Preparation Program (NRMN-P3)

- 2-day kickoff with didactic sessions and group review of trainees' specific aims and biosketches
- 7 online sessions for coach and peer review of trainees' proposals in progress
- 1-day wrap up that includes a practice study section of trainees' advanced drafts

- Who can apply? Postdoctoral fellows transitioning into a faculty position and Junior faculty
- Grantwriting Experience Requirements: Ready to write at program start; preparing new or resubmission of a NIH K-or R- series proposal
- Duration: 4 months

Visit www.NRMNet.net for details and to apply. Should you have any questions or concerns, please do not hesitate to contact info@nrmnet.net or contact the APS Education Office at education@the-aps.org. ●

NRMN Offerings by Career Stage (program statuses as of Sept. 1st, 2016)								
 NRMN		Undergraduate	Graduate	Postdoc	Junior Faculty	Senior Faculty	Non-faculty Researcher	Administrator
Matching/Linking	Guided Virtual Mentoring	★	★	★	★	★	★	★
	MyNRMN	★	★	★	★	★	★	★
	Near Peer Mentoring	★	★	★	★	★	★	★
	Virtual Collaboratory		★	★	★	★	★	
Training	Career Coaching		★	★				
	Facilitator Training				★	★	★	★
	Grantwriting Coaching Groups			★				
	Mentor Certifications				★	★	★	
	Research Mentee Training	★	★	★	★	★		
	Research Mentor Training	★	★	★	★	★	★	★
Referring	Shark Tank			★	★	★	★	
	Career Development Webinars	★	★	★	★	★	★	★
	NRMNet Portal	★	★	★	★	★	★	★
Promoting	Institutional Mentoring Academy Planning							★
	NRMN Ambassadors	★	★	★	★	★	★	★
		★ Program Available	★ Program Under Development					

Figure 1. NRMN Offerings by Career Stage as of 9/2016

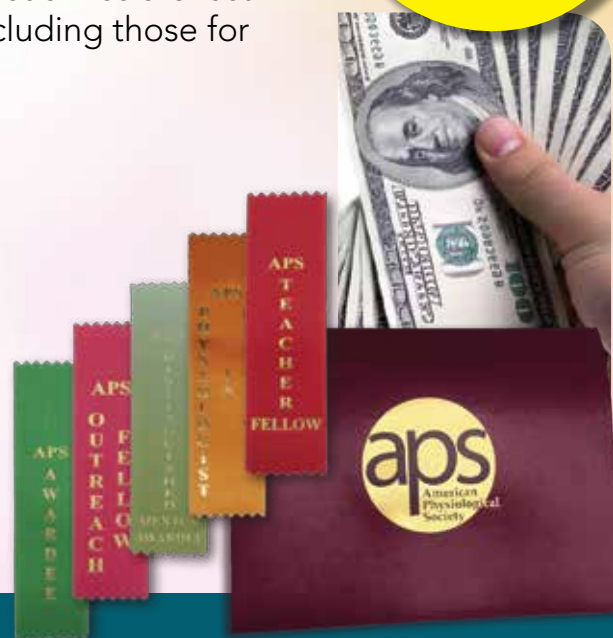
Awards, Grants, and Fellowships

As part of our mission to foster education, scientific research and dissemination of information in the physiological sciences, APS hands out more than 400 awards in the field of physiology each year totaling more than \$1.2 million. Deadlines are fast approaching for a number of our awards including those for our annual Experimental Biology Meeting.

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

For more information and to apply, please visit the-aps.org/awards

400+ awards
totaling
\$1.2 million!



APS Undergraduate Sessions at EB 2017

APS Undergraduate Orientation Session

All undergraduate students are invited to attend.

Saturday, April 22

3:30-5:30 PM

Hyatt Regency McCormick Place, Regency Ballroom CDE

Come and network with other undergraduate researchers; hear great suggestions on how to get the most out of EB; get hints to make presenting your poster easier; meet the APS President and Executive Director; and meet members from the Careers, Education, and Trainee Advisory Committees.

For more information, go to www.the-aps.org/ugorient or contact Allison Hood, Project Assistant, Diversity & Higher Education Programs (ahood@the-aps.org).



Undergraduate students get tips on presenting their posters and navigating through the EB meeting

APS Undergraduate Poster Session

Undergraduate students: Sign up to present your poster (Click the web link below to find the sign up sheet)

APS Members: Come see the Future of Physiology!

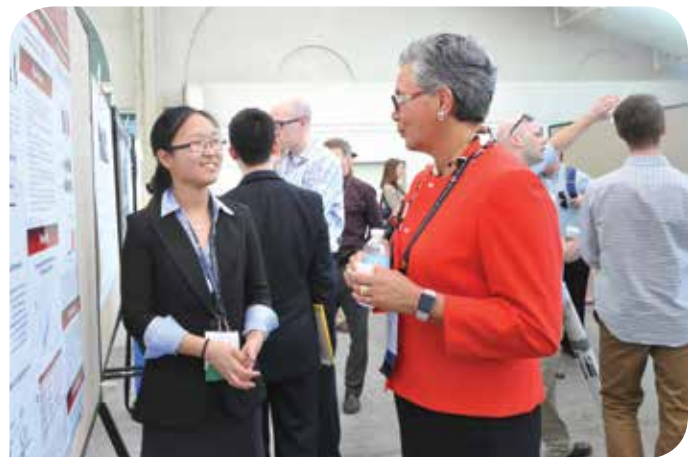
Sunday, April 23

4:00*-5:30 PM

McCormick Place

**Undergrad students should arrive at 3:30 PM to meet with graduate departments and programs*

Over 150 undergraduate students will be presenting their research on a wide range of topics. Don't miss this opportunity to support undergraduate students and encourage them to pursue a career in biomedical research. It's also a great time to look for your next graduate student!



Undergraduate students presenting their research findings to APS members

Meet the Barbara A. Horwitz and John M. Horowitz Outstanding Abstract Awardees and be among the first to discover which of those students wins the David S. Bruce Excellence in Undergraduate Research Award.

Watch the video submissions from the 2017 APS Physiology Video Contest: "Function Follows Form" and learn which among those were selected as the award winners.

For more information, go to www.the-aps.org/ugposter or contact Allison Hood, Project Assistant, Diversity & Higher Education Programs (ahood@the-aps.org).

APS Undergraduate Orientation and Poster Sessions

Graduate Program Recruitment Opportunity

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

Where you will 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.



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

Recruiters benefits:

- 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 (if you purchase table by March 1)
- Listing in special session program with contact information
- Access to list of undergraduate students from the session who are interested in graduate school

Cost: \$250 / table

To sign up, go to www.the-aps.org/ugposter or contact Allison Hood, Project Assistant, Diversity & Higher Education Programs (ahood@the-aps.org, 301-634-7233). ●



Deadline for voting for Viewer's Choice: April 22, 2017

Check out the entries for the 2017 APS Video Contest and vote for your favorite video! The video with the most "views" as of April 22 will win the Viewer's Choice Award (\$250).

For links to the 2017 Viewer's Choice videos, see the-aps.org/video (under Resources).

