



The Physiologist

Grand Challenges in Organismal Physiology

Hannah V. Carey
Univ. of Wisconsin, Madison

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As physiologists, we investigate the functional properties of living systems, from their molecular basis to their integration into the whole organism, and the interactions of organisms with the biotic and abiotic environments around them. Our research programs tend to focus on particular aspects of organismal function, be it a component of an ion channel, a particular tissue type or organ system, a multi-organ network that enables higher-order phenomena, or the physiological response of an organism to an environmental perturbation. We recognize that these varying levels of investigation each contribute in important ways to our overall understanding of how organisms function as complex, integrative units.

Physiologists and other organismal biologists know intuitively that a focus on the organism is absolutely essential for unraveling fundamental aspects of living systems and translating that knowledge to applications in a diverse array of fields. Yet, the organismal biology community has often struggled to make this case to other constituencies in the sciences, to funding agencies, and to the public at large. To help remedy this, it may be



Hannah V. Carey

worth asking, at a community-wide level, what are the over-arching questions whose answers will substantially advance our understanding of organisms as integrated biological entities that are responsive to internal and external environmental cues, and adapt over short- and long-term time frames to environmental change? Are there grand, thought-

provoking topics we should be debating as a community that will guide us to major "out-of-the-box" innovations in scientific investigation over the next decade? If so, what are the constraints that limit our current ability to make major leaps in understanding of organismal function, and what tools, experimental paradigms and human resources must we obtain or develop *de novo* to meet those grand challenges?

The federal agency that supports the majority of our nation's non-biomedical, basic research at the organismal level is interested in hearing from the community on these issues. Recently, the National Science Foundation (NSF) invited the organismal biology community to develop a vision of the grand research challenges that will drive the future of

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organismal animal biology, and to identify the infrastructure that would be needed to address those challenges. The “Grand Challenges in Organismal Biology” initiative is meant to encourage dialogue on emerging priorities for research that require the uniquely integrative approach of studies that focus on the organism. This is a somewhat daunting task, because the complexity of structural and functional attributes of organisms, and the diversity of ways we as scientists choose to study them, makes consensus building on these questions a challenge in and of itself. However, lessons can be learned from other broad-reaching communities that have taken up similar challenges and found success, including the plant biology community, the evolutionary biology community and investigators who work at the level of ecosystems. One example is the Systematics community, which was effective in promoting the development of the Tree of Life program, the focus of which is to explore Earth’s species and conserve biodiversity (tolweb.org/tree/). Several programs were spearheaded by the plant biology community, among these the Plant Genome Research Program, the Tools and Resources for Plant Genome Research which was a major push to sequence all major crop plants, and the Arabidopsis 2010 program, begun in 2000, that was directed towards determining the function of every gene in that organism by the year 2010. The plant community also stimulated development of iPlant, which is a cyberinfrastructure collaborative of plant scientists (iplantcollaborative.org). iPlant designs computational infrastructure that enable plant scientists to address Grand Challenges in Plant Biology that have been identified through community discussion and consensus. There have also been major community-driven initiatives in Ecology and Evolutionary Biology included in the Sustainable Biosphere Initiative, and the development of several NSF-supported centers, such as the National Center for Ecological Analysis and Synthesis (NCEAS), National Evolutionary Synthesis Center (NESCent) and the

National Institute for Mathematical and Biological Synthesis (NIMBioS).

Thus, a major programmatic focus in animal biology that is centered on research at the level of the organism is long overdue, and the NSF is eager to hear from the various constituents who work in this area. The Grand Challenge initiative is a forward-looking exercise meant to be embraced by the entire organismal biology community as a way to stimulate discussion and provide community-driven input to NSF and other funding agencies on the future of this field. APS members whose research falls within NSF’s mission, which supports fundamental biological research that is not targeted specifically towards biomedicine, should consider engaging in the Grand Challenge initiative because it offers the unique opportunity for physiologists to have a clear voice in guiding NSF’s long-term plans for funding in organismal biology, driven in a bottom-up fashion, rather than a top-down approach.

Based on success stories from other community-driven efforts, the path to development and consensus on Grand Challenges have taken the following general form: 1) a swelling of interest from the community; 2) organization of a series of workshops and white papers that outline and argue for critical needs; 3) consolidation of focus by the community on scientific goals and resources needed to address those goals. Historically, these efforts have led to real results that produced major research programs and funding opportunities.

Because of its diverse membership in organismal biology, the NSF first approached the Society for Integrative and Comparative Biology (SICB) to take up the challenge of developing some Grand Challenges. In response, SICB members have organized efforts to begin to articulate grand visions of research questions that could form the basis for major research efforts in organismal biology in the future. A series of White Papers from these efforts were published in *Integrative and Comparative Biology*; links to those articles can be found at the Grand Challenges website (grandchallengesinbio.org).

Also on the website are slide presentations from a workshop held on January 6, 2010 at the annual SICB meeting, which included presentations from representatives from other national societies including the APS. A follow-up workshop was then held at the 2011 SICB meeting to discuss strategies for addressing the Grand Challenges in Organismal Biology, with a summary recently published (Stillman et al., *Integrative and Comparative Biology* 51: 7-13, 2011).

The SICB Grand Challenge White Papers represent heuristic contributions by various investigators, meant to stimulate thinking about the most important topics in organismal biology to help guide future research into the most fruitful avenues. Some contributions are process-oriented, such as the need to develop both theoretical frameworks for organismal biology, as well as resources that can be used by the broad community of organismal biologists (Halanych and Goertzen, 2009) while others are topic-oriented, e.g., comparative endocrinology (Denver et al., 2009); behavior (Sih et al. 2010). Others address directly the role of physiology in shaping the Grand Challenges, particularly with regard to understanding how organisms respond and evolve in response to changing biotic and abiotic factors in the environments around them (Mykles et al., 2010; Denny and Helmutch, 2009). From these White Papers, several Grand Challenge themes were identified to stimulate discussion by the SICB membership and with the larger organismal biology community (Stillman et al. 2011). I urge APS members to read the articles and use them as a framework upon which to expand and refine Grand Challenges that will guide future research efforts of the organismal physiology community.

The SICB activities directed towards formulating Grand Challenges began shortly after APS undertook a related exercise in 2007. A workshop supported by APS and NSF was held to explore the value of greater integration of research and training in comparative and ecological physiology, and to reinforce the relationship of those fields to

larger societal concerns, including conservation of endangered species, biodiversity and biomedicine. Discussion centered around the continued need for physiological research on non-model, wild species that can be carried out, when possible, in ecologically relevant settings. One outcome of those discussions was the idea of a national synthesis center that facilitates the organization, analysis and application of physiological data in an organismal, environmental context. Rather than a discrete physical center akin to NCEAS or NESCent, this “National Network for Physiological Research, Integration, Synthesis and Modeling” (PRISM) was envisioned as a network of linked centers that participate in the collection, archiving and integration of physiological and environmental data that would provide improved insight into the range of normal physiological responses of animals, as well as develop predictive modeling to anticipate possible impacts of anthropomorphic or other kinds of environmental change. The PRISM network would promote collaboration and data-sharing by creating an information infrastructure comprised of genomic databases, a catalog of techniques in whole animal physiological studies, techniques for field physiology measurements, and an archive of resources available for environmental studies. Participating PRISM centers were envisioned to include academic institutions, private research institutes, field stations, wildlife/zoological parks and veterinary/human medical schools. Resources provided by PRISM sites could be specific tools (e.g., “omics” technologies, bioinformatics, computational modeling), whole-animal technical expertise (e.g., local or remote physiological sensing, animal tracking, *in vivo* physiology), infrastructure (e.g., field stations well-equipped to support lab and/or field-based physiological studies), and training opportunities (e.g., courses, workshops, research internships).

Engagement of APS members in the PRISM and other Grand Challenge efforts can take several forms, with the goal of building consensus among physiologists and other organismal biologists on what the major questions are that will drive the field forward in

the next decade, and what constrains our ability to answer those questions. For example, workshops or symposia could be held at Experimental Biology or other meetings to stimulate discussion and begin to sharpen and define ideas for Grand Challenge themes. Program Directors in the Division of Organismal Biology at NSF (www.nsf.gov/div/index.jsp?div=IOS) can also be contacted to discuss workshop ideas. Such discussions are best served by involvement of physiologists working at all levels, from trainees to emeritus members. The latter group is an excellent source of “big picture” perspectives as well as expertise in whole animal, *in vivo* and field-based techniques that are not as commonly used or taught in today’s reductionist-heavy scientific arena, but which are becoming increasingly needed to sustain integrative approaches. In the same way that Grand Challenge research themes should be bold and innovative in concept, so should complementary training programs be crafted to reflect the interdisciplinary approaches that many research themes are likely to incorporate. Ideas for new training courses that will push organismal and field-based studies to new levels that are now commonplace for studies in lab-based, model organisms could be proposed to NSF for support. At appropriate points, investigators from non-physiology fields (e.g., mathematics, engineering, computer science, social sciences) should be brought into the discussions and planning process to provide breadth and interdisciplinary to the research themes. Once a particular grand challenge concept has been discussed and consensus has been reached, a white paper would be developed that outlines the concept, the proposed process for its execution and the expected outcomes for organismal biology and other relevant constituencies. The white paper would then be disseminated broadly to the scientific community and funding agencies, including the federal government, foundations and perhaps the private sector. Various iterations of this process may be required to reach the desired goal of broad acceptance of the concept inside and outside the organismal biology community, followed by the launch of funding initiatives to put

the grand challenge concept in motion.

One mechanism to enhance networking and collaboration in support of a Grand Challenge theme that has gained traction within the community is a Research Coordination Network (www.nsf.gov/funding/pgm_summ.jsp?pins_id=11691). These competitive awards from NSF support communication and coordination among groups of investigators to advance research, training and educational activities that cross disciplinary, organizational, geographic and international boundaries. The RCN program emphasizes research on interdisciplinary topics that involve novel networking strategies, collaborative technologies and development of community standards for data and meta-data. NSF also coordinates and supports the acquisition, development and provision of state-of-the-art cyberinfrastructure tools and services for research and education through its Office of Cyberinfrastructure (www.nsf.gov/dir/index.jsp?org=OCI).

Although the Grand Challenges in Organismal Biology effort is directed primarily towards non-biomedical research, successful research themes will surely contribute to the scientific enterprise and to society as a whole on multiple levels. As Michael Rosbash said in a recent editorial in *Science* (8 July 2011) when arguing for more investigator-initiated research at NIH, “The key concept is that we do not know from which life science discipline or even organism the next great medical advance will emerge.” As the discipline that unravels the complexities and emergent properties of living systems, organismal biology is the crucial link that connects biomolecules to populations and beyond. It is time for us as a community to begin working together, and in partnership with funding sources to craft a vision of how this essential discipline should unfold in the coming years and help execute that vision for the maximum impact on science and society.

Acknowledgements: Insightful comments on this article were provided by William Zamer, Carol Burdsal and Terrie Williams. During the preparation of this article, the author was supported by the National Science Foundation, while working at the Foundation. ♦

APS Council Holds Summer Meeting in Bethesda

The APS Council held its annual summer meeting in Bethesda, MD, July 20-22, 2011, at the Bethesda Marriott Hotel. Each summer, the Council invites the APS Committee Chairs to the summer meeting to present their annual committee reports to Council. The committee reports begin on page 195 and will be posted to each committee's web page.

In addition to presenting their reports, the chairs discuss the highlights of their committees' activities and programs during the past year, and update Council on the committee's goals and plans for the coming year. The chairs also submit requests for new committee programs to Council for their approval. If the program requires new financial support, a New Programs Fund request is included with the request.

APS President Joey Granger, Past President Peter Wagner, President-elect Sue Barman and Executive Director Martin Frank attended the annual meeting of The Physiological Society (TPS), July 11-15. While at the meeting, they met with the TPS leadership and discussed the possibility of collaborating on a new journal, possible collaboration options for educational programs, and issues relating to the IUPS governance restructuring. TPS also requested permanent guest society status at the EB meetings; a motion that the APS Council approved.

After the EB2011 meeting in Washington, DC APS conducted a survey to get feedback on issues such as the clustering program. Many respon-

dents indicated that they did not realize that there had been a change in the sectional programming, but would try to plan according for EB12. Additionally, many respondents indicated that they did not like that poster sessions overlapped with the distinguished lecture sessions. Many were not able to attend the lectures because they had to be at their poster, and it also limited the number of attendees who came to view the posters. The Joint Program Committee (JPC) will address this issue and work on changing the manning times for posters. There were several other issues identified in the survey, such as the food vendors closing early on the last day of the meeting. The JPC will also address these issues prior to the EB12 meeting.

At EB12, the American Physiological Society will be celebrating its 125th anniversary. There will be several special events at the meeting to mark this anniversary, including a party on the North Embarcadero on Saturday, April 21, and a closing reception on Wednesday, April 25. Attendees can register for both events when registering for the EB meeting. The EB12 meeting will be in San Diego, CA, April 21-25, 2012.

The Chapter Advisory Committee (CAC) requested Council's approval on a Committee Policy Document. Until now, the CAC has had no official policy regulating its governance. This document includes a description of the Committee, and information and procedures on what constitutes a committee

quorum, the CAC Chair Election Procedures, annual review of chapter bylaws, and probation and dissolution of chapters. The CAC also requested Council's approval for the creation of a new chapter—the Pennsylvania Physiological Society. Council approved the formation of this new chapter.

The Council also authorized funds for the new Chapter Activity Grant Program. This program will be used to support chapter activities that are directly related to the mission of APS and its chapters, i.e., promotion and outreach; communication and networking; collaboration and expansion; and science policy. Examples of some of these special activities are outreach programs at shopping malls, presentations at local high schools, sponsoring of physiology-related science fair projects, etc.

The Animal Care and Experimentation (ACE) Committee submitted a request for approval of a new position statement entitled "APS Condemns Extremism and Harassment." Bill Yates, ACE Committee Chair, said that there are animal rights groups who are targeting and harassing students who are involved in animal research. This position statement is a general statement condemning extremist tactics and can be used, if needed, as the basis for future APS responses to extremism. The Council approved this recommendation. The statement can be found on the APS web at <http://www.the-aps.org/pa/resources/policyStmnts/extremism.htm>.

The Career Opportunities in



APS Council: front row: Pam Carmines, Peter Wagner, Susan Barman, Joey Granger, Patricia Molina, and Dennis Brown. Back Row: Ida Llewellyn-Smith, Ken Baldwin, Jane Reckelhoff, Usha Raj, Curt Sigmund, Joseph R. Haywood, David Brooks, Thomas Pressley, Alan Sved, Jeff Sands, and Hershel Raff.



APS Committee Chairs: Front Row: Angela Grippo, Erica Wehrwein, Bill Yates, and Christine Maric. Back Row Thomas Schmidt, Harald Stauss, Robert Brock, Bryan Mackenzie, and Kelly Pitts (not shown: Dexter Lee).