Membership

New Regular Members

*transferred from student membership

Baraa Al-Khazraji

Western Univ., London, ON, Canada

Samira Anderson

Univ. of Maryland, College Park, MD

Christopher John Arellano

Univ. of Houston, Houston, TX

Ninitha Asirvatham-Jeyaraj

UMN, Minneapolis, MN

Aleksandra Babicheva

Univ. of Arizona, Tucson, AZ

Priya Balasubramanian

Univ. of Madison-Madison,
Madison, WI

Thales Coelho Barbosa

Univ. of Texas-Arlington,
Arlington, TX

Bryan Becker

Univ. of Alabama at Birmingham,
Birmingham, AL

Thiago Bruder Do Nascimento

Augusta Univ., Augusta, GA

Cosme Franklim Buzzachera

North Univ. of Parana, Londrina,
Brazil

Chandrasekar Bysani

Univ. of Missouri-Columbia,
Columbia, MO

Zheqing P. Cai

CL Lab., LLC, Abingdon, MD

Damien Callahan

Univ. of Vermont, Burlington, VT

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LSUHSC-S, Shreveport, LA

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Australia

Robert Chapman

Indiana Univ., Bloomington, IN

Piyali Chatterjee

Baylor Scott and White Hlth./Texas
A&M Hlth. Sci. Ctr., Temple, TX

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Portland, OR

Carolyn Danna

Stevenson Univ., Owings Mills, MD

Soula Danopoulos

Children's Hospital Los Angeles,
Los Angeles, CA

Soumita Das

Univ. of California San Diego,
La Jolla, CA

John Henry Dasinger

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Wauwatosa, WI

Bhargav Dave

Srinivas Univ., Pearland, TX

Ana Paula Davel

Tufts Med. Ctr., Boston, MA

Arjun Deb

UCLA, Los Angeles, CA

Maria Del Nogal Avila

Rush Univ. Med. Ctr., Chicago, IL

Quin Denfeld

Oregon Hlth. & Sci. Univ.,
Portland, OR

Casey O Diekman

New Jersey Inst. of Tech.,
Columbus, OH

Bonnie Ditterline

Univ. of Louisville, Louisville, KY

Jada Domingue

Johns Hopkins Univ., Washington, DC

Lauren Grace Douma

Univ. of Florida, Gainesville, FL

Michael W. Duffel

Univ. of Iowa, Iowa City, IA

Jeremy W. Duncan

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Jackson, MS

Jeff G. Edwards

Brigham Young Univ., Provo, UT

Amy C. Engevik

Vanderbilt Univ., Cincinnati, OH

Maria Clara F. F. Do Amaral

Univ. of Dayton, Cincinnati, OH

Amanda J. Favreau-Lessard

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Scarborough, ME

Marion France

Brigham and Women's Hosp., Harvard
Med. Sch., Boston, MA

Bozena Fyk-Kolodziej

Wayne State Univ., Detroit, MI

Elfego Galvan

Univ. of Texas Med. Branch,
Dickinson, TX

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Madison, WI

Matthew William Gorr

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La Jolla, CA

Christoph Handschin

Univ. of Basel, Basel, Switzerland

Pamela Hankey-Giblin

Pennsylvania State Univ.,
University Park, PA

Susan Harkema

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Kimberly Erin Iceman

Valparaiso Univ., Valparaiso, IN

Maria Valentina Irazabal

Mayo Clinic, Rochester, MN

Matthew D. Johnson

Univ. of Minnesota, Minneapolis, MN

Michael G. Jonz

McMaster Univ., Hamilton,
ON, Canada

Hyun Jung Kim

UT Austin, BME, Austin, TX

Kunihiro Kishida

Kindai Univ., Wakayama, Japan

Jan K. Kitajewski

Univ. of Illinois at Chicago, Chicago, IL

Nicole Klee

Augusta Univ., Augusta, GA

Stella Kourembanas

Boston Children's Hosp., Boston, MA

Jessica Leigh Kutz

Shenandoah Univ., Winchester, VA

Di Lang

Univ. of Wisconsin-Madison,
Madison, WI

Yoskaly Lazo Fernandez

Emory Univ., Atlanta, GA

Amanda J. LeBlanc

Univ. of Louisville, Louisville, KY

Pei Ying Lee Tzu Chi

Univ. of Sci. and Tech.,
Hualien City, Taiwan

Hyun Soon Lee Hankook

Kidney and Diabetes Inst., Seoul,
Republic of Korea

Grace Sanghee Lee

Emory Univ., Atlanta, GA

Simon Charles Malpas

Univ. Auckland Sch. Med., Auckland,
New Zealand

Kurt Daniel Marshall

Univ. of Missouri, Columbia, MO

Cameron McCarthy

Augusta Univ., Augusta, GA

Julian Philip Meeks

UT Southwestern Med. Ctr., Dallas, TX

Paul E. Micevych

David Geffen Sch. of Med. at UCLA,
Los Angeles, CA

Mina Moussavi

Univ. of Central Missouri,
Warrensburg, MO

Anne E. Newell-Fugate

Texas A&M Univ., College Station, TX

Sean Roy Notley

Univ. of Wollongong, Wollongong,
NSW, Australia

Berenice Palacios-Gonzalez

INMEGEN, Mexico, Mexico

Young-Min Park

Univ. of Colorado Anschutz Med.
Campus, Aurora, CO

Song-Young Park

Boston Univ., Boston, MA

Paramita Pati

Univ. of Alabama at Birmingham,
Birmingham, AL

Sarah Pearce

Rutgers New Jersey Med. Sch.,
Newark, NJ

Julie S. Pendergast

Univ. of Kentucky, Lexington, KY

Christopher G. R. Perry

York Univ., Toronto, ON, Canada

Alexander Pfeifer

Univ. of Bonn, Bonn, Germany

Kent Ed Pinkerton

Univ. of California-Davis, Davis, CA

Damon Poburko

Simon Fraser Univ., Burnaby,
BC, Canada

Dennis Pollow

Univ. of California San Diego, San
Diego, CA

Yuh Fen Pung

The Univ. of Nottingham Semenyih,
Selangor, Malaysia

Glen Glen Pyle

Univ. of Guelph, Guelph, ON, Canada

Russell Ray

Baylor Coll. of Med., Houston, TX

John J. Reho

Univ. of Iowa, Iowa City, IA

Russell George Rogers

Cedars-Sinai Heart Inst.,
Los Angeles, CA

Victoria Rontoyanni

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Galveston, TX

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Memphis, TN

Irawan Satriotomo

Univ. of Florida Gainesville FL

Gary F. Scott

UNTHSC, Fort Worth, TX

Ravindra Kumar Sharma
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Vanderbilt Univ. Med. Ctr.,
Nashville, TN

Dean Sheppard
Univ. of California San Francisco, San
Francisco, CA

Jacob Siedlik
Creighton Univ., Omaha, NE

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All India Inst. of Med. Sci. Jodhpur,
Jodhpur, India

Yafeng Song
Muscle Institution, Philadelphia, PA

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Caroline Staunton
Univ. of Liverpool, Liverpool,
United Kingdom

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Doris A. Stoffers
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Philadelphia, PA

Christian Stricker
The Australian National Univ.,
Canberra, ACT, Australia

Chengwen Sun
North Dakota State Univ., Fargo, ND

Arash Tadjalli
Univ. of Florida, Gainesville, FL

Yuki Tamura
York Univ., Tokyo, Japan

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Univ. of Leeds, Leeds, United Kingdom

Ian Michael Thornell
Howard Hughes Med. Inst./Univ. of
Iowa, Iowa City, IA

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Birmingham, AL

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McMaster Univ., Hamilton, ON,
Canada

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John B. Pierce Lab., New Haven, CT

Daniela Valdez-Jasso
Univ. of Illinois at Chicago, Chicago, IL

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Kharkiv National Med. Univ.,
Kharkiv, Ukraine

Stefania Vetrano
Humanitas Univ., Rozzano, Italy

Matthew Paul Walker
Spyryx BioSciences, Durham, NC

Wolfgang A. Wall
Technical Univ. of Munich, Garching,
Germany

Umesh D. Wankhade
Univ. of Arkansas Med. Sci.,
Little Rock, AR

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Texas A&M Univ., College Station, TX