Physiology Committee requested Council's approval for a travel award program? Excellence in Professional Student Research. This program will be used to encourage MD/DO students and professionals to become or stay involved in physiology research. Many medical students are in research between their M1 and M2 year and present at research days at their medical schools; however, very few of these students present their research at a major scientific conference, such as the EB meetings. These awards will help to provide travel support for the students to attend the EB meetings. Council approved this recommendation.

The Committee also requested approval of funding for the Undergraduate Research Excellence Fellowship Program. This program would be for those undergraduate students with more significant research experience than that expected for Undergraduate Research Fellowship (UGSRF) applicants. Many of these applicants have been involved in physiology research and some have significant experiences in the laboratory. Because of this, they are not appropriate candidates for the current UGSRF program. However, these candidates have demonstrated a commitment to biomedical research, and this program would encourage these students to continue in physiology. Council approved this recommendation.

The Membership Committee proposed to Council that the membership application process could be streamlined by removing the requirement for

sponsorship. Robert Brock, the Committee Chair, said that part of the new strategic plan would be "to actively work to attract, meet the needs of, engage and retain membership subgroups..." The Committee recommended this change in the application process as one way of addressing a strategic area. Council approved this recommendation.

One of the highlights of the summer Council meeting is the employee appreciation reception. This year, APS Joey Granger hosted the reception on Wednesday, July 20 in the Hitchings Rooms of the Lee Building on the FASEB campus. The reception provides

an opportunity for members of Council and the committee chairs to meet with the APS staff. During the reception, Granger thanked the staff saying, "I have been associated with APS for over 30 years, and know that the APS staff is one of the things that sets APS apart from other societies." He went on to say that the staff is a pleasure to work with.

The highlight of the reception every year is the recognition of those staff members who have worked for APS for five years or more (anniversary is based on five-year intervals). Each employee celebrating an anniversary receives a certificate of appreciation and a gift certificate. This year APS President Joey Granger presented a 30-year certificate to Linda Allen (Director, Meeting/Membership); 25-year certificates to Melinda Lowy (Education), and Krysia Moore (Journal Supervisor); 10-year certificates to Sean Boyer (Copy Editor), Brooke Bruthers (Education), Miriam Capers (Peer Review), Peggy Choe (Copy Editor), Linda Dresser (Executive Office), Ben Weston (Art), and Zeki Erim (Copy Editor); and 5-year certificates to Travis Christensen (Copy Editor), Claire Edwards (Science Policy), Donna Krupa (Communications Director), Mel Limson (Education), Rameela Patel (Business Office), Lucia Tayiel (Circulations), and Yang Yang (Education). ❖



APS Staff Recognition: Front Row: Travis Christensen, Rameela Patel, Melinda Lowy, Linda Allen, Brooke Bruthers, Krysia Moore, Linda Dresser. Back Row: Martin Frank, Claire Edwards, Joey Granger, Ben Weston, Lucia Tayiel, Peggy Choe, Zeki Erim.

Gulf Coast Physiological Society Meeting

The 6th Gulf Coast Physiological Society Meeting was held on May 20-21, 2011 on the Univ. of Mississippi Medical Center (UMMC) campus in Jackson, MS. There were 68 abstracts uploaded to the online submission site for the meeting and a total of 106 attendees representing eight different institutions (Univ. of Mississippi Medical Center, Tulane Univ., Louisiana State Univ. Health Science Center-New Orleans, Louisiana State Univ. Health Science Center-Shreveport, Univ. of South Alabama, Univ. of Alabama Birmingham, Emory Univ., and Tougaloo College). The local organizing committee consisted of Michael Ryan (Chair), Heather Drummond, Christine Maric and David Stec from the UMMC Department of Physiology.

The two day meeting opened on Friday afternoon May 20 with a keynote lecture from Douglas C. Eaton, Distinguished Professor and Chair of Physiology at Emory Univ. and past President of the American

Physiological Society. Eaton delivered his talk entitled "ENaC Regulation and Dale Benos: A Man Before His Time" in honor of the late Dale Benos, 79th President of the American Physiological Society from the Univ. of Alabama Birmingham. The remainder of the scientific program included an oral session on Friday afternoon and Saturday morning (May 21). Each oral session consisted of three invited speakers and three to four abstract selected presentations. In order to highlight the exciting work of early career physiologists in the Gulf Coast Region, no speaker who presented in the oral sessions held a rank higher than Assistant Professor.

A breakfast poster session was held on Saturday morning. All abstracts submitted to the meeting were accepted and programmed for the poster session. Awards were given to the top two in each a postdoctoral and student category. The Gulf Coast Chapter would like to congratulate Wengcheng Li (Tulane) and Suttira 'Joy' Intapad

(UMMC-Physiology), winners in the postdoctoral category, as well as Liu Liu (Tulane) and Vicky Rands (Tulane), winners in the student category. The Poster Judging Committee consisted of Michael Garrett and Jan Williams (UMMC-Pharmacology), Anna Thalacker-Mercer (UAB), Jason Gardner and Jerry Breslin (LSUHSC-NO), Khalid Matrougui and Kathleen Hering-Smith (Tulane), Xiangming Zha (USA), Karen Stokes (LSUHSC-Shreveport), and Lusha Xiang and Barbara Alexander (UMMC-Physiology).

A brief chapter business meeting took place at the conclusion of the scientific presentations on Friday afternoon. Two major items of business were discussed. The first was to approve the new leadership of the Gulf Coast Chapter. A Nominating Committee was formed prior to the Gulf Coast Meeting to recommend a new President, Treasurer/Secretary and three Councilors. The Nominating Committee consisted of Christine



From left to right, Vicky Rands, Liu Liu, Joy Intapad and Wengcheng Li display their poster awards.



L. Gabriel Navar, 71st President of the APS studies a poster during the morning session.



Heather Drummond presents a plaque to keynote speaker Doug Eaton.



Meeting participants enjoyed a casual evening of food, conversation and entertainment at a local restaurant (Duling Hall) in Jackson, MS.

Maric (UMMC), Jason Gardner (LSUHSC-NO), Anna Thalacker-Mercer (UAB), Natalie Bauer (USA), Karen Stokes (LSUHSC-Shreveport) and Minolfa Prieto (Tulane). Stokes presented the recommendations of the committee to the meeting attendees and a motion was made and seconded to approve the new leadership. The motion was carried with no dissenting votes. The new leadership for the Gulf Coast Chapter is as follows:

Michael Ryan, UMMC Physiology, President (term ends Spring 2013)

Jerry Breslin, LSUHSC-NO, Treasurer/Secretary (term ends Spring 2013)

Khalid Matrougi, Tulane, Councilor

Mark Taylor, USA, Councilor

Laura Stewart, LSU, Councilor

The second order of business was to

determine a location for the next Gulf Coast Physiological Society Meeting. Thomas Lincoln, Chair of Physiology at the Univ. of South Alabama, volunteered to host the next chapter meeting in 2013. A motion was made, seconded, and carried unanimously to accept Lincoln's offer. Although a call was made, no additional business was raised or discussed. The business meeting was adjourned after a motion was made, seconded and carried. The business meeting was followed by a banquet at a local restaurant.

The Gulf Coast Chapter received financial support for the meeting and would like to gratefully acknowledge its sponsors. The sponsors of meeting were as follows: the UMMC Department of Physiology; the UMMC Center for Excellence in

Cardiovascular Renal Research: Hypertension and Cardiorenal Training Program; the UMMC Faculty Scholarship Exchange Award; the American Physiological Society; Data Sciences International; Harlan Laboratories; Kent Scientific Corporation; Phoenix Technical Services, Inc.; and Fisher Scientific.

At the conclusion of the Saturday morning session, the winners of the poster competition were announced and the meeting was adjourned. For more information on related to chapter activities, please visit <http://www.the-aps.org/chapters/gulf/>. ❖

Michael Ryan
Univ. of Mississippi

CALL FOR NOMINATIONS

For the Arthur C. Guyton Educator of the Year Award

The **Arthur C. Guyton Educator of the Year Award supported by Elsevier** (\$1,000 cash prize, complimentary registration to Experimental Biology, a framed, inscribed certificate, and up to \$750 in travel reimbursement to the Experimental Biology meeting) recognizes a full-time faculty member of an accredited college or university and member of the APS who has independent evidence of: (1) excellence in classroom teaching over a number of years at the undergraduate, graduate, or professional levels; (2) commitment to the improvement of physiology teaching within the candidate's own institution; and (3) contributions to physiology education at the local community, national or international levels. The awardee is requested to write an essay on his/her philosophy of education for publication in *The Physiologist*.

The typical nominee will have shown excellence in teaching and have made significant contributions in student advisement, graduate education, and/or curriculum design and reform at their institution. The activities that distinguish a candidate in the rankings include outreach activities at the state, national, or international level; contributions to education through APS activities; peer-reviewed educational journal articles; and widely disseminated publications such as commercially produced textbooks, lab manuals, or software.

Nominations Process: Each nominee must be nominated by a member of APS. The nominator must upload a letter of support outlining the qualifications of the nominee **no later than January 8, 2012**. To upload documents, please visit the APS Award Module at <https://www.the-aps.org/awardapps/login/index.cfm>. Finalists will be contacted and asked to provide further information.

New Regular Members

*transferred from student membership

Adwoa D. Aduonum
Philadelphia Coll. Osteo. Med., PA

Devendra K. Agrawal
Creighton Univ., NE

Hanan Ahmad Al Kadi
King Abdul Aziz Univ., Saudi Arabia

Frederic Ambroggi
Univ. of California, San Francisco

Rajesh H. Amin
Auburn Univ., AL

Wataru Aoi
Kyoto Prefectural Univ., Japan

Hossein Ardehali
Northwestern Univ., IL

James D. Arholm
Loma Linda Univ., CA

David S. Auerbach
Univ. of Michigan

Esther Barreiro Portela
Imim-Hosp. Del Mar, Spain

Maxim Bazhenov
Univ. of California, Riverside

Benjamin T. Bikman
Brigham Young Univ., UT

Valdir A. Braga*
Federal Univ., Paraíba, Brazil

Romain Brette
Ecole Normale Supérieure, Paris, France

William S. Brooks
Harding Univ., AR

Etienne Burdet
Imperial College of London, UK

Barbara Cannon
Stockholm Univ., Sweden

Estibaliz Castellero
BIDMC, MA

Jingxin Chen
Univ. of Pittsburgh, PA

Yu-Wen Chen
Chang Gung Univ., Taiwan

Maria Angeles Costa
Univ. of Buenos Aires, Argentina

Michael Coyle
Bioscientia Group, LLC, IN

Mitchell L. Day
MA Eye and Ear Infirmary, Boston

Trevor A. Day*
Mount Royal Univ., AB, Canada

Anne M. Deschamps
FASEB, Bethesda, MD

Konstantina Dipla
Aristotle Univ., Thessaloniki, Greece

Robert Dirksen
Univ. of Rochester, NY

Damayanthi Durairajanayagam
MARA Univ. Tech., Malaysia

Lindsay M. Edwards*
Univ. of Tasmania, Australia

Yoram Epstein
Sheba Med. Ctr., Israel

Wendy Laura Eubank
UNTHSC, TX

Sara Fabbri
Univ. of Trento, Italy

I. George Fantus
Mount Sinai Hospital, ON, Canada

Michel Fausther*
Univ. of Arkansas Med. Sch.

Walter E. Finkbeiner
Univ. of California, San Francisco

Conrad Fischer
Touro College of Med., NY

Thomas Flagg
USUHS, MD

Chris Ford
Case Western Reserve Univ., OH

Joachim Fuellekrug
Univ. of Heidelberg, Germany

Michio Fukuda
Nagoya City Univ., Japan

Shinichi Furuya
Univ. of Minnesota

Javier Omar Garcia
Univ. of California, San Diego

Yury Gerasimenko
Univ. of California, Los Angeles, CA

Anthony Gerber
National Jewish Health, CO

Deanna Lynn Gibson
Univ. of British Columbia, Canada

Suhail Ahmad Gilkar
Govt. Med. Coll., India

David Samuel Gokhin
Scripps Research Inst., CA

Jose G. Gomez-Arroyo
Virginia Commonwealth Univ.

Kaizheng Gong
Univ. of Alabama, Birmingham

Joseph Peter Grande
Mayo Clinic, MN

Yoram Grossman
Ben Gurion Univ., Beer Sheva, Israel

Sudhiranjan Gupta
Texas A&M, Univ.

Israel Hanukoglu
Ariel Univ. Center, Israel

Kristen M. Harris
Univ. of Texas, Austin

Mohammed Abdul Hannan Hazari
Deccan Coll. Med. Sci., India

Liping He*
Univ. of Pennsylvania

James Herrington
Genentech, Inc., CA

Timothy Higham
Univ. of California, Riverside

Lars Holm
Inst. of Sports Medicine, Denmark

Guochang Hu
Univ. of Illinois

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Univ. of Pennsylvania

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Univ. of Northern Colorado, Greeley

Hiroshi Ishiguro
Nagoya Univ., Sch. of Med., Japan

Jon Jackson
Univ. of North Dakota, Grand Forks

Ernie Jennings
James Cook Univ., Qld, Australia

Zhanjun Jia
Univ. of Utah, Salt Lake City

Shaoning Jiang
Univ. of Alabama, Birmingham

Tulasi Ram Jinka
Univ. of Alaska, Fairbanks

Helmut Joachim Koester
Univ. of Texas, Austin

Sai Sudha Koka
Virginia Commonwealth Univ.

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Ahmed Lawan*
Yale Univ., CT

Yun-Song Lee
Sungkyunkwan Univ., Rep. of Korea

Pablo Leung
Henry Ford Hospital, MI

Simon Levy
Boston Univ., MA

Min Li
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Ningjun Li
Virginia Commonwealth Univ.

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Angela Marino
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Quinnipiac Univ., CT

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Children's Hospital of Los Angeles, CA

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Caurnel Morgan
Texas A&M Univ.