Sandra Wilson
Biolin Scientific-Sophion,
Ballerup, Denmark

James A. Windelborn
Washington Coll., Chestertown, MD

LiLian Yuan
Des Moines Univ., Des Moines, IA

Yufeng Zhang
Auburn Univ., Auburn, AL

Yuxia Zhang
Univ. of Kansas Med. Ctr.,
Kansas City, KS

Huiping Zhou
Virginia Commonwealth Univ.,
Richmond, VA

Erin K. Zinkhan
Univ. of Utah, Salt Lake City, UT

New Graduate Student Members

Chelsea Dakota Adams
Louisiana State Univ., Baton Rouge, LA

Sang Joon Ahn
Univ. of Illinois at Chicago, Chicago, IL

Stephanie Marie Alemar
Univ. of Puerto Rico Recinto de
Ciencias Medicas, Carolina,
Puerto Rico

Aisha Alfituri
Univ. of Liverpool, Liverpool, United
Kingdom

Dustin Ryan Allen
Southern Methodist Univ., Dallas, TX

Norah Alruwaili
New York Med. Coll., Valhalla, NY

Chinwendu Amazu
Washington Univ. Sch. of Med. in St.
Louis, Saint Louis, MO

Kasper Bostlund Assersen
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Odense, Denmark

Jason Au McMaster
Univ. of Hamilton, Hamilton, ON,
Canada

Matthew Babcock
Univ. of Delaware, Newark, DE

Christopher Balestrini
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April Barnard
Indiana Univ. Sch. of Med.,
Indianapolis, IN

Adelaeda Barrera
Univ. of New Mexico-Hlth. Sci. Ctr.,
Albuquerque, NM

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Arlington, TX

Megan Beggs

Univ. of Alberta, Edmonton,
AB, Canada

Maria Bompolaki

Rosalind Franklin Univ.,
North Chicago, IL

Luca Bordini

Aarhus Univ., Aarhus, Denmark

Cecilia Bove

Penn State Hershey Med. Ctr.,
Hershey, PA

Matthew J. Breit

West Virginia Univ., Morgantown, WV

Sergio G. Cananzi

LSUHSC-S, Shreveport, LA

Elizabeth Cantrell

East Central Coll., Saint Clair, MO

Jae Min Cho

Univ. of Utah, Salt Lake City, UT

Courtney Elizabeth Clyburn

Penn State Milton S. Hershey Med. Ctr.,
Hershey, PA

Trenton D. Colburn

Kansas State Univ., Manhattan, KS

Justin Conner

Univ. of North Texas, Denton, TX

Logan Curtis-Whitchurch

Univ. of Louisville, Louisville, KY

Florencia Dadam

INIMEC-CONICET-Univ. Nacional de
Córdoba, Córdoba, Argentina

Nasibeh Daneshvar

Univ. of Manitoba, Winnipeg,
MB, Canada

Arik Davidyan

Univ. of California Davis, Davis, CA

Robert Marie Dearth

Univ. of Texas Rio Grande Valley,
McAllen, TX

Edward Alexander Dent

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

Hashti Dissanayake

Univ. of Sydney, Sydney, NSW,
Australia

Connor John Doherty

Univ. of Guelph, Guelph, ON, Canada

Hunter Douglas

Vanderbilt Univ. Med. Ctr.,
Nashville, TN

Dalton Louis Ebel

A.T. Still Univ., Kirksville, MO

Lubayna Elahi

San Jose State Univ., Santa Clara, CA

Sarah Erickson

Univ. of Calgary, Calgary, AB, Canada

Megan Eshbach

Univ. of Pittsburgh, Pittsburgh, PA

Alissa Frame

Boston Univ. Sch. of Med., Boston, MA

Christian Kyle

Garcia Univ. of Florida, Gainesville, FL

Tyler B. Garner

Penn State Univ., State College, PA

Crystal Malek Ghantous

American Univ. of Beirut,
Beirut, Lebanon

Jenna Gollihue

Univ. of Kentucky, Lexington, KY

Garett Griffith

Univ. of Illinois at Chicago, Chicago, IL

Ann-Katrin Grotle

Univ. of Texas at Austin, Austin, TX

Jess A. Gwin

Purdue Univ., West Lafayette, IN

Chris Haddock

Saint Louis Univ. Sch. of Med., Saint
Louis, MO

Dongwoo Hahn

Univ. of Florida, Gainesville, FL

Christopher Hinojo

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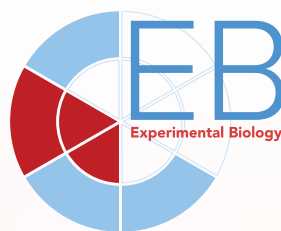
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—Lisa Harrison-Bernard

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Publications

APS Journals to Move to New Hosting Platform



The APS family of journals will be moving to the Atypon Literatum platform (<https://www.atypon.com>) for the hosting of journal content. The journals will launch on the new platform at the beginning of 2018. There will be much activity behind the scenes in 2017 as the migration of content takes place throughout the year. APS journals – with over 160,000 articles dating back to 1898 – have been hosted by HighWire Press for over 20 years.

Atypon's Literatum platform will enable APS to manage the publishing process with a high level of flexibility and accuracy. It will offer our authors, readers, and library patrons state-of-the-art features and functionality such as:

- a redesigned and upgraded user experience
- responsive design (optimized for any screen size)
- easy login as an APS member, if desired
- streaming audio/video embedded in the article
- enhanced and openly viewable article-level usage statistics
- ease of upgrade for future additional features
- many other features designed to streamline the author and reader experience.

To be sure that the new journal websites reflect editor, author, and reader preferences, APS has sent a survey to more than 1,500 researchers and editorial board members. We will incorporate this feedback into the design and functionality of the platform.

The decision to develop a new collaboration with a content host is one that has not been made lightly; it is a process in which the APS has been engaged cross-departmentally for the better part of 2016. The decision process included a rigorous Request for Proposal sent to four high-quality vendors, whose platforms and associated services were well matched to the needs of APS publications. Atypon is the platform of choice of many science and medical journals, including *New England Journal of Medicine*, *The Lancet* (Elsevier), as well as the publications of the American Chemical Society, Endocrine Society, and American Public Health Association. (For a full list, see <https://www.atypon.com/clients/featured-clients>.) The APS press release can be read at <http://www.the-aps.org/mm/hp/Audiences/Public-Press/2017/6.html>.

We will keep the APS membership posted on our progress with the migration of our journal content and share the milestones along the way. ●



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Current Calls for Papers

Physiological Genomics

- Genetics of Metabolic Syndrome
- Single Cell Analysis
Submission deadline:
May 31, 2017

Journal of Neurophysiology

- Working Memory: Neural Mechanisms
Submission deadline:
December 31, 2017
- 50 Years of Microneurography: Insights into Neural Mechanisms in Humans
Submissions deadline:
December 31, 2017
- Control of Coordinated Movements
Submission deadline:
December 31, 2017
- Where Are You Going? The Neurobiology of Navigation.
Submission deadline:
June 30, 2017
- The Mouse Visual System
Submission deadline:
July 1, 2017
- Central Pattern Generators
Submission deadline:
July 1, 2017

Advances in Physiology Education

- Historical Perspectives and Living Histories

American Journal of Physiology – Cell Physiology

- Cell and Molecular Physiology of the Blood-Brain Barrier and Choroid Plexus
Submission deadline:
June 30, 2017
- Cellular Pathophysiology of Neurodegenerative Diseases
Submission deadline:
June 30, 2017
- Gasotransmitters
Submission deadline:
June 30, 2017
- Molecular Pathways in Cell Signaling
Submission deadline:
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- Single Cell Physiology
Submission deadline:
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- Stem Cell Niche and Differentiation
Submission deadline:
June 30, 2017

American Journal of Physiology – Endocrinology and Metabolism

- Role of Gut Microbiota and Gut-Brain and Gut-Liver Axes in Physiological Regulation of Inflammation, Energy Balance, and Metabolism
Submission deadline:
September 30, 2017
- Role of Fetal Programming and Epigenetic Regulation on the Development of Endocrine and Metabolic Alterations
Submission deadline:
September 30, 2017