Helena W. Morrison
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Dublin City Univ., Ireland

Pooja P. Mujumdar*
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Northwestern Univ., IL
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Jennifer O'Hara
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Obem Obo Okwari
Univ. of Calabar, Nigeria
Brian Oliver
The Woolcock Inst., NSW, Australia
Daniel Paredes
NIH, Bethesda, MD
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Sushmita Purkayastha
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Annette Robichaud
SCIREQ Inc., QC, Canada
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Rutgers Univ., NJ
Milena Saqui-Salces
Univ. of Michigan
Rie Sasaki
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Univ. of South Alabama
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Rochester Inst. of Tech., NY
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Rigshospitalet, Denmark
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Daniel Weiner
Children's Hospital of Pittsburgh, PA
Jamie L. Weiss
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James West
Vanderbilt Univ., Nashville, TN
Xunde Xian
UT Southwestern Med. Ctr.
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Univ. of North Texas HSC, TX
Li Zhang
Univ. of Texas, Dallas
Wu Zhou
Univ. of Mississippi Med. Ctr.
Xiaosun Zhou
Private Practice, NY
Jokubas Ziburkus
Univ. of Houston, TX

New Undergraduate Student Member

Nina Bertaux-Skeirik
Xavier Univ - OH
Susan M. Lang
Pennsylvania State Univ.
Felipe Andrés Montellano - Other
Univ De Los Andes - Chile
Caitlin Ann Reid - Other
Radford Univ - VA

New Affiliate Member

Robert Allen Maxwell
International Fed. of Journalists, FL
Steve C. Bertrand
Ball State Univ., IN
John F Greear
Georgia State College
Brian Christopher Prall
Samueli Inst. for Info. Bio., VA

Recently Deceased Members

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Chicago, IL
Michael Barany
Chicago, IL
Arthur F. Grimm
Chicago, IL
Bjerne M. Iversen
Bergen, Norway
Arthur M. Kodama
Kaneohe, HI
John W. Manning
Conyers, GA
Geoffrey McLennan
Iowa City, IA
Alan L. Pinkerson
Washington, DC
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St. Louis, MO
Max Harry Weil
Rancho Mirage, CA

New Graduate Student Members

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Heriot-Watt Univ., UK

Wafa Alkurdi
Univ. of Idaho

Ian P. G. Amaral
Univ. of St. Andrews, UK

Garrett Ash
Univ. of Connecticut

Denis Blondin
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Tahisha Buck
Univ. of Oregon

Kristopher Burkewitz
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Tolga Caner
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Angela Member Danborn
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Jason Michael De Freitas
Univ. of Oklahoma

Christopher A. Fahs
Univ. of Oklahoma

Antje Fillbrandt
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Ohio State Univ.

Alex Hume
Univ. of Calgary, Canada

Shadi Khademi
Colorado State Univ.

Megan Leigh Lewis
Univ. of Calgary

James R. McDonald
Auburn Univ., AL

Clarissa Muere
Medical College of Wisconsin

Ibukun Peter Oyeyipo
Osun St. Univ., Nigeria

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East Carolina Univ., NC

Lindy Marie Rossow
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Royal Veterinary College, UK

Yasuhiro Shudo
Osaka Univ., Japan

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Univ. of South Carolina

Paul Strong
Univ. of Colorado

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Univ. of Alberta, Canada

Saurabh S. Thosar
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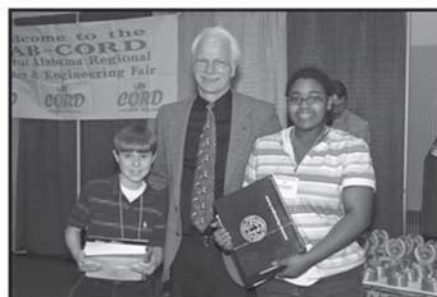
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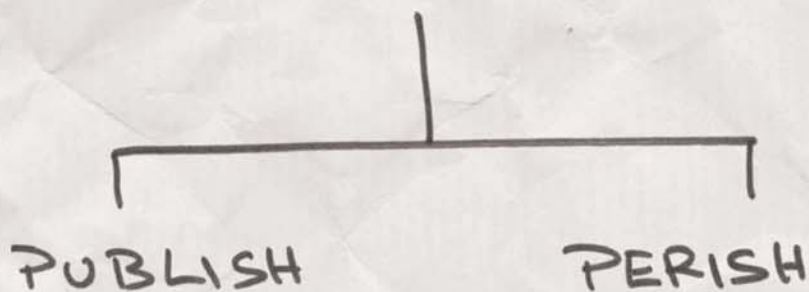
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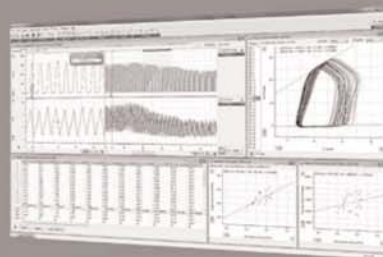
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Association of Chairs of Departments of Physiology
2010 Survey ResultsSusan DeMesquita and Gary C. Sieck
American Univ. of the Caribbean and Mayo Clinic

The Association of Chairs of Departments of Physiology annual survey was emailed to 186 physiology departments throughout the US, Canada, Mexico, and Puerto Rico. A total of 47 surveys were returned, for a response rate of 28%. This rate is higher than last year's (25%) but still lower than that of the previous years' surveys (39%). Of the 53 surveys returned, there were 12 private and 41 public medical schools.

The data provide the reader with general trends of faculty, overall departmental budgets, and space available for research. As a reminder, beginning in 2004, ACDP decided not to include facul-

ty salary information in this report. Because of the limited response rate and variability in departments responding on a year-by-year basis and the completeness of the AAMC salary data, which is more generally used, the ACDP Council decided to no longer collect or report this data. Data are still provided, though, on tenure, gender, and ethnicity of faculty (Table 1). Also included in Table 1 is information on the average number of contact hours for faculty and on the type of medical physiology course being taught.

Student/trainee information is provided by ethnicity for predoctoral and postdoctoral categories, as well as predoctoral trainee completions, stipends

provided, and type of support (Table 2).

Institutional information is provided in Table 3. Departmental budget information (Table 4) shows type of support, faculty salaries derived from grants along with negotiated indirect costs to the departments. New for this year is the mean number of faculty in those departments. Table 5 ranks responding Institutions according to their total dollars, research grant dollars, and departmental space. Space averages are presented as research, administration, teaching and other.

For an update of AAMC salary data, please see the accompanying article. ❖



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Table 1. Faculty Information

Faculty Summary (n=866)

	Male	Female	Total
Asian/Pacific Islander	79	34	113
Black (not Hispanic)	4	3	7
Hispanic	39	11	50
White (not Hispanic)	491	158	649
Foreign National	32	15	47
Total	645	221	866

Medical Physiology Course Type

	Yes	No	Total Responded
Integrated Disciplines	29	15	44
Traditional	31	16	47
Within Traditional	25	21	46

Tenure Status in each department by degree

	Tenured	Not Tenured	Not Eligible	Total
MD	10	0	7	17
PhD	527	4	247	778
2 Doctorates	27	0	12	39
Other	7	0	0	7
Total	571	4	266	841

For your faculty, what is the average number of hours of student contact (per year) for:

	Student Type	Average (hours)	Number (inst.)
Lab Hours	Graduate	310	24
	Medical	133	27
	Other	56	9
Lectures	Graduate	252	44
	Medical	1,072	47
	Other	89	28
Small Group	Graduate	47	27
	Medical	127	42
	Other	94	13

Teaching Interactions

MD/DO	46
DDS	17
DVM	4
Allied Health	25
Pharmacy	10
Other Biomedical	30
Life Science	23
Bioengineering	20
Other	20

Table 2. Student/Trainee Information

Student/Trainee Summary

<i>US citizen / resident aliens</i>			
Predoctoral male	253	Postdoctoral male	118
Predoctoral female	277	Postdoctoral female	112
<i>Foreign</i>			
Predoctoral male	120	Postdoctoral male	187
Predoctoral female	145	Postdoctoral female	149

Ethnicity of each pre- and postdoctoral student/trainee

	Pre-doctoral		Postdoctoral	
	Male	Female	Male	Female
Native American	8	3	1	0
Asian/Pacific Islander	17	36	19	34
Black (not Hispanic)	11	22	7	6
Hispanic	13	24	6	8
White (not Hispanic)	204	192	85	64

US Citizen/Resident alien postdoctoral trainee completions:

	Male	Female
Native American	2	0
Asian/Pacific Islander	9	9
Black (not Hispanic)	3	2
Hispanic	2	4
White (not Hispanic)	53	49
Total	69	64

Average Annual Stipend (US \$)

	Average	Number
Postdoctoral	\$39,452	45
Pre-doctoral	\$23,830	44

Predoctoral Trainee Completions Trainees completing doctoral work during year ending 6/30/2010.

Total	
Female	90
Male	99
Total	189

Foreign National predoctoral trainee completions:

	Male	Female
African	1	0
Asian/Pacific Islander	17	18
Central/South American	1	3
European/Canadian, etc.	8	3
Middle Eastern	3	2
Total	30	26

Table 2. Student/Trainee Information (continued)

Number of Foreign Pre- & Postdoctoral Students/Trainees					Number of Foreign Pre- & Postdoctoral trainees whose primary source of support is:		
	Predoctoral		Postdoctoral			Pre-doctoral	Postdoctoral
	Male	Female	Male	Female			
African	6	2	1	0	Institutional	110	15
Asian/Pacific Islander	69	85	104	74	Research Grants	214	299
Central/South American	7	11	15	11	Private Foundations	9	12
European/Canadian, etc.	19	26	40	42	Home (foreign) Gov.	15	9
Middle Eastern	15	14	18	12	Other	27	10
Other	4	7	9	10	Total	375	345
Total	120	145	187	149			

Table 3. Institution Summary

Type of Institution

Private	14
Public	33
Total	47

Space Controlled by Department

	Average
Research Space	18,248
Administrative Space	3,257
Teaching Space	2,241
Other Space:	3,041
Total Space	26,786

Table 4. Institutional Financial Information

Budget by Institution

	All Institutions	No. Institutions (Mean)	Private Medical	No. Institutions (Mean)	Public Medical	No. Institutions (Mean)	Non-medical	No. Institutions (Mean)
Institutional (Hard money, e.g, operating costs, state allocations)	\$ 2,976,525	47 (18)	\$2,778,689	12 (16)	\$3,660,953	25 (19)	\$2,489,932	10 (19)
Outside Research Grants and Contracts (direct costs only)	6,923,126	43 (19)	9,282,397	9 (19)	7,865,767	25 (19)	3,621,214	9 (19)
Training Grants (direct costs only)	445,458	23 (19)	450,833	5 (21)	717,372	13 (19)	168,170	5 (17)
Endowments	460,534	27 (19)	615,462	4 (15)	668,091	17 (20)	98,048	6 (22)
Indirect Cost Recovery (amount returned to your department)	668,060	35 (18)	1,503,034	2 (18)	375,708	24 (19)	125,438	9 (18)
Other Budget Support (identify)	684,421	43 (20)	1,084,597	9 (18)	830,559	27 (18)	137,209	7 (22)
Average Departmental Budget	12,173,159		12,365,014		13,582,568		6,407,968	

Financial Information

Current fringe benefit rate most frequently used for Primary faculty	28.52	(n=48)
Federally negotiated indirect cost rate for FY 10-11 off campus	27.33	(n=39)
Federally negotiated indirect cost rate for FY 10-11 on campus	50.94	(n=48)
Percentage of allocated salary dollars directly returned to your department	70.21	(n=34)
Percentage of indirect costs returned to your department	20.71	(n=38)
Percentage of total faculty salaries derived from research grants (does not include fringe benefits costs)	37.72	(n=46)

Table 5. Complete Ranking According to Total Dollars

Rank Total Dollars	Total Dollars	Rank Research Grant Dollars	Research Grant Dollars	Rank Research Dollars/ Faculty	Research Dollars/ Faculty	Rank Total Research Space	Total Research Space	Rank Research Dollars/ sq ft	Research Dollars/ sq ft	No. of faculty
1	\$24,024,997	1	\$15,807,375	1	\$831,967	4	34,439	2	\$459	19
2	15,609,962	3	10,498,471	4	552,551	1	39,783	20	264	19
3	15,470,650	2	11,142,565	6	371,419	2	36,732	11	303	30
4	14,076,706	4	9,220,820	2	658,630	5	34,056	18	271	14
5	13,648,121	6	6,606,996	24	220,233	24	17,737	7	372	30
6	12,766,870	5	7,877,338	11	302,975	14	22,757	8	346	26
7	10,634,038	9	6,102,238	23	234,701	12	24,166	22	253	26
8	9,948,448	7	6,449,378	10	307,113	9	27,086	24	238	21
9	9,458,298	8	6,401,045	5	457,218	15	21,847	13	293	14
10	9,147,170	14	5,165,883	22	245,994	21	18,934	17	273	21
11	9,067,523	13	5,172,533	14	287,363	13	22,820	25	227	18
12	8,722,553	17	4,740,570	32	182,330	16	21,422	26	221	26
13	8,605,114	15	5,042,513	21	252,126	23	18,071	15	279	20
14	8,553,860	10	5,867,509	20	255,109	10	26,901	27	218	23
15	7,948,432	12	5,279,796	8	329,987	7	32,239	35	164	16
16	7,898,536	32	3,168,726	38	121,874	37	11,903	19	266	26
17	7,823,984	26	3,670,345	36	152,931	3	35,049	42	105	24
18	7,457,167	18	4,722,222	12	295,139	41	10,358	3	456	16
19	7,392,497	25	3,681,658	26	193,771	20	19,040	31	193	19
20	7,327,562	21	4,201,161	18	262,573	31	13,500	9	311	16
21	7,282,421	22	4,084,543	25	214,976	40	10,486	6	390	19
22	7,188,323	24	3,867,727	31	184,177	22	18,799	29	206	21
23	6,894,986	11	5,537,566	29	184,586	6	33,293	34	166	30
24	6,737,156	35	2,763,354	30	184,224	17	20,213	37	137	15
25	6,648,240	16	4,773,994	7	341,000	38	11,784	5	405	14
26	6,420,715	29	3,558,657	16	273,743	26	16,401	28	217	13
27	6,392,514	19	4,415,058	15	275,941	25	17,535	23	252	16
28	6,243,395	37	2,694,760	35	179,651	18	20,000	38	135	15
29	5,798,421	34	2,935,983	39	117,439	30	14,598	30	201	25
30	5,746,390	20	4,300,000	9	307,143	28	15,672	16	274	14
31	5,726,995	33	3,144,486	28	184,970	42	10,168	10	309	17
32	5,575,771	23	4,047,845	13	289,132	43	9,384	4	431	14
33	5,423,188	36	2,701,986	34	180,132	11	25,288	41	107	15
34	5,408,261	30	3,491,840	17	268,603	32	13,391	21	261	13
35	5,399,529	27	3,650,791	19	260,771	33	12,500	14	292	14
36	5,160,767	31	3,388,338	3	564,723	46	5,528	1	613	6
37	5,047,610	46	0	46	0	8	28,664	46	0	20
38	4,819,170	38	2,536,756	33	181,197	29	14,774	33	172	14
39	4,502,713	28	3,601,535	27	189,554	19	19,971	32	180	19
40	4,322,585	44	305,126	44	33,903	35	12,470	44	24	9
41	4,185,402	39	1,860,191	42	88,581	45	6,165	12	302	21
42	3,356,662	40	1,787,742	37	148,978	34	12,484	36	143	12
43	3,291,923	41	1,302,229	41	93,016	39	11,329	40	115	14
44	3,071,790	43	918,390	43	54,023	27	16,292	43	56	17
45	2,124,839	42	960,318	40	96,032	44	8,289	39	116	10
46	901,099	45	87,000	45	17,400	47	4,613	45	19	5
47	878,734	47	0	47	0	48	2,900	48	0	8
48	425,000	48	0	48	0	36	12,000	47	0	5
49	0	49	0	49	0	49	300	49	0	6

AAMC Medical School Faculty Compensation Survey

Each year the American Association of Medical Colleges (AAMC) surveys all the US medical schools as to faculty compensation. Because of this, the ACDP (see associated article) decided to no longer collect the same data from its members.