- Browning and Beiging of Adipose Tissue, Its Role in the Regulation of Energy Homeostasis and as a Potential Target for Alleviating Metabolic Diseases
Submission deadline:
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- Mechanisms of Effects on Sleep Disruption on Adipocyte/Obesity Metabolism and Their Relation to Other Metabolic Disease
Submission deadline:
September 30, 2017
- Metabolism and Signaling Functions of Amino Acids in the Regulation of Cell/Tissue Function in Health and Disease
Submission deadline:
September 30, 2017
- Role of Adipose Tissue Nutrient/Vitamin Metabolism in Physiological and Altered Metabolic Settings
Submission deadline:
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- Endocannabinoids and Cannabinoid Receptors as Regulators of Endocrine Functions and Tissue Metabolism
Submission deadline:
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- Role of Myokines and Adipokines and Other Cross-Talk Mechanisms of Regulation of Endocrine and Metabolic Functions
Submission deadline:
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- Mitochondria Dysfunction in Aging and Metabolic Diseases
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American Journal of Physiology – Gastrointestinal and Liver Physiology

- Gut-Brain Interactions and Brain Imaging
- Physiology of Gastrointestinal, Hepatic, and Pancreatic Cancer
- Metabolomics and Physiological Systems
- Systems Biology in Gastrointestinal Physiology and Diseases

American Journal of Physiology – Heart and Circulatory Physiology

- Mechanisms of Exercise-Induced Amelioration of Cardiovascular Disease
Submission deadline: July 1, 2017
- Mining Natural Products for Cardiovascular Benefits
Submission deadline: July 1, 2017
- Heart Failure – Novel Therapeutic Pathways Emerging from Basic Science
Submission deadline: February 15, 2017
- Advances in Cardiovascular Geroscience
Submission deadline: May 1, 2017

American Journal of Physiology – Lung Cellular and Molecular Physiology

- Electronic Cigarettes: Not All Good News?
Submission deadline: October 1, 2017
- Ion Channels and Transporters in Lung Function and Disease
- Age-Related Dysfunction in Lung Barrier Function in Health and Disease

American Journal of Physiology – Regulatory, Integrative and Comparative Physiology

- AJP-Regu New Investigator Review Award
Submission deadline: June 30, 2017
- G Protein-Coupled Receptor Signaling in Metabolic Disease
Submission deadline: December 31, 2017
- Hypertensive Disorders of Pregnancy: Effects on Mother and Baby
Submission deadline: December 1, 2016
- Exploiting Environmental Factors to Improve Health and Performance
Submission deadline: March 31, 2017
- Model Systems for the Study of Integrative Physiology: The Rebirth of Translational Biology
Submission deadline: May 1, 2017

- Oxygen Signaling
Submission deadline: December 31, 2017

American Journal of Physiology – Renal Physiology

- Imaging Techniques in Renal (Patho)physiology Research
Submission deadline: June 30, 2017
- Inflammation and Inflammatory Mediators in Kidney
Submission deadline: June 30, 2017
- Mechanism and Treatment of Renal Fibrosis and Treatment
Submission deadline: June 30, 2017
- Renal Hemodynamics
Submission deadline: June 30, 2017
- Gender and Hormones in Lower Urinary Tract Function
Submission deadline: June 30, 2017
- Transport Proteins as Regulators of Blood Pressure Homeostasis
Submission deadline: June 30, 2017
- Endothelin in Renal Physiology and Disease
Submission deadline: June 30, 2017

For a complete list of current Calls for Papers, visit the APS website.

Science Policy

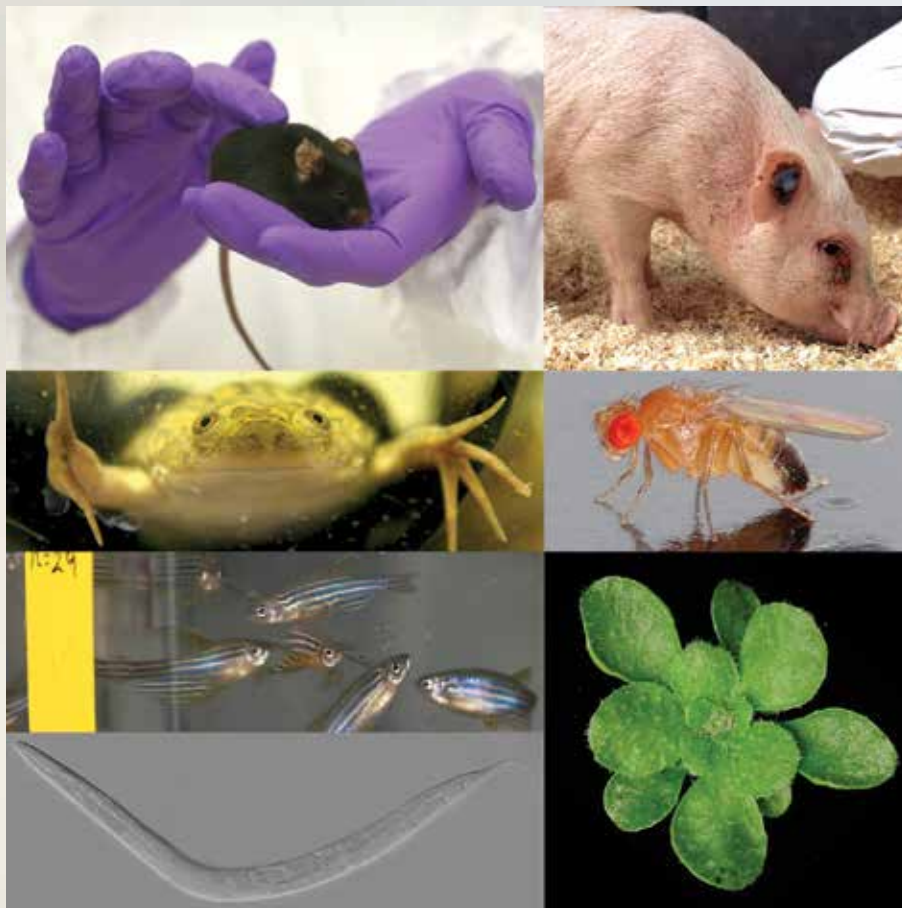
FASEB Launches Model Organism Database

The Federation of American Societies for Experimental Biology (FASEB) has created an online tool to help researchers find suppliers of organisms ranging from algae to mice, fruit flies, and maize.

FASEB's new Database of U.S. Providers of Research Organisms (www.FASEB.org/SearchCollectionsAndProviders) makes it possible to search for stock centers, living collections, and commercial providers. As of its launch in December 2016, the database contained more than 120 entries that included academic, nonprofit, government, and commercial sources. In addition to searches by type of organism, a feature that permits queries by genus and species was being beta tested.

"This project puts information that has generally been inaccessible at the fingertips of the entire research community," explains JR Haywood, an APS member who previously served as FASEB President and now is the Chair of FASEB's Shared Research Resources Subcommittee.

According to Haywood, "Collections are a critical component of research infrastructure, and we hope this database will increase awareness." ●



Spanish Military Brings Research Mice to Canary Islands

The Spanish military has stepped in to transport a shipment of 29 transgenic mice that had been stranded in Madrid for 2 months, reports *ScienceInsider* (<http://www.sciencemag.org/news/2016/11/spanish-military-flies-lab-animals-canary-islands-after-airlines-refuse-take-them-board>). The mice, originally from Charles River Laboratories, were on their way to the University of La Laguna in the Canary Islands when a blanket refusal by two major airlines to transport research animals left them stuck on the mainland.

Animal rights groups have been pressuring commercial airlines to stop transporting research animals with a primary focus on dogs and nonhuman primates. Currently, Air France is the only major airline that still transports non-human primates for research.