As a supplement to the ACDP survey, the AAMC has agreed to allow the APS to publish selected results from

their survey.

Table 1 shows the regional distribution of medical schools responding to the AAMC survey in terms of public medical and private medical. Also shown is the number of physiology departments in those regions that responded.

Summary statistics on faculty compensation in physiology departments

for Ph.D. faculty are given in Table 2.

Table 3 shows the changes in salary that have occurred over the past 3 years. The summary statistics for separate regions of the country are given in Table 4.

Table 5 shows the salary comparison between PhD faculty in all basic science departments vs. those in physiology departments. ♦

Table 1. Distribution of Medical Schools Responding to AAMC Medical School Faculty Compensation Survey.

		Northeast	Midwest	South	West	TOTAL
All	Private Medical	26	11	14	3	54
	Public Medical	11	21	34	13	79
Physiology	All Medical Schools	15	19	29	11	74

Table 2. Summary Statistics on Physiology Department PhD Faculty Compensation.

		25th	Median	75th	Mean	Number of Faculty
Chair	All Schools	218,000	253,000	291,000	255,300	70
	Medical Public	217,000	246,000	277,000	243,800	44
	Medical Private	225,000	270,000	307,000	274,800	26
Professor	All Schools	126,000	151,000	181,000	157,800	604
	Medical Public	127,000	149,000	174,000	155,800	417
	Medical Private	123,000	160,000	189,000	162,500	187
Associate Professor	All Schools	94,000	104,000	117,000	105,800	335
	Medical Public	94,000	104,000	117,000	105,500	215
	Medical Private	92,000	104,000	118,000	106,500	120
Assistant Professor	All Schools	68,000	83,000	94,000	82,000	405
	Medical Public	68,000	82,000	92,000	81,000	254
	Medical Private	69,000	85,000	95,000	83,500	151
Instructor	All Schools	44,000	50,000	55,000	50,700	84
	Medical Public	44,000	48,000	52,000	49,700	45
	Medical Private	40,000	51,000	58,000	51,900	39

Table 3. Change in Total Compensation for Physiology Department PhD Faculty.

2009-2010		2008-2009		2007-2008		% Change 2008-2009 to 2009-2010	
Mean	Median	Mean	Median	Mean	Median	Mean	Median
122,000	112,000	122,100	111,000	119,300	110,000	-0.1	0.9

Mean and median values were combined for Assistant, Associate, and Professor.

Table 4. Summary Statistics on Physiology Department PhD Faculty Compensation by Region.

		Northeast	Midwest	South	West
Chair	25th	225,000	238,000	189,000	226,000
	Median	261,000	253,000	242,000	269,000
	75th	314,000	303,000	273,000	298,000
	Mean	276,700	271,400	228,200	259,600
	Total Faculty	15	19	25	11
Professor	25th	140,000	126,000	115,000	140,000
	Median	162,000	150,000	141,000	164,000
	75th	187,000	181,000	169,000	195,000
	Mean	163,300	156,300	148,100	175,100
	Total Faculty	128	178	206	92
Associate Professor	25th	100,000	91,000	88,000	98,000
	Median	111,000	98,000	105,000	108,000
	75th	126,000	113,000	115,000	122,000
	Mean	115,200	100,500	102,900	110,300
	Total Faculty	81	93	131	30
Assistant Professor	25th	75,000	69,000	64,000	81,000
	Median	90,000	81,000	78,000	93,000
	75th	101,000	88,000	88,000	104,000
	Mean	88,900	79,500	76,900	92,700
	Total Faculty	88	130	143	44
Instructor	25th	46,000	39,000	44,000	45,000
	Median	54,000	43,000	50,000	50,000
	75th	58,000	54,000	51,000	73,000
	Mean	54,400	48,600	49,600	57,900
	Total Faculty	18	20	39	9

Table 5. Salary comparison between all basic science departments and physiology departments

		All Basic Science Depts.	Physiology
Chair	25th	206,000	218,000
	Median	247,000	253,000
	75th	296,000	291,000
	Mean	249,800	255,300
	Total Faculty	529	70
Professor	25th	129,000	126,000
	Median	156,000	151,000
	75th	190,000	181,000
	Mean	164,900	157,800
	Total Faculty	4,282	604
Associate Professor	25th	94,000	94,000
	Median	107,000	104,000
	75th	124,000	117,000
	Mean	110,400	105,800
	Total Faculty	2,992	335
Assistant Professor	25th	71,000	68,000
	Median	85,000	83,000
	75th	97,000	94,000
	Mean	85,000	82,000
	Total Faculty	3,928	405
Instructor	25th	47,000	44,000
	Median	53,000	50,000
	75th	64,000	55,000
	Mean	57,400	50,700
	Total Faculty	611	84

APS Summer Research Teachers Convene to Focus on Enhancing Effective Classroom Teaching

As part of the year-long 2011 Frontiers in Physiology Fellowship program, 16 enthusiastic science teachers from across the nation took a week-long break from their summer research experience in APS members' research laboratories in July. The research teachers (RTs) convened for the "APS Science Teaching Forum," an intensive week-long workshop retreat at the Airlie Center in Warrenton, VA.

APS member Barbara Goodman (Univ. of South Dakota) and the 2011 K-12 Minority Outreach Fellows, Heidy L. Contreras (Univ. of Arizona) and Inimary Toby (FAA, Civil Aerospace Medical Institute, Oklahoma), served as Physiologists-in-Residence, providing scientific expertise. Additionally, four past RTs led the instruction as Mentor/Instructors, and included Margaret Shain (Indiana, 2000 RT), Monica Irwin (Pennsylvania, 2008 RT), Anne Joy (Texas, 2009 RT) and Robert Manriquez (Louisiana, 2006 RT) who served as the Lead Mentor/Instructor. Marsha Lakes Matyas, APS Director of Education Programs, opened the Forum with an introduction about the APS and set the tone for the rest of the workshop week. Martin Frank, APS Executive Director, spent a morning with the group thanking them for their dedication to teaching and discussing the 125th Anniversary Celebration to be held at Experimental Biology next spring in San Diego.

The teaching team facilitated sessions using the APS research-based Six Star Science framework for supporting excellence in science education (1). The RTs engaged in some of the APS-devel-



Research Teachers, Physiologists-in-Residence, and Mentor/Instructors from across the nation participate in the 2011 Science Teaching Forum as part of the year-long Frontiers in Physiology Fellowship program.



In the foreground, Ashley Ivins (NM), Pauline Schork (IN), and Nelia Delos Reyes listen to PIR Heidy Contreras (AZ) as she leads the group in designing an experiment to determine the relationship between the length of tubes and flow rate. In the background, PIR Inimary Toby (OK) discusses experimental design with Chris Stotts (KY), Leslie Worton (CA), and Julia Lawrence (TX).

oped curriculum unit favorites, Physiology of Fitness and Neural Networks, and field tested a new for-

mat of "The Sense of Touch." This is the first class of RTs to have started their lab activity experiences online. Over the past two years, the Blackboard learning management system has been used to connect RTs, mentors, and APS staff in meaningful online discussions and activities before meeting in-person for the first time at the Science Teaching Forum. This year RTs conducted an experiment online and presented their findings in small groups at the Forum. All the units used at the Forum have been designed specifically for teaching middle and high school students. Additionally during the week, the RTs explored inquiry-based teaching strategies, integrating technology, and addressing equity, diversity, and learning styles in the classroom. The RTs participated in numerous hands-



APS member Barbara Goodman (left), Robert Manriquez, lead mentor teacher (center) and Anne Joy mentor teacher (left) listen on as a group of teachers explains their experimental design.



Lucina Velasquez-Lopez (AZ), L.B. Fogt (OK), and Laura Carlino (PA) carefully watch their experiment to measure the effect of radius on flow rate. With the data collected among the three types of groups, Pouiselle's Law was then derived.

on laboratory and web-based activities, shared their summer research experiences, evaluated their current teaching techniques, and collaboratively developed strategies to implement teaching methods promoted both by the National Science Education Standards and each of their own respective state standards (2).

The fellowship consists of several components that RTs are required to produce during their fellowship year. RTs are developing, refining, and field testing their own inquiry-based lab activity that can be used in the science classroom. Using a lab they have previously used in their classrooms, RTs will implement the lessons learned both

online and at the Forum to transform the old "cookbook" lesson into a Six Star Science lesson. RTs are also producing "Bench to Bedside" primers and podcasts based on the clinical applications and relevance of their summer research work. RTs will be inviting their APS research host into their classroom in November for a Physiology Understanding (PhUn) Week 2011 event (3). The fellowship concludes with the RTs attending and participating in EB 2012 this coming April in San Diego. The RTs and their research hosts will be honored at an awards luncheon.

The Frontiers in Physiology fellowship program has been sponsored by

the APS over the past 22 years, impacting more than 430 teachers and APS members who have volunteered as research hosts and/or Physiologists-in-Residence. Frontiers in Physiology was recognized as a "Model for Excellence in Science Education" by the Center for Excellence in Education in 2010. The program currently receives additional funding from the National Center for Research Resources (NCRR) Science Education Partnership Award (SEPA), and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) at the National Institutes of Health (NIH).

For additional information about the fellowship, visit the program's website, and consider hosting and mentoring a science teacher fellow next summer for the 2012 Frontiers in Physiology Professional Development Fellowship (4). Applications are jointly submitted by the APS member and a teacher and are due in late January. For further inquiries, contact Mel Limson (mlimson@the-aps.org), APS K-12 Education Programs Coordinator. ❖

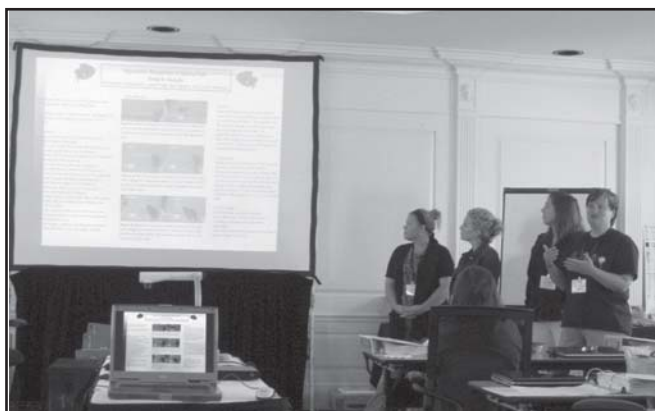
References

APS Receives Science Education Partnership Award. *The Physiologist*. 51:251, 2008.

National Research Council. *National Science Education Standards*. Washington, DC: National Academy Press, 1996.

<http://www.PhUnWeek.org>

<http://www.frontiersinphys.org>



Leslie Worton (CA), L.B. Fogt (KS), Elizabeth Charleston (PA), and Sue Speirs (MI) present their online experiment with Betta fish behavior.



Chris Stotts (KY) and Sandra Bickerstaff (SC) review online resources for "The Sense of Touch" lesson.

Two APS Members Awarded the 2011 ASBMB STEM SEED Grant for PhUn Week Activities

In June 2011, the American Society for Biochemistry and Molecular Biology (ASBMB) announced a grant opportunity for awards worth \$2,000 to support the development of a K-12 Science, Technology, Engineering, and Math (STEM) outreach program and/or partnership. APS members Patricia A. Halpin (Univ. of New Hampshire, Manchester) and J. David Holtzclaw (Nebraska) were selected as two of 10 outreach awardees. The following highlights Halpin's framework for using her experience with the APS outreach program, Physiology Understanding Week (PhUn Week), in successfully receiving the competitive ASBMB award.

How did you first get involved with PhUn Week?

I first read about PhUn Week in a 2007 article in *The Physiologist*, our member newsletter. I thought it was a great idea to get physiologists in the classroom working with young students and their teachers. After that time, I continued to read about PhUn Week and kept meaning to sign up each year, but thought it was too much trouble. I could not imagine how I would organize an experiment in the elementary school where they had no scientists working there to help me and no equipment. I also had never taught a lesson for elementary school students and was not sure at what level of difficulty I should attempt.

Then at the Experimental Biology 2009 meeting in New Orleans, LA I saw APS Councillor Barbara Goodman (Univ. of South Dakota) wearing a PhUn Week t-shirt and asked where she got it. She said I just missed the training session that morning and I should go to talk to APS Education Office staff at the APS Exhibit Booth in the exhibit hall. **I was then directed to the PhUn Week program website that had all the information I needed to get started.**

It was really easy to organize the PhUn week event as I could follow the calendar and timeline of suggestions and make all the arrangements. After reading all the information I felt I was ready to contact the classroom teacher. When I approached the classroom teacher on the second day of school in August 2009, she said yes right away and was very enthusiastic. I then sent her the link for the PhUn Week website and planning guide so she could read more about the event. The first time I did PhUn week it was a huge success. Everything ran smoothly and I agreed to return to the school the following year.

From your experience, what kind of science teaching works in the classroom and with your teacher partners?

Experiential learning is being encouraged in our schools from kinder-

garten through high school. Many elementary school students have had little science in their curriculum and are now having to take standardized tests on the subject. The students have a natural curiosity about how their body works and teaching more about the subject increases their wonder of discovery.

I have found keeping the science content at the very basic level works well. I work with nine- and 10-year olds in an elementary school. They all love science and are eager to learn. They have not had a lot of science experimentation yet, so I wanted to introduce them to the concept of the scientific method so they would begin to think about hypothesis testing in experiments.

Keeping all the steps basic and straight forward works best. Before bringing anything into the classroom, I have the teacher review it well ahead of time so she can make suggestions and I can edit the material. As our experiment is also a graded class assignment, a lab report, I used some of her terminology in my handouts to maintain consistency so the students would understand that it is the same concept. I also had the students work in pairs and had the teacher assign the students to work together. **Her expertise and knowledge of their personalities and learning styles is invaluable.**

Incorporating part of the class



APS member Patricia A. Halpin celebrates PhUn Week with students at the Sunapee Central Elementary School.

curriculum enhances the experience for the students. This year my experiment will involve more math, combining the concepts from their math assignments into the science experiment. Anytime math and science can be combined in a lesson is an added bonus for the students.

Students love being able to analyze the data they generated from their own experiment instead of reading an example from a textbook. It was quite impressive how they could identify outliers and then give an accurate explanation of why the number was not accurate. When the students were counting their resting respiration rate before the exercise portion of the experiment, one student had a respiration rate of six breaths per minute. When I asked the students why that number was so much lower than the rest of the class they immediately said, "They probably counted wrong." I expected the student whose data it was to protest, but he did not. It was impressive how accurate their analysis was when we looked over the rest of the data as well. While the analysis was discussed, they had to write in their own words what conclusions they drew in their lab reports. **Overall it was a wonderful experience and I look forward to participating again this fall in PhUn Week.**

What will you do with the grant funding you received?

I applied for the ASBMB STEM Seed Grant to purchase equipment that will enhance the PhUn Week experiment the students had been doing. In the past, the students counted respiration rate and heart rate before and after exercise. This year with the grant funding, **I will purchase heart rate and blood pressure monitors the students can wear on their wrists. Adding the concept of blood pressure to this lesson will add to the value of the experience.** I will combine the science concepts that I teach the students with their fourth grade math curriculum. Having the students analyze their own data is a key feature of the experiment. Aligning math and science is an important educational initiative across our country. Finding different ways to do that is strongly encouraged.

Why do you invest your time to do this voluntary outreach to your local school?

Most people do not know a scientist and if you say, "Doctor," they assume it is a medical doctor. Putting physiologists in the classroom is the key to engaging young people to be aware of how science is done and by whom. For those already interested in science, this enhances their interest. It is such a

thrill to read the thank you notes the students write especially when they say, "PhUn Week was fun!!!" and, "When I grow up I want to be a physiologist." Another favorite of mine is, "Thanks to you, I know how my heart works."

The impact is great and students remember the lesson long after you leave. I love to see them carrying their PhUn Week bags around town, and if they see me, they point out they still use their bag. Before entering the classroom the word physiologist was not in their vocabulary. Now they know more about physiology and will remember it for a long time.

The impact you make going into the classroom is far reaching. At events around my town the parents of the students often come up to me and thank me for coming into their child's classroom. They tell me their child talked all about PhUn Week every night at dinner for the whole week. **As APS member physiologists, I feel we have a responsibility to give back to our communities.** If we want to gain support for the research we do outside the classroom and for our universities, we need to leave the lab and discuss our work with the community. **It will be well worth your time and effort, and you will also have PhUn!** ❖

Caroline tum Suden/Frances Hellebrandt
Professional Opportunity Awards &
Steven M. Horvath
Professional Opportunity Awards



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- First author of abstract submitted to APS for EB 2012
- APS Member

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- The top 2 underrepresented minority applicants will be designated as the Horvath Awardees

Application Deadline: November 8, 2011

<http://www.the-aps.org/awards/student.htm#tum%20suden>

Online Mentoring Through MentorNet.net

Kristin L. Gosselink

In August of 2009, I wrote a summary of my experiences with mentoring through the MentorNet.net website (<http://www.the-aps.org/careers/careers1/mentor/Mentornet.htm>). The present article is offered as an update to the earlier piece, with a few additional perspectives. It seems unnecessary on some level to discuss the importance of mentoring with readers of The Physiologist, as our membership has long been engaged in and committed to fostering success and professional development in young scientists. However, significant challenges still exist for students and junior faculty seeking scientific careers in academia, industry, government or the myriad other places they may choose. Budget cuts and changing perspectives in higher education, fewer jobs with greater numbers of qualified applicants, and increased competition for diminishing



Kristin L. Gosselink

external funding resources are just a few of the many obstacles that must be overcome by members of the scientific community. In addition to these, issues with retention and success still disproportionately face women and others who tend to be underrepresented in STEM fields. Effective mentoring, therefore, still stands to contribute in a significant and positive way to the realization of career and personal goals for young trainees in science.

The overarching goal of MentorNet is e-Mentoring for diversity in engineering and science. On the site, one-on-one links are generated between mentors who are established science and engineering professionals, and individuals at the community college through junior (untenured) faculty levels. Promoting the retention and increased success of underrepresented persons and women are key foci of the MentorNet approach. Mentor-mentee relationships are created online, based on the matching of characteristics and discussion topics identified in the enrollee profiles. MentorNet supports these new relationships for eight months by sending regular discussion prompts and checking in with the participants to ensure they are in contact. The newly updated website itself also contains drop-down menus for the MentorNet Forum, Resources, and FAQs. Corporate partners for MentorNet range from IBM and Texas Instruments, to AT&T, 3M, and Lockheed Martin. The American Physiological Society (APS) is an "Affiliated Partner Plus," allowing for enhanced participation by our member-

ship and student access to all programs regardless of the current university or college in which they are enrolled.

More than 29,500 mentor-mentee matches have been made since 1997, with over 1,100 currently active as of the writing of this article. In previous years, I was able to search for mentees with stated interests in physiology, which now appears to be more of a challenge in the current rendition of the website. At the time of the last Experimental Biology meeting (April 2011), 110 mentors and 354 protégés had active MentorNet profiles; a search by the term "physiology" yielded 74 profiles, 37 of whom were women (including a number of Women in Physiology Committee members). Clearly, the commitment of the APS and its members to mentoring is strong, since nearly 16% of the total MentorNet roster is comprised of physiologists or at least persons with an interest in the field. We would like, however, to further harness this system to promote the success of our trainees and to build on our excellent mentoring foundation in the APS. Self-reports have demonstrated that mentees in the MentorNet program feel a stronger desire to pursue their career goals and an increased sense of confidence that they will succeed. MentorNet mentors have also stated that their participation increases their personal satisfaction, strengthens their commitment to their work, and enhances their mentoring abilities with their own personnel.

So, what are the potential challenges that prevent our numbers from growing within the MentorNet framework? Increasing awareness that this site exists was a first approach that met with some success. Section newsletters and Marty's APS News Update emails have helped to spread the word and resulted in a sharp increase in enrollment. The number of participants has subsequently stabilized, however, and the reasons for this remain unclear. Perhaps limitations in discipline-specific have led to our people going unmatched? For example, MentorNet has frequently released calls for mentors in specific research areas, and communities such as neuroscience have historically been weakly represented in MentorNet. It is also possible that many of our students and trainees

Dr. Gosselink received her B.A. from Luther College in Decorah, IA. From 1992-2005, she worked as a technician at the NASA-Ames Research Center near San Jose, before returning to school to complete her M.S. (1998) and PhD (2001) in Physiological Science at UCLA. From 2001-2005, Dr. Gosselink was a postdoctoral research associate at the Salk Institute in San Diego and an Associate Faculty member at MiraCosta Community College in Oceanside. She joined the University of Texas, El Paso as an Assistant Professor in 2005 and served as Interim Director of the Neuroscience and Metabolic Disorders Unit of the Border Biomedical Research Center in 2007. Currently, she is the Co-Leader of this program and the Orville E. Egbert Endowed Chair in Biological Sciences. Dr. Gosselink's scientific interests bridge the fields of physiology, endocrinology and neuroscience, and her research deals with endocrine responses to external factors. Her laboratory uses physiological, cell biological, molecular and biochemical techniques to study the relationships between nervous system activation and hormone secretion following stress and/or exercise. She is a Research Mentor in the APS Frontiers in Physiology program and a member of the APS Women in Physiology Committee.

are already benefitting from multiple other mentoring opportunities, through their universities and/or professional societies. As for myself, I have at times felt that I am spending so much time being mentored that I ultimately have less time to dedicate to my actual research and teaching productivity. Streamlining these activities may allow us to achieve or extend the benefits of mentoring while reducing the associated time costs. It seems important at this time to evaluate the reasons why APS members do or do not choose to participate in MentorNet. Look for the results of this analysis at a later date!

As a final thought regarding my own MentorNet experiences, I would like to

share a story about a recent match. I was matched as a mentee with a mentor from Australia, a female Associate Professor working in a research field similar to my own. This match was made just as I was being considered for a large teaching award, was beginning to assemble my tenure application, and had a number of personal changes happening in my life. While the system in Australia and Texas are quite different in a number of ways, she helped me tremendously by allowing me to bounce ideas off of her, openly sharing her thoughts and experiences during her transition from junior faculty, and delivering pep talks at some critical moments. Having an unbiased person who is invested in you and your suc-

cess, independent of your institution, can be a real asset.

The Women in Physiology Committee and APS strongly encourage all regular members to sign up as mentors and all trainees to register as protégés. For more information or to sign up, please go to: <http://www.mentornet.net> or <http://www.the-aps.org/careers/careers1/mentor/guide.htm>.

To comment on this article, go to: <http://www.the-aps.org/careers/careers1/mentor/Mentornet-update.htm>. ❖

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Congress Works to Rein in Federal Spending

On August 2, 2011, the *Budget Control Act of 2011* was signed into law. The Budget Control Act (BCA) allows President Obama to raise the debt ceiling and contains a number of provisions aimed at controlling federal spending and reducing the long-term budget deficit. The BCA immediately imposes overall spending caps for the next 10 years intended to produce nearly \$1 trillion in savings. The spending caps essentially freeze the budget at fiscal year (FY) 2011 levels for the next two years (FY 2012 and 2013) to allow the economy time to recover before imposing funding cuts.

Shortly after the budget bill was signed, the Office of Management and Budget asked federal agencies to submit budget plans for FY 2013 that are five percent below the FY 2011 level. It also asked them to identify areas where targeted spending has the potential to spur economic growth.

The BCA also mandated the creation of a bipartisan Congressional panel charged with identifying another \$1.2-1.5 trillion in savings over the next 10 years. The panel, made up of six Democrats and six Republicans, has until November 23, 2011 to draft recommendations that could include any combination of spending cuts and revenue increases. Congress will then have until December 23, 2011 to vote yes or no on the panel's recommendations. If these targeted recommendations are not adopted, mandatory across-the-board reductions in spending will go into effect. These cuts would affect all but a handful of federal programs, and could be devastating to research budgets.

While the BCA outlines the broad spending targets, it is important to note that spending levels for individual agencies and programs will still be determined on a yearly basis by Congress and the Administration. Biomedical research has proven to be a priority for many Members of Congress and President Obama. The scientific community should continue to advocate strongly for federal investment in research. More information about APS advocacy is available on our website (<http://www.the-aps.org/pa>).

NIH Updates Financial Conflict of Interest Rules

On August 23, 2011 the Department of Health and Human Services issued a final rule for financial conflicts of interest (FCOI) among extramural researchers. The new rule, entitled "Responsibility of Applicants for Promoting Objectivity in Research for which Public Health Service Funding is Sought and Responsible Prospective Contractors," updates the previous FCOI regulations which had been in place since 1995.

Changes in the new rule include a reduction in the *de minimis* threshold for disclosing significant financial interests (SFI) to \$5,000 per year. The threshold was \$10,000 under the previous rule. The new rule also requires that all SFI related to an investigator's institutional responsibilities be disclosed. Previously, only SFI related to PHS-funded research had to be disclosed. The rule also specifies that certain information about identified FCOI must be made available to the public either via a website or upon written request to the institution. Investigators will be required to complete training on the FCOI regulations prior to engaging in PHS-funded research, and again every four years.

Institutions have until August 24, 2012 to comply with the new regulations. For more information see the NIH website: <http://grants.nih.gov/grants/policy/coi/>

Status Update: Guide for the Care and Use of Laboratory Animals

The preliminary version of the 8th edition of the Institute for Laboratory Animal Research's Guide for the Care and Use of Laboratory Animals was released in June 2010. The final version was released in early 2011. The new edition is available as a free pdf download, for sale, or as an online version from the National Academies Press at http://books.nap.edu/catalog.php?record_id=12910.

The American Association for Laboratory Animal Sciences (AALAS) has created a table showing differences between the 7th and 8th editions of the Guide. It is available as a zipped file that can be downloaded from AALAS's

online bookstore at <http://www.aalas.org/bookstore/downloads.aspx>. (Scroll down to "Other Downloads" and select "Guide Comparisons.")

Both the Office of Laboratory Animal Welfare (OLAW) at NIH and the Association for the Assessment and Accreditation of Laboratory Animal Care (AAALAC), International utilize the Guide as a standard for animal care and use programs. Each is developing its own plans for implementing the new Guide.

Office of Laboratory Animal Welfare (NIH)

After the pre-publication version of the 8th edition was released in June 2010, NIH's Office of Laboratory Animal Welfare (OLAW) announced that it would continue to use the 7th edition until the final version was published and an implementation plan developed. On February 24, 2011, OLAW proposed a one-year transition period to the new Guide. The plan called for institutions with NIH Assurances to complete at least one semi-annual program and facility evaluation using the new Guide by March 31, 2012, and to have plans in place to correct any deficiencies. In addition to requesting comments on this proposal, OLAW also asked for comments on whether NIH should adopt the new Guide at all. Initially there was a 30-day comment period, but that was subsequently extended to 60 and then to 90 days. The comment period closed on May 24, 2011.

On June 9, 2011, OLAW announced that the 7th edition of the Guide would remain in effect pending its review and analysis of numerous comments it received. Upon completion of its review, the comments themselves will be posted online. Once OLAW decides whether and how it will proceed with respect to implementing the new Guide, it will issue an updated implementation plan and may also issue position statements. These documents will also be open to public comments.

APS submitted comments affirming that the value of many updates in the new Guide. However, APS took the position that OLAW should not adopt the new Guide unless it did so in the framework of outcome-oriented performance standards. APS reasoned that if OLAW were to implement certain sections of the Guide without the flexibility inherent in performance standards, the Guide would effectively

function as a regulatory document. In that case, it should undergo appropriate regulatory review. The APS comments are available at <http://www.the-aps.org/pa/resources/archives/comments/GuideResponse.pdf>.

AAALAC Will Use the New Guide Starting Fall 2011

After the prepublication version of the 8th edition was released in June 2010, AAALAC convened its Council on Accreditation and sought input from its Board of Trustees to review the new Guide. A number of issues were identified as requiring clarification or interpretation, and this led to the development of 6 position statements and nearly two dozen new Frequently Asked Questions responses. AAALAC has made clear that it intends to apply the new Guide in a performance standards framework.

Despite the halt in OLAW's implementation plans, AAALAC announced that it will begin utilizing the new Guide beginning with site visits during the fall of 2011.

AAALAC Position Statements

Position statements on topics these were circulated for public comment in

February 2011 and finalized in July 2011.

Cage or Pen Space
Social Housing
The Attending Veterinarian and Veterinary Care
Safety Requirements for Walk-In Cage/Rack Washers and Bulk Sterilizers
Definition of Laboratory Animals
Selecting the Appropriate Standard(s) for the Care and Use of Agricultural Animals

The text of these position statements is available at <http://www.aaalac.org/accreditation/positionstatements.cfm#top>.

AAALAC's Frequently Asked Questions

AAALAC has also provided Frequently Asked Questions scenarios on these topics to illustrate how it intends to interpret the new Guide. All the FAQ topics listed below are available at http://www.aaalac.org/accreditation/faq_landing.cfm#top.