Javier Castro Hernández, the postdoc who ordered the mice, raised the alarm about the threat these

transport bans pose. Canary Island researchers told *ScienceInsider* that as many as 30 projects on the island could be affected. Lack of access to transgenic mice would mean that these researchers are “competing at a disadvantage” with those elsewhere, Castro Hernández told *ScienceInsider*.

The military flight for the mice, which was negotiated between the University La Laguna and the Spanish military, does not constitute a permanent solution. The university and Spanish civil aviation authority are therefore conducting talks with several commercial carriers.

In 2014, the American Physiological Society issued a policy statement affirming the importance of air transport of research animals. It is posted at <http://www.the-aps.org/AnimalTransport>. ●



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Congress Passes Flurry of Last-Minute Legislation

In the final days of the 114th Congress, lawmakers passed three bills that will have an impact on the scientific community: a continuing resolution to provide funding for federal programs through April and authorizing legislation for both the National Institutes of Health (NIH) and the National Science Foundation (NSF). Details are provided below.

FY 2017 Funding

After the November elections, Congress faced a December 9th deadline to finalize spending bills for fiscal year (FY) 2017. However, in response to a request from the incoming Trump administration, Congress extended the continuing resolution (CR) until April 28, 2017 rather than passing these bills. The CR keeps most programs at their current FY 2016 funding levels. One of the few exceptions is the NIH, which will get some additional funds in accordance with the 21st Century Cures Act, described below.

NIH Reauthorization

Members of Congress had been working on a bill to reauthorize both the NIH and the Food and Drug Administration (FDA) for more than 2 years. The result was the 21st Century Cures Act (H.R. 34), a bill that establishes new policy priorities and provides an infusion of funding for a few specific programs at the NIH. These increases are part of a new Innovation Fund that will provide NIH a total of \$4.79 billion over the next 10 years to support the Precision Medicine Initiative, the BRAIN Initiative, and the

Cancer Moonshot, starting with \$352 million in FY 2017. The legislation recommends annual increases for the NIH budget as a whole for the 3-year period of authorization, which would bring the budget to \$36.5 billion in FY 2020. These budget increases are recommendations that must be implemented through the annual appropriations process. The NIH was funded at \$32.3 billion in FY 2016. The Cures Act also:

- Establishes the “Next Generation Researchers Initiative” to advance the careers of new researchers
- Requires the NIH Director to develop an agency-wide strategic plan
- Outlines several measures aimed at reducing regulatory and administrative burden
- Expands the authorized use of “Other Transactions Authority,” thereby allowing greater use of transactions other than contracts, grants, or cooperative agreements.

NSF Reauthorization

The American Innovation and Competitiveness Act or AICA (S. 3084) was one of the last bills approved by the 114th Congress. The AICA reauthorizes NSF programs and voices support for NSF’s merit review criteria. It also includes provisions to reduce regulatory and administrative burden, and provides permanent authority for the Experimental Program to Stimulate Cooperative Research (EPSCoR) program. However, unlike a typical reauthorization, the bill is silent on what future NSF funding levels should be. ●

Book Reviews

Lucky Choices: The Story of My Life in Sciences

Jens Christian Skou

Copenhagen, Denmark: UPress, 2016, 255 p., kr.299.95 (hardback), \$31.99 (kindle)

ISBN: 9788793060357

There exists a passion for comprehension. . . . Without this passion there would be never be mathematics or natural sciences.

– Albert Einstein

This book is a delightful read. During the last 80 years or so, physiologists and biophysicists have led the way in providing an understanding of how biomembranes function and how central to all of the major activities and life of the cell are the proteins embedded in the membrane that surrounds them. The cells of higher eukaryotes depend on the maintenance of large gradients of Na and K ions across their plasma membrane for volume control, for the regulation of other cation concentrations, and at higher levels of organization for maintaining excitability, for nutrient uptake in the intestine, and for fluid and electrolyte homeostasis by the kidneys. All of these physiological functions center around the actions and properties of the Na-K-ATPase or sodium pump. This volume is the memoir of Jens Christian Skou, who is credited with first identifying this protein in cell membranes and associating it with its central importance in the active transport of the most abundant monovalent cations, Na and K. This discovery, marked by the award in 1997 of one-half of the Nobel Prize in Chemistry to Skou, provides just one of the points of interest to readers. The book describes Skou's personal life, from his birth in 1918, his development from an enquiring and curious medical student and then physician interested in anesthesia, to becoming a Nobel laureate and the founder of a field. The voice we hear throughout the memoir is a modest and humane individual, pleased but somewhat bemused by his fame and recognition. It is completely understandable that Skou is not only held in great respect by his younger Danish colleagues but also in great affection.

The story that this volume contains is in many ways the story of our growing understanding of

cellular membranes, and more specifically how cells maintain their critically important low intracellular Na concentration (and high K) in the face of the opposite situation in the extracellular milieu. Skou does an excellent job of laying out the history of the development of our current state of knowledge, and along the way describes the cast of scientists who played major roles in its development as well as his interactions with them. Skou's identification of an ATPase activity in crab nerve membranes that was activated by the *simultaneous* presence of Na and K ions, and its inhibition by ouabain, previously shown by Schatzmann to inhibit Na and K fluxes in red blood cells, provided the key connection between ion transport and enzymatic activity. These experiments were the outcome of a very important summer spent in Woods Hole, MA, studying acetylcholine-esterase from squid giant axons, meeting established scientists, and reading. An overlooked piece of work on membrane ATPases came to Skou's attention, and, subsequently, the lack of giant squids and abundance of crabs in Aarhus led to the critical experiments. Such serendipity is at the heart of every good story! This generated an entirely new field of investigation, namely how a membrane protein couples the hydrolysis of ATP to the work of transporting ions against their electrochemical potential gradients. The basic principles, worked out by many investigators over subsequent years, apply equally to the transport of Na and K, Ca, protons, and K, as well as Cu and probably other metals. This family of active transport proteins, the P-type ATPases, has since become a major topic of study for physiologists and the subject of many conferences, research programs, and theses. The Na pump, first characterized by Skou in 1957, can now be studied at atomic resolution in structures first solved in Aarhus, Denmark and Tokyo, Japan.

Skou's scientific growth was greatly influenced by many international friends and colleagues, and indeed competitors, whose contributions are generously acknowledged. It seems as if almost everyone who is a familiar name in the field of ion transport puts in an appearance in these pages. Skou's comment about his emotions on hearing of the Nobel Award are interesting and worth quoting: "Though I had opened

up a new field of research, I did not subsequently make any decisive contribution to the further understanding of that field, and therefore doubted that I deserved the prize even when awarded it." He doesn't stop there and in, I am sure what will be to the satisfaction of many scientists who know this field well, singled out Ian Glynn (whose rigorous dissection of the many modes of ion transport mediated by the Na pump provided a basis for coupling transport to enzyme activity) and Robin Post (whose cleverly designed experiments and beautiful logic placed the central roles of phosphorylated intermediates and occluded cations at the center of our pictures of pump action) for their contributions, having provided the most important information for the understanding of the pump mechanism. In fact he says, "I would have liked to have shared the Nobel Prize with them."

Skou's memoir is not limited to the, albeit fascinating, scientific arena. Embedded in the intellectual activities are the many other dimensions that have made the man. The important role that his wife, Ellen-Margrethe, and their daughters have played in his life are described, as is the delight experienced at meeting like-minded scientists, intent on finding out the truth of things, during his foreign travels. Although not

explicitly stated, but clearly evident, are his pride and pleasure in describing the significant contributions the next generation of young (and by now, not so young) Danish physiologists and biophysicists have made to the field of ATPases. Added to this is his wise counsel at the University of Aarhus, which he has seen grow and thrive during the times he describes as his "University responsibilities." The memoir starts with a preamble that was originally delivered to graduating medical students and appropriately closes with an epilogue (by Dr. Bente Vilsen) on recent findings of the involvement of Na-K-ATPase mutations in several neurological diseases.