AAALAC International's Assessment Process

AAALAC International's application of performance standards

AAALAC International's three primary standards
Institutional Responsibilities
Allergy Prevention
Frequency of program review and facility inspection
Harm-benefit analysis
Nonaffiliated member of the IACUC
Post-approval monitoring
Program-wide IACUC/OB exceptions
Reporting animal welfare concerns
Surgery in investigator laboratories
Animal Environment, Housing And Management
Trio breeding
Cage sanitation frequency
Chick and piglet environmental temperature
Environmental enrichment
Veterinary Medical Care
Aseptic surgery and alcohol as a disinfectant
Intraoperative monitoring
Physical Plant
Hospital stops
Humidity control
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Bill Yates, Chair

Animal Care and Experimentation

During the past year the Animal Care and Experimentation Committee (ACE) has been monitoring plans for the implementation of the new edition of the Guide for the Care and Use of Laboratory Animals. The Committee has also been following one proposal to replace Class B dealer supplied dogs with purpose-bred animals and another to prohibit “invasive” research involving chimpanzees and other great apes.

Activities this year included developing an APS position statement condemning harassment and violence against researchers and visits with congressional offices. Next year the Committee will sponsor an EB 2012 symposium on public outreach about animal research.

Guide for the Care and Use of Laboratory Animals

The ACE Committee has monitored various discussions on implementing the 8th edition of the Guide for the Care and Use of Laboratory Animals. A major concern has been how the NIH and AAALAC, International intend to implement the new Guide’s recommendations. AAALAC, International provided some indication in February 2011 when it requested feedback on six new position statements setting forth how its site visitors would interpret various issues addressed in the 8th edition. The APS asked AAALAC to confirm that it would apply performance-based standards in interpreting key recommendations, such as newly increased minimum cage sizes. APS also suggested that AAALAC consider accepting alternative ways for animals to interact with conspecifics when social housing is not a viable option.

In February, 2011, NIH published a request for comments on a proposal to start using the new Guide 12 months hence in March 2012. NIH also requested comments on whether or not it should adopt the new Guide in the first place. Deciding how to respond to NIH’s request proved to be much more complex than the ACE committee initially thought because while the new Guide provides updated guidance that will improve laboratory animal care, some of its far-reaching recommendations lacked appropriate scientific underpinnings. For example, the minimum cage size for a number of species was increased. This provoked concern because NIH has taken the approach that certain cage size requirements in the current Guide, such as for rodent breeding, represent mandatory minimums. However, no evidence was presented in the new Guide showing either problems with the current cage sizes or improvements in animal welfare with larger cages. Since buying new caging systems would add significant costs at a time when budgets are constrained, there was concern about the impact if NIH interpreted the minimum cage sizes in the new Guide also as mandatory minimums. As a result, APS took the unusual step of supporting the Guide itself but opposing NIH implementation if it would be treated rigidly as a regulatory document rather than flexibly as a guidance document. APS said that if NIH intended to

take an inflexible approach towards enforcing the Guide, the document should be treated as regulation and, therefore, should undergo the more rigorous regulatory review process.

Concerns about the Guide were widely shared in the research community, with organizations focusing on a number of problem areas. The comment period closed in late May, but as of August, NIH had not yet announced its new implementation plans. On June 9, NIH published a notice acknowledging the receipt of “numerous well-reasoned comments” and said it would review all comments before determining whether to proceed with adoption of the Guide and on what timetable. The notice said NIH might also issue position statements interpreting the Guide. If so, these documents will be published for comment. The ACE Committee will continue to monitor NIH’s plans and provide comments if needed. In the meantime, the APS Office of Science Policy has created a web page for updates on Guide implementation. [<http://www.the-aps.org/pa/policy/animals/Guide.htm>]

NIH to phase out grantee purchases of Class B Dogs

On March 18, 2011 NIH published a notice to grantees entitled Guidance on the NIH Plan to Transition from the use of USDA Class B Dogs to Other Legal Sources (NOT-OD-11-055). The notice, available at <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-11-055.html>, outlines NIH plan to phase out the use of agency funds to purchase dogs from USDA-licensed Class B vendors and urges awardees to begin identifying other permissible sources. The notice states further that NIH has initiated contracts with Class A vendor to breed dogs with the key traits found in dogs previously obtained from Class B dealers, and that a limited number of these large, mature, socialized, out-bred hounds or mongrels will be made available to grantees during FY 2011. NIH plans to monitor the availability of such animals over the next several years, and it anticipates that by FY 2015 it will institute a prohibition against the use of NIH funds to purchase dogs from Class B vendors.

Great Ape Protection and Cost Savings Act

On April 13, 2011, the Great Ape Protection and Cost Savings Act (GAPSCA) was introduced in both the House and the Senate. This is the latest iteration of a bill to prohibit all research on great apes on the grounds that “research laboratory environments involving invasive research cannot meet the complex physical, social, and psychological needs” of these animals. Chimpanzees are the only great ape species in US biomedical research and are needed primarily to study infectious diseases such as Hepatitis C. This legislation defines the term “invasive research” broadly to mean anything that could cause “death, injury, pain, distress, fear, or trauma.” In addition, it would forbid even the temporary removal of animals from their social groups for research purposes. Under this definition, research involving common diagnostic procedures, such as liver biopsies, would be prohibited. Even research using procedures that are widely considered to be non-invasive, such as drawing blood or recording observations using MRI technology, would be banned.

This legislation is not expected to move this year because the Institute of Medicine is currently conducting a study on the need for chimpanzees in biomedical and behavioral research. Nevertheless, at the ACE Committee’s recommendation, APS sent letters asking current co-sponsors to with-

draw their support from the bill. APS also asked other Members of Congress to oppose the legislation. More information about the letters is available at <http://www.the-aps.org/pa/policy/animals/OpnoseGAPA.htm>.

Council Approves Statement Condemning Extremism and Harassment

The ACE Committee also recommended that APS adopt a position statement condemning extremists who target scientists for using animals in their research. [See accompanying box].

Hill visits

During EB 2011, staff arranged a total of 19 meetings for 14 scientists from both the Animal Care and Experimentation and Science Policy Committees. In our meetings we underscored both the need for continued federal funding for biomedical research and the importance of whole animals studies. The ACE Committee's fall meeting has been scheduled for October 25-27. It will also include Hill visits to discuss proposals that would restrict the use of animals in research.

EB 2012 symposium: "Public Outreach and Animal Research: a Toolkit for Investigators"

Public support for animal research has declined over the last decade, in part because groups opposed to this work have campaigned energetically against it, while few scientists have tried to conduct public outreach about their work or to correct inaccurate statements made by research opponents. There is growing awareness that outreach is needed, but many researchers don't know how to get started. The goal of the ACE Committee's symposium at EB 2012 is to provide scientists with information and strategies to help them engage in public outreach about the importance of biomedical research using animal models. Symposium speakers will include Dario Ringach (a neurobiologist from UCLA's Jules Stein Eye Institute); John Young (attending vet at Cedars-Sinai and Board Chair for Americans for Medical Progress); and Jim Newman (Media Team Leader at Oregon Health & Science Univ.). All three have long track records of

outreach and advocacy. The session will suggest ways investigators can broach the topic of animal research with their students, neighbors, and family members.

• Council approved the position statement "APS Condemns Extremism and Harassment."



Christine Maric, Chair

Awards Committee

The Committee received seven applications for the spring Research Career Enhancement Award (RCEA), and received five in the fall, for a total of 12, slightly fewer than the previous year. The Committee received a total of three applications for the Teacher Career Enhancement Award (TCEA), one in the spring and two in the fall. This is similar to the number of applications submitted last year. This award continues to attract the fewest applicants.

The Committee is discussing options on how to increase the number of applicants.

This past fall seven applications were received for the Arthur C. Guyton Award, two for the Lazaro J. Mandel Young Investigator Award, and four for the Shih-Chun Wang Young Investigator Award. Although the number of applications submitted is low, the quality is outstanding. The APS Postdoctoral Fellowship in Physiological Genomics receives the highest number of applications of all the awards. This year, the Committee received 16 applications, which is similar to last year.

The Committee tracks the gender distribution of the applicants and recipients for these awards. The Committee will continue to track this information and discuss ways to try to increase the number of women applicants. The Chair will also work on this issue with the Women in Physiology Committee.

Spring 2010 RCEA Award: the applicants were 57% female, 43% men; awardees were 60% female, 40% male.

Fall 2010 RCEA Award: the applicants were 40% female, 60% men; awardees were 33% female, 67% male.

Spring 2010 TCEA Award: the applicants were 67% female, 33% male; the award recipient was female.

Fall 2010 TCEA Award: the applicants were 50% female, 50% male; both applicants were award recipients.

2010 Arthur Guyton Award: the applicants were 14% female, 86% men; the awardee was male.

2010 Mandel Award: the applicants were 50% female, 50% male; the awardee was male.

2010 Wang Award: the applicants were 50% female, 50% male; the awardee was male.

2010 APS Postdoctoral Fellowship Award: the applicants were 18% female, 82% male; both awardees were male.

The APS Awards Committee met at the Experimental Biology annual meeting in Washington, DC. At that meeting, the Committee discussed the nature of the postdoctoral fellowship in physiological genomics. While the Committee

APS Condemns Extremism and Harassment

Over the course of many years, scientists who use animals in their research have been subject to harassment, threats, and violence by individuals acting in the name of animal rights. The American Physiological Society unequivocally condemns the targeting of individuals engaged in legitimate scientific inquiry.

Knowledge obtained through research with animals has saved many lives and improved the quality of life for millions of people and animals. Scientists recognize that they have ethical duties both to relieve suffering through research as well as to provide humane care for the animals in their charge. Moreover, the use of animals in research is subject to strict regulatory oversight.

Harassment, threats, and violence in the name of animal rights contribute nothing to the betterment of animal welfare. These tactics are all the more abhorrent since animal research continues to play an essential role in efforts to discover causes, preventions, treatments, and cures for diseases that afflict both humans and animals. ❖

agreed that the focus of this fellowship should be flexible as physiology evolves over time, it was also felt that the focus is very broad and that a clearer definition of “genomics” is needed. It was decided that a question to the application should be added in which the applicant will describe (in 200 words or less) how the proposed project relates to “genomics.”

2010-2011 Award Recipients

RCEA and TCEA Award Recipients

The Spring Research Career Enhancement Award (RCEA) recipients are Linda Boland, Univ. of Richmond; Mihail I. Mitov, Univ. of Kentucky; Caroline A. Rickards, Univ. of Texas at San Antonio; Chantal A. Rivera, LSU Health Sciences Center; and Jason Daniel Vescovi, York Univ., Canada.

The Fall RCEA recipients are Julia Moffitt, Des Moines Univ.; Masahiro Murakami, Yale Univ. School of Medicine; and Paul Reynolds, Brigham Young Univ..

The Spring Teaching Career Enhancement Award (TCEA) recipient was Penelope A. Hansen, Memorial Univ., Newfoundland.

The Fall TCEA recipients are Kristin Gosselink, Univ. of Texas at El Paso; and Stefan Pulver, Univ. of Cambridge, UK.

Young Investigator Awards

The APS has three Young Investigator Awards: the Arthur C. Guyton Award for Excellence in Integrative Physiology, the Shih-Chun Wang Young Investigator Award, and the Lazaro J. Mandel Young Investigator Award. The Arthur C. Guyton Award was awarded to Kelly Paul Fadel, Univ. of Missouri. The Lazaro J. Mandel was awarded to Alexander Staruschenko, Medical College of Wisconsin. The Shih-Chun Wang was awarded to Patrick Mueller, Wayne State Univ.

Postdoctoral Fellowship in Physiological Genomics

The recipients of the Postdoctoral Fellowship in Physiological Genomics are Victor Lira, Univ. of Virginia, and Colin Young, Cornell Univ.

- Council accepted the Awards Committee report.



Career Opportunities in Physiology

2010 Session Web Resources

Multimedia presentations for the EB 2010 Careers Symposium “Government Careers in Physiology Revealed” have been posted on the APS website and catalogued in the APS Archive of Teaching Resources. These resources include oral presentations by: Christopher

Thomas Schmidt, Chair
Gordon, US Environmental Protection Agency (“Careers in a Civilian Government Laboratory”), Kathy Ryan, US Army Institute of Surgical Research (“Careers in a Military

Laboratory”), Sharon Milgram, NIH (“Opportunities at NIH: Bench Science and Science Administration”), and Kevin Greenlees, Food and Drug Administration (“Opportunities at FDA: Bench Science and Regulatory Review of Science”).

2011 Careers Symposium

In 2011 the Career Opportunities in Physiology, Trainee Advisory, and Women in Physiology Committee again coordinated the topics in their sessions to provide a complimentary set of career advancement sessions for physiologists. The session, which was entitled “New Opportunities in Non-traditional Academic Positions,” featured speakers who discussed current non-traditional research- and teaching-oriented career opportunities and future trends in medical institutions.

2012 Career Symposium

The Committee will focus its 2012 EB symposium on the topic: “Do I Need Another Degree?” The Committee recognizes that there is an ever-changing career landscape in science. One area in this landscape is the increase in PhD professionals pursuing additional degrees to enhance their ability to be competitive for new job opportunities in science. Additional degrees, including the JD law degree, MBA business degree, MPH public health degree and MED medical education degree, as well as internships in public policy, have become more common for PhDs. The goal of this symposium will be to provide trainees, as well as established scientists, with the up-to-date perspectives concerning the benefits and opportunities associated with these additional degrees and internships. The invited speakers will discuss how their own careers in science have benefited by taking advantage of these educational opportunities.

Career Presentations at APS Conferences

In 2010 the Committee presented a two-hour workshop at the APS Conference entitled: “Inflammation, Immunity, and Cardiovascular Disease,” using materials from the Professional Skills Course. The workshop, entitled “Writing your first papers: The ins and outs of authorship,” focused on how authorship on manuscripts is determined and engaged participants in an authorship case study. The Committee member who presented the workshop also shared an overview of the career development resources offered by the APS, including the Professional Skills Courses. In September 2011 the Committee sponsored a similar workshop at the APS Conference: “7th International Symposium on Aldosterone and the ENaC/Degenerin Family of Ion Channels: Molecular Mechanisms and Pathophysiology.”

Undergraduate Summer Research Fellowship Program

The 2010-2011 UGSRFs completed their fellowship year by attending EB 2011 in Washington, DC. Of the 24 fellows, 21 (88%) attended EB and 18 (75%) submitted an abstract. The 2010-2011 UGSRFs, like those in the past, competed successfully in the David S. Bruce Excellence in Undergraduate Research Award program, winning five of the 24 abstract awards and one of the Bruce Awards.

2011-2012 Program

For the 12th year of the program, 48 applications were received, and this was similar to many previous years. The Committee recommended 24 students for fellowships and these students were subsequently approved by Council. Over

the 12-year history of the program, the Committee has received 598 applications for the 204 awards granted, with an average funding rate of 34%.

Undergraduate Orientation Session at EB

The fourth orientation session held at EB 2011 attracted 75+ undergraduate students. All undergraduate students who submitted a first-author physiology abstract for a poster presentation were invited to attend and announcements were posted in emails to the Trainee and All-APS listservs. Members of the Careers, Trainee Advisory, and Education Committees gave the presentations at this session. The winners of the first APS video contest, "APS Presents . . . Phantastic Physiology Voyage," were also in attendance and recognized. APS President-elect Sue Barman welcomed all of the undergraduate students and presented certificates to the UGSRF Fellows. At EB 2011 the Careers Committee also coordinated a tour of the NIH campus in Bethesda. This event was hosted by Dr. Sharon Milgram and approximately 125 undergraduate and graduate students, as well as postdocs and faculty, attended. The campus tour included several orientation and career opportunities sessions.

APS Website "Career Explorer"

The Committee is planning a web application that will hopefully generate interest in learning more about physiology careers ("Could you be a physiologist?"). The K-12 student will be able to click on career keywords that interest him/her and see the biography of an APS physiologist whose career deals with those same interests. After the launch of the new APS website, the staff will work to develop the list of key words associated with each biography already posted and create a search tool so students can find biographies of interest.

Career Outreach Resources

The APS Careers PowerPoint Presentations are available for use at the middle and high school levels, as well as lower and upper undergraduate levels. Since the initiation of this project, these PowerPoint presentations have become tools, not only for use by APS members individually, but also in both undergraduate and K-12 outreach programs, especially Physiology Understanding (PhUn) Week. In 2010 the Education Office also launched two interactive online experiments for young children. These activities, which included the "Healthy Heart" and "Take a Run with Sam," were highlighted and promoted at the USA Science and Engineering Festival in October 2010. These online interactive experiments will be further promoted via PhUn Week, exhibits at the National Association of Biology Teachers and the National Middle School Association Meeting, as well as via teacher newsletters.

APS Local and Regional Science Fair Awards

Since July 2010, 33 requests for a Science Fair Award packet have been received from APS members. Twenty APS members have made science fair awards this year. Advertisements for these awards are posted in The Physiologist and the All-APS email updates for members and have been sent to all past participants.

APS Careers Web Site

In 2011 the Education Office reconfigured the career website and resources to better fit both the new website content management system and to provide easier access to the growing set of professional development resources that APS

committees and staff have developed for trainees. K-12 students will still find specific areas with career resources, biographies, and physiology exploration activities. Additional resources are sorted by topics rather than career level.

Physiology Video Contest for Undergraduate and Graduate Students

In 2010 the Council approved the Careers Committee's proposal for an APS annual video contest, "APS Presents. . . Phantastic Physiology Voyage: Function Follows Form," which was designed to engage undergraduate and graduate students in creating engaging physiology videos for the general public. In 2011 the selection committee, consisting of members of the Careers Committee and invited past APS Summer Research Teachers, viewed 11 submitted videos that met all of the required criteria. This committee selected "Eye Girl" by Rhiannon Dixon, Krista Lowe, and Keith Olson from Beloit College as the First Place Winner (\$750). The Viewer's Choice Award (\$250), which was based on total hits, went to "Swimming the Butterfly Stroke" by Raksha Ashlaysa, Katherine Wolf, Katherine Miller, Tyler Senz, and Jomar Salazar from Beloit College. Collectively, the 11 submitted videos have been viewed nearly 4,900 times in less than six months. These data suggest that these videos will continue to come up in searches and be viewed by the public, thus, further promoting physiology.

Undergraduate Research Excellence Fellowship

The Committee has developed a proposal for a new research award for undergraduate students. Although the current APS Undergraduate Summer Research Fellowship program is targeted for undergraduates with minimal research experience, the proposed Undergraduate Research Excellence Fellowship will reward students who have been actively involved in the research laboratory of an APS member for an extended period of time. Some of these very talented undergraduates have already presented and published the results of their research. These competitive fellowships will provide a stipend and travel award to those six applicants selected by the Committee using specific and published criteria. The proposal was approved by Council.

Excellence in Professional Student Research

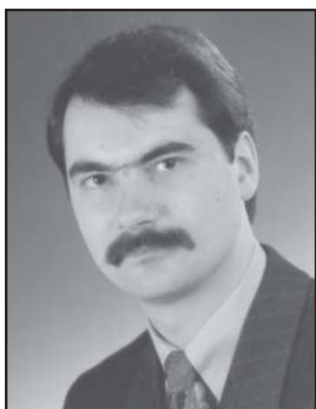
The Committee has developed a proposal for a new travel award for professional students. The focus of this new award will be to encourage MD/DO students who have been actively involved in research to present their results at the annual Experimental Biology Meeting. Applicants for this travel award must be the first author on a submitted abstract for the EB meeting and must have conducted their research in the laboratory of an APS member. The goal of this project is to encourage MD/DO students, and ultimately other professional students, to become actively involved in physiology research and present their research at a major scientific conference. The proposal was approved by Council.

New Careers Poster and Brochure

The Committee will proceed with the design and development of both a new APS Careers Poster and Brochure. The new physiology Careers Poster will be sent annually to each US and Canadian undergraduate biology/life sciences department to encourage students to visit the APS website and consider graduate work in physiology. The Education

Office will distribute the new physiology Careers Brochure to students in elementary and middle schools in response to requests from individual students, teachers, and school events, such as career fairs. The new brochure will also be used at APS exhibit booths for teacher conferences, such as the National Association of Biology Teachers.

- Council authorized the necessary funding to reprint the careers poster for the next four years.
- Council authorized the necessary funding to reprint the careers brochure for the next four years.
- Council approved the new Excellence in Research Travel Award for health care professional students.
- Council approved the new Research Excellence Fellowship Program.



Harald Stauss, Chair

Chapter Advisory Committee

When talking to other physiologists at this year's Experimental Biology meeting I usually asked the question "Do you know about the APS Chapter Program?" Most of my conversation partners have never heard about APS Chapters but were eager to learn more about them. Therefore, I would like to start this report by providing some general remarks about the APS Chapter Program.

The APS Chapter Program

The program is designed to promote, at the local level, the general objectives of APS, including interdisciplinary contacts among researchers interested in the physiological sciences and education of the general public and future physiologists. Chapters typically organize an annual scientific meeting with contributions from the membership, workshops on topics such as teaching in physiology, keynote lectures by invited speakers, student award competitions, etc. APS generously supports annual Chapter meetings with financial contributions to travel costs of invited speakers and trainee awards. Chapters also participate in the APS PhUn (Physiology Understanding) week, a program that brings physiologists into the classroom, outreach activities to the general population, and other activities. Currently, APS Chapters exist in Arizona, at the Gulf Coast (Louisiana, Mississippi, and Alabama), Iowa, Indiana, Nebraska, Ohio, Oklahoma, Puerto Rico, and Tennessee. If you reside in one of these states, you may want to browse through the APS Chapter website (<http://www.the-aps.org/chapters/index.htm>) to get connected with your local APS Chapter. If, however, your home state is not organized in an APS Chapter yet, you may want to consider chartering a new APS Chapter (please contact me for details, harald-stauss@uiowa.edu).

The Chapter Advisory Committee

The Chapter Advisory Committee (CAC) assists in preparing, maintaining, and updating Chapter Bylaws; it maintains and updates a collection of documents (Chapter User's

Manual) that assist Chapters with organizational tasks; assists Chapters with local community outreach activities; and interfaces Chapter missions with relevant activities of other APS Committees.

CAC Policy

Recently, the CAC developed a policy document to help regulate its governance. This document includes a description of the CAC, information and procedures on what constitutes a committee quorum, the CAC Chair Election Procedures, and other issues relating to the governance of the CAC and APS chapters. The Policy Document was presented to Council for review and approval, and was approved by the APS Council.

Chapter Status

Currently there are nine active APS Chapters. The Midwest Chapter which includes the States of Minnesota, Wisconsin, and Illinois has been inactive in recent years. The CAC has initiated steps to revive this Chapter or to initiate new individual Chapters in these states. All active chapters have current and approved Bylaws. Seven of the nine active APS chapters have obtained non-profit status. The Indiana Physiological Society currently is in the process of amending the bylaws to be compliant with Indiana and Federal mandates for non-profit status. The Oklahoma Society of Physiologist is in the process of applying for non-profit status.

Future Chapters

The CAC is working with physiologists in Michigan, Missouri, and Pennsylvania to foster new chapters. A petition for a chapter in Pennsylvania was submitted to the APS Council for approval, which was approved.

Chapter Activities

In 2010, eight APS Chapters held annual meetings with a total of 660 participants, a 25% increase compared to last year. A total of 51 trainees received awards for their scientific presentations. The Iowa Physiological Society, for the first time, presented an Undergraduate Student Travel Award in the amount of \$1,000 to defray costs of attending the 2011 Experimental Biology meeting. APS Chapters are also doing wonderful work to accomplish the mission of APS Chapters by local community outreach activities. For example, the Nebraska Physiological Society (NPS) participated in the APS sponsored PhUn Week program, visited four high schools to perform hands-on activities that teach students how their bodies respond to exercise. NPS also participated in the Omaha Public School Career Fair, presented APS Science Fair Awards in Physiology at two state-wide science fairs, and presented on Teaching and Understanding Physiology at the annual meeting of the Nebraska Association of Teachers of Science (NATS). Other APS Chapters have organized similar events. As an example, the newly inaugurated Puerto Rico Physiological Society (PRPS) participated in the PhUn Week program and visited several local high schools, where students participated in workshops that included presentations related to the effects of exercise on cardiovascular and respiratory physiology. To further promote such activities, CAC has generated a proposal for a new program that would provide funds to APS Chapters on a competitive basis to intensify activities directly related to the mission of APS Chapters, such as local community outreach activities.

Chapters are doing excellent work in promoting the discipline of physiology on the grass root level by bringing physiology education into high schools, participating in science fair projects, and other local outreach activities.

- Council approved the Chapter Advisory Committee Policy Document.
- Council approved the petition for the Pennsylvania Physiological Society.
- Council approved the new Chapter Activity Grant Program.



Alan Sved, Chair

Committee on Committees

The Committee on Committees (CoC) is composed of representatives elected by the 12 APS Section Steering Committees, as well as two Councillors who serve as Chair and In-coming Chair. Its primary duty is to nominate individuals to serve on APS standing committees and on outside bodies where the APS is represented. The CoC members try to identify and promote members of their section who might serve on committees, but also to set aside section affiliations to work together to nominate the best-qualified individuals to serve the society, keeping in mind the desire to promote diversity and the involvement of younger members in the committee structure.

Characteristics of the 2011 Applicant Pool

The CoC was pleased with the pool of applications for committee vacancies this year. This year 184 applications (Table 2) were submitted (this includes member positions, chairs, and trainee/student positions). Some of these members sub-

mitted applications to more than one committee. Table 1B shows other characteristics of the applicant pool.

Results From CoC and Council Meetings:

The CoC initially had 52 positions to fill, however, based on the joint efforts of the CoC and Council, one new position was added to the Science Policy Committee, and two new positions were added to the Career Opportunities in Physiology Committee. This included one regular member and one industry member. This brought the total number of open positions to 55.

The CoC charge, as discussed above, is to identify the best individuals to fill committee vacancies, regardless of sectional affiliation. All other things being equal, the Committee seeks to instill diversity in the committee structure based on section affiliation, geography, gender, and seniority.

Tables 1A and 1B show the section affiliation and other characteristics of the candidates chosen to fill the committee positions.

Table 3A shows the Section affiliation of the APS Standing Committee members in 2010 and 2011 and the composition in 2012 based on the new committee appointments. Table 3B shows the composition of the committees in terms of representation by members that are under the age of 45, women, living outside of the US, employed in Industry, and trainees. The data in Tables 3A and 3B represents the percentage of APS members comprising these categories.

Planning for 2013

The CoC hopes that many APS members will consider serving the Society as a member of one of its standing committees. Applications can be submitted via the APS website, and are due along with an Endorsement form by January 16, 2012. Those candidates who are unsuccessful at securing a committee appointment initially are encouraged to re-submit their credentials for consideration for the same or another committee in the next cycle and those placed as alternates will be re-considered without re-nomination.

- Council accepted the Committee on Committees report.

Table 1. APS Standing Committees Number of Positions (including new positions).

Committee	# of Positions Available
Animal Care & Experimentation	5 members
Awards	5 members, 1 trainee
Career Opportunities in Physiology	2 members, 1 industry
Communications	4 members, 1 trainee, 1 AJP rep.
Conference	4 members
Ray G. Daggs	1 member
Education	3 members, 1 trainee
Finance	1 member
International	4 members
Membership	4 members, 1 trainee
John Perkins Memorial Fellowship	0 (no open positions)
Porter Physiology Development	4 members
Publications	1 members
Science Policy	4 members
Senior Physiologists	1 members
Women in Physiology	Chair, 3 members, 1 student, 1 postdoc
Totals	55 Total positions: 1 Chair, 43 members, 1 postdoc, 4 trainees, 1 student, 3 trainees, 1 AJP rep., 1 industry

Table 1a. Section Affiliations of Applicant Pool and New Appointees.

Section	2009	2010	2011	2012 New Appointees	All APS Members
Cardiovascular	28 (24%)	29 (20%)	38 (21%)	7 (12.7%)	23%
Cell & Metabolism	12 (10%)	8 (6%)	18 (9.8%)	1 (1.8%)	12%
Central Nervous System	3 (2.5%)	12 (8%)	2 (1%)	1 (1.8%)	9%
Comparative	8 (6.5%)	5 (3.4%)	0 (0%)	1 (1.8%)	4%
Endocrine/Metabolism	5 (4%)	2 (1.3%)	2 (1%)	3 (5.4%)	8%
Environmental/Exercise	7 (6%)	5 (3.4%)	13 (7%)	7 (12.7%)	9%
Gastrointestinal & Liver	8 (6.5%)	8 (5.5%)	15 (8.1%)	4 (7.2%)	5%
NCAR	7 (6%)	15 (10.3%)	22 (12%)	7 (12.7%)	5%
Renal	11 (9%)	13 (8.9%)	28 (15.2%)	7 (12.7%)	7%
Respiration	14 (12%)	14 (9.6%)	6 (3.3%)	4 (7.2%)	8%
Teaching	7 (6%)	7 (4.8%)	4 (2.2%)	2 (3.6%)	3%
Water/Electrolyte	7 (6%)	27 (18.6%)	36 (19.6%)	11 (20%)	3%
TOTAL	118	145	184	55	10,853

Table 1b: Other Characteristics of the Applicant Pool.