Jens Christian Skou emerges as a humanitarian scientist and physician who has been a truly influential presence in physiology and biophysics. He has been driven by curiosity and the desire to do good. As someone who is familiar with this field and some of the scientists who have played a role in the story, I highly recommend Jen Christian Skou's *Lucky Choices* for experts, students, or anyone who loves science. ●

Jack H. Kaplan, PhD, FRS

Benjamin Goldberg Professor & Head

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 Dee Silverthorn, Ph.D. APS Books Chair, University of Texas at Austin

Positions Available

Assistant Professor: Skidmore College invites applications for a full-time, 2-year faculty replacement position in health and exercise sciences for the academic years 2017-2018 and 2018-2019. We are particularly interested in candidates from underrepresented backgrounds who can contribute to the diversity and excellence of our academic community and have experience teaching and mentoring a diverse student body. *Qualifications:* a PhD is preferred (ABD considered); prior teaching experience is desired. The successful candidate will be able to teach several courses from among the following: human nutrition, exercise testing and prescription, introduction to exercise science, exercise physiology, and introduction to public health. Collaborative research opportunities will be available and encouraged. Additional responsibilities may include advising senior thesis projects. The successful candidate will join an energetic and collegial department that is passionate about teaching and deeply engaged with research. For full consideration, please submit online your faculty profile, curriculum vitae, a brief description of teaching experience, and graduate transcripts. Additionally, the application system will prompt you to submit three e-mail addresses for letters of recommendation addressed to Dr. T. H. Reynolds, Chair, Health and Exercise Sciences. All referees will be e-mailed once you've completed the application process. Skidmore is a liberal arts institution of approximately 2,450 students, with 22% students of color and 259 full-time faculty members, located in upstate New York. Enthusiasm for teaching a diverse population of students is essential. Review of applications begins March 2017 and will continue until the position is filled. To learn more about and apply for this position please visit us online at: <https://careers.skidmore.edu/applicants/Central?quickFind=57618>. Skidmore College is committed to being an inclusive campus community and, as an equal-opportunity employer, does not discriminate in its hiring or employment practices on the basis of race, color, creed, religion, gender, age, national or ethnic origin, physical or mental disability, military or veteran status, marital status, sex, sexual orientation, gender identity or expression, genetic information, predisposition or carrier status, domestic violence victim status, familial status, dating violence, or stalking, or any other category protected by applicable federal, state or local laws. Employment at Skidmore College is con-

tingent upon an acceptable background check result. Creative thought matters.

Assistant Professor: California State University, Sacramento, is seeking an Assistant Professor (tenure track) within the Department of Kinesiology and Health Science who is prepared to teach undergraduate- and graduate-level courses in motor control and/or motor learning, participate in curriculum development in the Exercise Science concentration, advise undergraduate and graduate students, develop a successful research and scholarly record, participate in both internal and external professional service activities, and demonstrate collegiality in all aspects of faculty engagement. A doctorate in Motor Control, Neuromuscular Physiology, or related field is required; with ABD, candidates considered if doctoral degree will be completed by August 2017. Preference will be given to candidates with a record of effective university teaching, postdoctoral experience in a laboratory specializing in motor control and exercise, a record of peer-reviewed publications, and external grant activity in neuromuscular physiology of exercise and/or exercise effects on the central nervous system, with focus in human performance, disease prevention, rehabilitation, aging/learning, or memory, experience working with diverse student populations, ability to work with graduate students through thesis supervision, and knowledge of assessment/accreditation (ACSM) of exercise science programs. See websites <http://www.csus.edu/hr/jobs/index.html> or <http://csuca-reers.calstate.edu/> for further information. Please direct questions only to Dr. Rodney Imamura, Search Committee Chair, at (916) 278-7477; or e-mail rimamura@csus.edu. AA/EEO. Clery Act Statistics available. Mandated reporter requirements. Background check required (including criminal).

Assistant Professor: The Department of Physiology at Midwestern University-Glendale (http://www.midwestern.edu/programs_and_admission/az_osteopathic_medicine/physiology.html) invites applications for a tenure-track faculty position in physiology at the rank of Assistant Professor. The successful applicant will participate in a team-teaching approach to meet the needs of various healthcare graduate programs that exist on our campus. Experience teaching cardiovascular, endocrine, or renal physiology is highly desired. Candidates whose research areas

complement current research strengths are encouraged to apply. Start-up funds and laboratory space are available for the applicant to establish and maintain a successful research program. Individuals must have a PhD degree in physiology or a related field. Previous research experience at the postdoctoral level is required, and prior teaching experience is preferred. Preferential consideration will be given to applications received by February 1, 2017. *About the department:* The Physiology department is composed of seven full-time tenured or tenure-track faculty who share the common goal of providing a strong foundation in physiology education to the health science students at Midwestern University. The faculty have diverse research interests, which include genistein and intestinal function in diabetes and cystic fibrosis, diabetes and exercise training, molecular mechanisms of vocal learning in songbirds, caveolins and insulin signaling, neurophysiology and evolution of vocal control, water balance in desert arthropods, and the effects of oxygen on animal physiology and evolution. Faculty research is complemented by a staff of three research technicians. *About the university:* Midwestern University consists of campuses in Illinois and Arizona. Midwestern University's Glendale Campus is a 20-minute drive north of downtown Phoenix, where nearby you'll find everything from major league sports, fine arts, and fine dining to nature preserves, hiking, camping, and quiet spots where you'll enjoy taking a break to keep your life in balance. *How to apply:* Applicants should apply online at www.midwestern.edu. In the Quick Links section, select "Employment at MWU," then "Employment at MWU" again off to the right of the screen, then "click here" toward the center of the page. You may search for the job posting by specifying "Physiology" as the search term and "Arizona" for the location. Your online application should include a cover letter, curriculum vitae, statement of teaching philosophy (1-2 pages), and a statement of current and future research goals (1-2 pages). Please include the names and contact information of at least three professional references. Please submit your application materials as a single PDF file. For more information about this position, contact Michael Quinlan, PhD, at mquinl@midwestern.edu. Midwestern University is an Equal Opportunity/Affirmative Action employer that does not discriminate against an employee or applicant based on race, color, religion, gender, national

origin, disability, or veterans status, in accord with 41 C.F.R. 60-1.4(a), 250.5(a), 300.5(a), and 741.5(a). We maintain a drug-free workplace and perform pre-employment substance abuse testing.

Assistant Professor: The Department of Biology at the University of Colorado Colorado Springs invites applications for a tenure-track Assistant Professor to start in August of 2017. Applicants must have a PhD (postdoctoral research experience preferred), a strong commitment to teaching, and a fundable research agenda focusing on human subjects that can be integrated into a new Sports Medicine and Performance Center (planned to open in 2019). Teaching load (3-2) will be comprised of core lecture and lab classes within the biology and exercise science degree programs. Special consideration will be given to individuals who can bridge at least two areas of emphasis within the department, including anatomy, physiology, biomechanics, genetics, or cell/molecular biology. This emphasis must serve to increase the department's research capacity in exercise science-related fields. The department does not have animal facilities. The University enrolls ~12,000 students, with ~750 undergraduate Biology majors. The Biology Department is dedicated to outstanding teaching and research at the undergraduate and Master's levels (www.uccs.edu/~biology). Applicants must submit 1) cover letter, 2) curriculum vitae, 3) teaching philosophy, 4) research agenda, 5) three representative publications, 6) names and contact information of five professional references willing to provide a confidential letter of recommendation, and 7) unofficial transcripts for consideration. Additional information and online application are available at https://cu.taleo.net/careersection/2/jobdetail.ftl?job=07680&lang=en&sns_id=mailto#.WD9WT0X1yjo.mailto (job number 07680). Preference will be given to those who submit these materials by February 5, 2017. Specific questions may be directed to the search committee at biology@uccs.edu. UCCS is dedicated to ensuring a safe and secure environment for our faculty, staff, students, and visitors. To achieve this goal, we conduct background investigations for prospective employees. The University of Colorado Colorado Springs fosters equity in employment by promoting diversity and assuring inclusiveness.

Assistant Professor: The Kinesiology Department of St. Ambrose University seeks an energetic faculty member for a full-time, tenure-track position to teach within the Exercise Science and Human Performance and Fitness majors beginning August 2017. Qualified applicants will possess a Doctoral degree in Exercise Science or closely related field (ABD considered), the ability to contribute broadly within the Exercise Science and Human Performance and Fitness curriculum, an exceptional commitment to student learning, and strong communication and interpersonal skills. The ideal candidate will have expertise to teach classes in Exercise Physiology or Kinesiology and contribute to related areas. Responsibilities of this position include teaching, advising, and mentoring students, serving on department and university committees, and implementing a scholarship agenda involving undergraduate students. Opportunities also exist to teach within a developing Master's program in exercise physiology. St. Ambrose University is an independent, comprehensive, and Catholic diocesan university firmly grounded in the liberal arts. An institution of 3,200 graduate and undergraduate students, the University's Core Values include Catholicity, integrity, the liberal arts, life-long learning, and diversity. See www.sau.edu for further information. Review of applications will begin immediately and continue until the position is filled. Please apply online at https://www.sau.edu/human_resources/jobs and attach a cover letter, brief teaching statement/philosophy, curriculum vita, and contact information for 3-5 professional references. EOE.

Assistant/Associate/Full Professor: The West Virginia University Blanchette Rockefeller Neurosciences Institute (BRNI; <http://neuroscience.wvu.edu/>) in collaboration with the Departments of Chemical and Biomedical Engineering (2 positions), Mathematics, Physics and Astronomy, Physiology and Pharmacology, and Neurobiology and Anatomy, is recruiting six faculty in quantitative neuroscience. We will emphasize large-scale experimental and computational approaches to the missions of our research centers in sensory neuroscience, stroke, addiction, and cognitive neuroscience, and emerging focus areas of neural development and neurodegeneration. We are searching for faculty with expertise within the following areas: 1) non-invasive or invasive technologies,

including electrical, optical and other imaging techniques, to monitor and modulate neural activity and structural dynamics; large-scale recording approaches in animals or humans and neural encoding. 2) Theories of brain function, cellular and/or large-scale models of neural circuit structure and function. 3) Systems biology approaches to cell signaling in neurons and glia and/or developmental neurobiology, or large-scale studies of neural structure. A key mission of the BRNI is to develop novel techniques and technologies to increase understanding of CNS function, failure, treatment, and plasticity, and to pursue high-throughput study of brain mechanisms. We are pursuing a major initiative to understand and modulate human brain function. Appointees for Assistant Professor are expected to hold a PhD in the position's field of expertise (stated above) or a closely related field and/or MD degrees at the time of appointment, and develop a competitive, externally funded research program with both independent and collaborative research projects. Appointees at Associate and Full Professor are expected to have a well established, extramurally funded and collaborative research program of national and international reputation. Applications from teams of scientists will be considered. Appointees are expected to contribute to the teaching and service missions of their home department and the neuroscience program. Highly competitive start-up packages and salaries, and modern research space are available to ensure establishment and expansion of significant research programs. The WVU BRNI is comprised of highly collaborative faculty and is pursuing a major initiative, merging new technology development and neuroscience through team science. We encourage applicants with bold ideas, will offer sufficient resources and time to launch trendsetting programs, and will reward entrepreneurship. WVU supports excellent core facilities and was recently elevated to the highest Carnegie Classification (R1) of research universities. Morgantown is rated as one of the best small towns in the U.S., with affordable housing, excellent schools, a picturesque countryside, and many outdoor activities. Interested individuals should indicate which department(s) and expertise areas best fit their training, and should be qualified to mentor graduate students in those departments and from the neuroscience program. Submit complete curriculum vitae, a brief description of research interests, and the names and addresses (including e-mail)

of three references to <http://employmentservices.hr.wvu.edu/faculty-portal> and search *Keyword* 04312. Senior faculty may provide references upon request. Only electronic application submissions will be considered. Review of applications will begin immediately and continue until the positions are filled. For more information, please contact George Spirou, PhD, at gspirou@hsc.wvu.edu, or Erica Stewart, MBA, at elstewart@hsc.wvu.edu with questions. WVU is an EEO/Affirmative Action Employer-Minority/Female/Disability/Veteran. WVU Health Sciences Center is a tobacco-free campus. West Virginia University is the recipient of an NSF ADVANCE award for gender equity.

Postdoctoral Fellowship: A Postdoctoral Research Fellow position is available in the Department of Neurological Sciences at the University of Vermont Larner College of Medicine in the Cipolla Lab. The Cipolla Lab studies cerebral hemodynamics and vascular function during ischemic stroke with a focus on translational aspects, including reperfusion injury and collaterals. A variety of in vivo and in vitro experimental approaches are used to study brain blood flow, cerebrovascular reactivity, vascular remodeling, and how these impact stroke outcome. Qualified candidates will hold a PhD, MD/PhD, or equivalent in physiology, pharmacology, neuroscience, or a related field and be highly motivated for a career in science. This position is funded by the NIH, and a competitive salary will be offered. Prior experience in cerebral hemodynamics and/or animal models of stroke or cerebrovascular disease is desirable. Please send cover letter, CV, and list of 3 references with contact information by e-mail to Marilyn J. Cipolla, PhD (e-mail: Marilyn.Cipolla@uvm.edu). Women and minorities are encouraged to apply.

Postdoctoral Fellowship: Postdoctoral research fellowship available July 2017 on NIH-funded T32 training grant focused on providing multi-disciplinary multi-modality training in molecular and translational cardiovascular imaging for highly qualified fellows holding either a MD and/or PhD in preparation for academic careers as independent investigators in the highly clinically relevant field of cardiovascular imaging. Postdoctoral fellowship training will be 2-3 years in duration. There are three primary research focuses in the postdoctoral training: 1) cardiovascular

molecular imaging, 2) cardiovascular imaging technologies and analyses, and 3) translational cardiovascular imaging. Applicants will have full access to resources available through the Yale Translational Research Imaging Center, including small- and large-animal surgical suite, fluoroscopy suite, 3D ultrasound, 64-slice SPECT/CT, micro-SPECT/CT, micro-CT, and optical imaging, along with other institutional resources, including PET/CT and MRI. Participation in ongoing NIH-funded projects. Applications will be encouraged from clinical, engineering, and basic science departments, with particular attention to the recruitment of minority, disabled, and disadvantaged candidates. Candidate fellows must hold either a MD and/or PhD. Candidates must be U.S. citizens or hold green card. Please contact Albert Sinusas, MD for more information. Office: 203-785-5005; e-mail: Albert.Sinusas@yale.edu.

Postdoctoral Fellowship: A Postdoctoral Research Fellow position is available in the Tufts Medical Center Molecular Cardiology Research Institute, in the Blanton laboratory. The Blanton laboratory studies basic signaling mechanisms underlying the pathophysiology of pathological cardiac remodeling, as well as mechanisms of vascular dysfunction in heart failure. Our laboratory employs a variety of in vitro, cell culture, and in vivo techniques, including signaling studies, cardiac myocyte culture, resistance vessel myography, and invasive hemodynamic measurements. Candidates will hold a PhD, MD/PhD, or equivalent in biology, have excellent writing and communications skills, and have a commitment to a career in cardiovascular science. Prior experience in molecular biology and animal physiology is desirable. Please send cover letter, CV, and references by email to Robert Blanton (rblanton@tuftsmedicalcenter.org) and cc Debbie Slater (dslater@tuftsmedicalcenter.org). We encourage women and underrepresented minorities to apply.

Postdoctoral Fellowship: Two postdoctoral research opportunities are available with the 711th Air Force Research Lab-Human Performance Wing (AFRL-HPW), located in Dayton, OH. U.S. Citizenship is REQUIRED. This opportunity supports the Air Force Research Lab's research efforts in advancing our understanding of the biological mechanisms of human performance. The overarching scientific question

that drives our research is the following: “How do individuals adapt and what are the biological mechanisms that facilitate adaptation?” This research explores how environmental conditions (stress, exercise, diet, electroceuticals) interact with biological mechanisms to modulate physiological functions. We utilize a variety of techniques (e.g., immunohistochemistry, neurobehavioral assays, brain stimulation, behavioral genetics models, sequencing, bioinformatics) to advance our understanding in this area. The integration of these methods allows us to tackle challenging problems that require multiple skill sets, various disciplines, and creative approaches. The primary projects include 1) the biological signatures of performance and 2) the biological mechanisms of brain modulation. The first of these projects is focused on the identification of novel biological signatures that are predictive of stress resilience/susceptibility and adaptability. The second project is focused on the identification of the neurobiological pathways by which non-invasive electroceuticals (e.g., transcranial direct current stimulation; tDCS) affect the brain and impact behavior. One of the exciting parts about this work is that brain stimulation is able to induce adaptation factors that result in enhanced synaptic plasticity, giving us an experimental model to test local adaptation mechanisms within the brain that are critical for human performance. Both projects involve rodent models and can involve translational research in human subjects. This position will support current efforts and will also be involved with the design of new experiments to advance the research mission of the Air Force Research Laboratory. Applicants are expected to have a strong background in physiology and research experience in endocrinology; neuroscience and/or molecular biology is preferred. Characteristic duties and responsibilities are listed below. *Primary responsibilities:* 1) design and lead the execution of research studies; 2) propose new research ideas to advance ongoing research projects; 3) complete wet lab experiments and acquire new techniques and skills to support research team efforts (e.g., RNAseq, synaptoneurosome isolations, exosome characterizations); 4) analyze data, prepare figures, and write manuscripts, proposals, protocols, and presentations. *Additional responsibilities:* 1) assist with current ongoing research efforts (animal/human studies, wet lab procedures); 2) conduct literature reviews; 3) teach lab techniques and procedures to others. To apply,

visit www.orau.org/Maryland and select “Search Open Projects,” then keyword *search project*. ID number: AFRL-1144278543. For any questions, please e-mail recruiter@orau.org or call 410-306-9200.

Postdoctoral Fellowship: Postdoctoral position is immediately available in the laboratory of Dr. Ayako Makino at the University of Arizona. Area of research focuses on the vascular complication in diabetes, in particular cell-cell communication, mitochondrial function, and calcium handling in the endoplasmic reticulum in endothelial and smooth muscle cells. Successful candidate must have a PhD in the biomedical sciences, MD or equivalent degree. A strong record of productivity in cardiovascular physiology [dissection of arterioles from mice, isometric tension measurement, evaluation of cardiac function (i.e., LVSP, RVSP, EF), and cell isolation] is required. The postdoctoral fellow’s responsibilities will include conducting physiological and molecular biological experiments using dissected vessels from mouse and vascular cells freshly isolated from the tissue, analyzing research data using different computer software, generation of preliminary data for grant applications, writing drafts of manuscripts, coordinating with other investigators for lab research, maintaining the function of lab equipment, and managing the lab research record (including methodological approaches and animal protocols). Interested applicants should send a CV, a letter of interest, and the names and contact information for three references through <http://uacareers.com/postings/15844> (posting number: P20317). Review of applicants is ongoing, and the position will remain open until filled. The University of Arizona is an Equal Opportunity/Affirmative Action Employer.

Postdoctoral Fellowship: A postdoctoral fellow position is available in the area of Spinal Cord Injury in the laboratory of Dr. Lique Coolen at the University of Mississippi Medical Center, Jackson, MS. The goal of the federally funded research project is to develop strategies for restoring deficits in sexual and bladder function following chronic spinal cord injury in rodent paradigms. Studies utilize neuro-anatomical, pharmacological, and chemogenetic approaches in combination with electrophysiological nerve and muscle recordings. Candidates (PhD or MD) must have solid experience with contemporary techniques, preferably with emphasis in

neuroscience, physiology, immunology, or vascular biology. Expertise with rodent surgery, neuroanatomy, or physiological recordings is preferred. Suitable candidates must also have excellent organizational and communication skills, be enthusiastic about their work, and be highly motivated to succeed. The selected candidates will receive training in a highly collaborative environment and state-of-the-art facilities. Salaries are competitive, and additional training opportunities are available through the Office for

Postdoctoral Studies. Applicants should send a cover letter including a brief statement of research interests and career goals, curriculum vitae, and the names of three references to Dr. Lique Coolen at lcoolen@umc.edu. All postdoctoral appointments are designated as security-sensitive positions. The University of Mississippi Medical Center is an Equal Employment Opportunity / Affirmative Action Employer, M/F/D/V. ●



Meetings and Conferences

Experimental Biology 2017

April 22–26, 2017 • Chicago, Illinois

APS Conference: Cardiovascular Aging, New Frontiers and Old Friends

August 11–14, 2017 • Westminster, Colorado

APS Conference: Physiological Bioenergetics: Mitochondria from Bench to Bedside

August 27–30, 2017 • San Diego, California

APS Conference: Physiological and Pathophysiological Consequences of Sickle Cell Disease

November 6–8, 2017 • Washington, DC

APS is also participating in the following meeting **IUPS 38th World Congress: Rhythms of Life**

August 1–5, 2017 • Rio de Janeiro, Brazil

the-aps.org/conferences

Meetings & Congresses

2017

April 1-4

28th International Symposium on Cerebral Blood Flow, Metabolism and Function and the 13th International Conference on Quantification of Brain Function with PET, Berlin, Germany. *Information:* Internet: <http://www.brain2017.net>

April 22-26

2017 Experimental Biology, Chicago, IL. *Information:* Internet: <http://apsebmeeting.org/>

May 13-14

50 Years of Comparative Biochemistry: The Legacy of Peter Hochachka, Winnipeg, Canada. *Information:* Internet: <https://www.csz-sczca/storage/app/media/PWH%20Symposium%20Webpage%20second%20announcement.pdf>

May 27-June 1

International Neuromodulation Society 13th World Congress, Edinburgh, Scotland. *Information:* internet: <http://www.neuromodulation.com/ins-congress>

June 27-29

Measuring Animal Welfare and Applying Scientific Advances - Why is it still so difficult? Surrey, United Kingdom. *Information:* Internet: <http://www.ufaw.org.uk/symposium2017>

July 8-13

International Society on Thrombosis and Haemostasis (ISTH) 2017 Congress, Berlin, Germany. *Information:* Internet: <http://www.isth2017.org>

August 1-5

IUPS 38th World Congress: Rhythms of Life, Rio de Janeiro, Brazil. *Information:* Internet: <http://iups2017.com/>

August 11-14

APS Conference: Cardiovascular Aging, New Frontiers and Old Friends, Westminster, CO. *Information:* Internet: <http://www.the-aps.org/cvaging>

August 27-30

APS Conference: Physiological Bioenergetics: Mitochondria from Bench to Bedside, San Diego, CA. *Information:* Internet: <http://www.the-aps.org/bioenergetics>; #Bioenergetics17

November 6-8

APS Conference: Physiological and Pathophysiological Consequences of Sickle Cell Disease, Washington, DC. *Information:* Internet: <http://www.the-aps.org/sicklecell>; #SickleCell17

2018

April 21-25

Experimental Biology, San Diego, CA.

October

The 17th International Biochemistry of Exercise Conference (IEBC), Beijing, China. *Information:* Organized by the Chinese Association of Exercise Physiology and Biochemistry