	2010	2011	New Appointees	All APS Members (%)
Under age 45	74 (51%)	27 (14.3%)	28 (15.2%)	24%
Women	56 (38%)	26 (13.7%)	28 (15.2%)	26%
Reside outside of the US	13 (18.8%)	3 (1.5%)	2 (1%)	24%
In Industry	1 (1%)	0 (0%)	2 (1%)	2%
Student*	12 (8.2%)	4 (2.1%)	5 (2.7%)	7%

*Student: This number refers to student members, not trainees/postdocs.

Table 2: Section Affiliation of Completed Applications for APS Standing Committees
Total Number of Applications Per Committee: 171**

APS Committee	APS Section Affiliation											
	CV	Cell	CNS	Comp.	Endo.	EEP	GI&L	NCAR	Renal	Resp.	Teach.	WEH
ACE	4	2	1	0	1	0	2	2	1	1	0	2
Awards	7	1	1	0	0	2	2	1	4	0	0	7
Careers	1	0	0	0	0	4	2	1	0	0	0	0
Communications	1	0	0	0	0	0	1	1	3	1	0	4
Conference	4	4	0	0	0	2	1	2	6	1	0	2
Daggs	0	0	0	0	0	0	0	0	0	0	0	0
Education	4	3	0	0	0	2	0	5	2	1	3	4
Finance	0	1	0	0	0	0	0	0	1	0	0	0
International	4	1	0	0	0	0	4	1	5	0	1	5
Membership	4	0	0	0	0	0	0	0	2	0	0	2
Perkins	0	0	0	0	0	0	0	0	0	0	0	0
Porter	0	0	0	0	0	1	0	2	0	0	0	2
Publications	2	1	0	0	0	0	1	0	0	0	0	0
Science Policy	3	0	0	0	0	1	0	1	0	0	0	2
Senior Phys.	0	1	0	0	0	0	0	0	0	0	0	0
Women	4	4	0	0	1	1	2	6	4	2	0	6
Total	38	18	2	0	2	13	15	22	28	6	4	36

**Some candidates applied for more than one committee.

Table 3a: Section Affiliation of 2012 APS Standing Committee Members (does not include Chapter Advisory Committee, Committee on Committees, Joint Program Committee, Physiologists in Industry Committee, Section Advisory Committee, and Trainee Advisory Committee)

Section	2010	2011	2012	All APS Members (%)
Cardiovascular	29 (19%)	28 (18.1%)	22 (14.1%)	23%
Cell & Metabolism	11 (7%)	14 (9%)	12 (7.7%)	12%
Central Nervous System	11 (7%)	13 (8.4%)	6 (3.8%)	9%
Comparative	8 (5%)	7 (4.5%)	7 (4.5%)	4%
Endocrine & Metabolism	9 (6%)	7 (4.5%)	6 (3.8%)	8%
Environmental & Exercise	15 (10%)	9 (5.8%)	10 (6.4%)	9%
Gastrointestinal & Liver	9 (6%)	9 (5.8%)	15 (9.6%)	5%
NCAR	12 (8%)	12 (7.7)	15 (9.6)	5%
Renal	16 (10%)	18 (11.6%)	17 (10.9%)	7%
Respiration	8 (5%)	10 (6.4%)	12 (7.7%)	8%
Teaching	9 (6%)	9 (5.8%)	10 (6.4%)	3%
Water/Electrolyte Homeostasis	18 (11%)	18 (11.6%)	23 (14.8%)	2%
Total	155	154	155	10,853*

*Does not include honorary or affiliate members.

Table 3b: Other Characteristics of 2012 APS Standing Committee Members (does not include Chapter Advisory Committee, Committee on Committees, Joint Program Committee, Physiologists in Industry Committee, Section Advisory Committee, and Trainee Advisory Committee).

	2010	2011	2012	All APS Members (%)
Under age 45	38 (25%)	69 (44.8%)	45 (29%)	24%
Women	64 (41%)	66 (42.8%)	75 (48.3%)	26%
Reside outside of the US	14 (9%)	8 (5.1%)	8 (5.1%)	24%
Industry	4 (3%)	0	2 (5%)	2%
*Students	2 (1%)	8 (5.1%)	7 (4.5%)	7%

*This number refers to student members. Some postdoctoral trainees are regular members of APS.



James Hicks, Chair

Communications Committee

Media Outreach at Experimental Biology 2011

The annual meeting, Experimental Biology (EB), is an excellent opportunity to shine a spotlight on physiology. This year, in addition to press releases announcing the Cannon and Bowditch lecturers, we developed six scientific releases. They are noted below, along with the media outlets that reported about them:

Baltimore; Eyewitness News Sunrise At 5:30: WTHR-TV (NBC) CH 13, Indianapolis; TMJ4 News Live At 3: WTMJ-TV (NBC) CH 4, Milwaukee; News 4 Live At Five: WYFF-TV (NBC) CH 4, Greenville-Spartanburg SC/Asheville NC; NBC 13 News At 5:00: WVTM-TV (NBC) CH 13, Birmingham/Anniston; and Fox 8 5:00 News: WGHP-TV (FOX) CH 8, Greensboro/Winston-Salem.

Aerobic Exercise May Improve Non-Alcoholic Fatty Liver Disease (Haus)

KTVU Channel 2 News At 5, KTVU-TV (FOX) CH 2, San Francisco; Good Day Colorado: KDVR-TV (FOX) CH 31, Denver; Fox 8 News At 5 PM: WJW-TV (FOX) CH 8, Cleveland/Akron; Fox 8 News At Noon: WJW-TV (FOX) CH 8, Cleveland/Akron; Fox 8 News At 5:30 AM: WJW-TV (FOX) CH 8, Cleveland/Akron; Fox 13 News: Good Day Utah 5 AM: KSTU-TV (FOX) CH 13, Salt Lake City; and KOKH-TV (FOX) CH 25, Oklahoma City.

Moderate Exercise Improves Brain Blood Flow in Elderly Women (Zhang)

11:00 PM - 11:35 PM; Eyewitness News 11 PM: KABC-TV (ABC) CH 7, Los Angeles; NBC 5 News Today At 5:00: WMAQ-TV (NBC) CH 5, Chicago; News 10 Today: WCAU-TV (NBC) CH 10, Philadelphia; NBC 5 First At Four: KXAS-TV (NBC) CH 5, Dallas/Fort Worth; Today In The Bay: KNTV-TV

Vitamin D May Help Reduce Heart Risk in African Americans (Harris)

News 10 At Five: WCAU-TV (NBC) CH 10, Philadelphia; NBC 5 First At Four: KXAS-TV (NBC) CH 5, Dallas/Fort Worth; KING 5 News: KING-TV (NBC) CH 5, Seattle/Tacoma; NewsChannel 36 At 4:00: WCNC-TV (NBC) CH 36, Charlotte; 11 News Today: WBAL-TV (NBC) CH 11,

(NBC) CH 11, San Francisco; KING 5 News: KING-TV (NBC) CH 5, Seattle/Tacoma; KING 5 Noon News On KONG: KONG-TV (IND) CH 16, Seattle/Tacoma; Today In South Florida: WTVJ-TV (NBC) CH 6, Miami/Ft. Lauderdale; and Newschannel 8 At Noon: KGW-TV (NBC) CH 8, Portland, OR.

Women's Voices Remain Steady Throughout the Month; New study contradicts prior research suggesting hormonal status affects voice (Latman)

Daily Connection, WTVJ-TV (NBC) CH 6, Miami/Ft. Lauderdale; WebMd, <http://women.webmd.com/news/20110411/womens-voices-unaffected-by-menstrual-cycle?printing=true>; <http://www.humanhealthandscience.com/womens-voices-remain-steady-throughout-the-month-new-study-contradicts-prior-research-suggesting-hormonal-status-affects-voice-2/news>; <http://news.medill.northwestern.edu/chicago/news.aspx?id=184742&print=1>; and <http://www.letstayhealthy.com/home/page-24>.

Obesity May Shut Down Circadian Clock in the Cardiovascular System (Stepp)

No TV pickup, but release received a great deal of online consumer attention: <http://health-nutrition-fitness.net/weight-loss/obesity-may-shut-down-circadian-clock-in-the-cardiovascular-system/>; <http://www.humanhealthandscience.com/obesity-may-shut-down-circadian-clock-in-the-cardiovascular-system-2/news>; <http://popular-science.net/affect-of-obesity-in-the-cardiovascular-system.html>; http://www.aarp.org/health/medical-research/news-04-2011/obesity_could_throw_off_cells_clock_study_hints.html; <http://midsouthnewz.com/news/health.html>

Maternal Stress During Pregnancy May Affect Child's Obesity (Han)

CBS 11 News At Ten: KTVT-TV (CBS) CH 11, Dallas/Fort Worth; Noticias 34: KMEX-TV (UNI) CH 34, Los Angeles; and Noticias: KMEX-TV (UNI) CH 34, Los Angeles.

Do You Follow @Phyziotchick on Twitter?

We hope you are following us on Twitter! @Phyziotchick is the feed for what's new in science. During EB we tweeted regularly. Among the tweets:

"Stay calm, Mama! Maternal stress during pregnancy may affect child's risk of obesity later in life. Read the study: <http://bit.ly/hW0d5G>; and

"Sunshine in a pill: Vitamin D supplementation improves vascular function in African-Americans. Read the study@ <http://bit.ly/hW0d5G>.

Dr. Dolittle's Comparative Blog

We also hope you are reading the APS comparative physiology blog, Dr. Dolittle's Lifelines. The Doctor's EB coverage ranged from the symposia offered by the Comparative and Evolutionary Physiology Section to blood pressure regulation in giraffes.

Communications Symposium

The EB Communications symposium, "Communicating Science as a New Career Path, Physiology Beyond the Lab," attracted more than 60 attendees, many of whom stayed until long after the session was over. In response to the feedback we received, the committee will host another symposium at EB 2012, entitled, "Using Social Media to Communicate About Physiology and You."

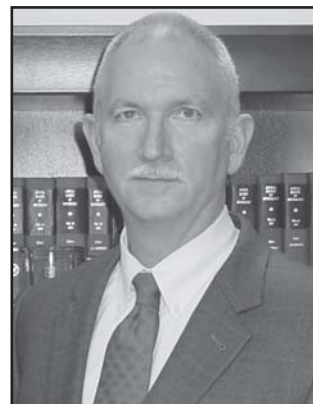
APS Journal Press Release Program

In addition to promoting the findings announced at EB, APS disseminates information about research published in our journals that will be of interest to the public and press. We have recently issued four such releases: New Study Suggests Estrogen, The Path to Type 2 Diabetes Can Begin in the Womb, When Warming Up for the Cycling Race, Less is More and Why Physiology Matters in Medicine.

APS-AAAS Mass Media Fellow

We are pleased to announce that Kelly Hogan is the APS-AAAS Mass Media Fellow for 2011. Ms. Hogan, who is expected to receive her PhD in December from Pennsylvania State University's Department of Veterinary and Biomedical Sciences, Center for Molecular Toxicology and Carcinogenesis, will be reporting on science and health issues for the *Milwaukee Journal Sentinel*.

- Council accepted the Communications Committee report.



Gerald Meininger, Chair

Conference Committee

The Committee is trying to work with all APS section and committee chairs, and sectional program committee representatives to ask them to consider summer conference planning on their agenda and include announcements in their sectional newsletters.

Several individuals from other societies have been contacted about the possibility of cross-Society conferences.

Both the US and British Microcirculatory societies have expressed some interest in the possibility of a joint program.

The Committee has been contacted by Wolfgang Kuebler, chair of the Respiration Section, regarding the possibility of having a joint conference with the Respiration Section, the Cardiovascular Section and the Microcirculatory Society. The Committee continues to discuss this possibility. Barbara Goodman, chair of the Teaching Section, has also contacted the Committee regarding a Teaching Section task force working on development of a recurring conference on professional development. The Committee is also discussing this idea.

The following are the upcoming conferences.

Physiology of Cardiovascular Disease: Gender Disparities; October 12-14, 2011; Univ. of Mississippi, Jackson, MS; and

2012 APS Intersociety Meeting: Integrative Biology of Exercise, October 10-13, 2012; Westminster, CO.

- Council accepted the Conference Committee report.



**Thomas A. Pressley,
Chair**

Education Committee

Professional Skills Courses

With support from the NIGMS Minority Opportunities in Research (MORE) division, the APS has developed live, web, and CD-ROM short courses that focus on critical professional skills areas. Each course includes a strong focus on the interaction of racial/ethnic background and culture with the development of these skills. Although general oversight of the project

resides with the Education Committee, the project has an Advisory Board that includes members from the Careers in Physiology, Porter Physiology Development, Trainee Advisory, and Women in Physiology Committees, as well as additional minority physiologists.

In January 2011, APS offered a live Professional Skills Training Course on Writing and Reviewing for Scientific Journals. This course is targeted toward upper-level graduate students and lower-level postdoctoral fellows who are working towards completing their first first-author manuscript. In the course, students learn the essentials of manuscript writing and reviewing while gaining valuable opportunities for networking and collaboration. The course includes an online component (pre-workshop readings, exercises, and reflections) and a weekend live workshop that includes nine plenary sessions that combine lecture, group activities, and instructor panels. The course also utilizes small group discussions led by an experienced, well-published researcher in the students' field. The 27 course participants rated all components of the course positively and provided complimentary comments on all aspects of the course, especially on the small group work.

Materials developed for the live Professional Skills Training courses are also utilized in online courses, leveraging the Society's efforts. For example, a recent addition to the online courses is "Interviewing for an Academic Position." This was offered for the first time May 12-19, 2011. The curriculum provided the resources needed to start a job search, prepare a cover letter and research statement, have a successful interview, and present an engaging job talk. For this initial effort, five students were enrolled, and APS Education members Tom Pressley and Jodie Krontiris-Litowitz served as faculty. Overall, course participants preferred "Interviewing for an Academic Position" as an online course and found that this format fit their preferred learning style. However, the general consensus was that more time was needed for the course to reflect upon materials and to rewrite the curriculum vitae and sample cover letter. In response to these comments, course organizers are planning a longer, less-condensed experience with more opportunities for interaction.

Physiology Graduate Program Directors

Towards developing a forum for physiology graduate directors, the APS partnered with the American Society for Pharmacology and Experimental Therapeutics to organize a joint meeting of Physiology and Pharmacology program

directors. This meeting was July 7-9, 2011, and it was hosted by the Dept. of Pharmacology & Toxicology at Michigan State Univ. in East Lansing. The Society sponsored several invited speakers, including Joey Granger, Michael Joyner, Maggie Alonso-Galicia, Erik Henriksen, Lori Isom, President-elect Sue Barman, Cindy Anderson, and Barbara Horwitz.

Medical Physiology Learning Objectives (MPLO) Project

The MPLOs are an ongoing joint project of the APS and the Association of Chairs of Departments of Physiology to provide guidelines for the breadth and depth of knowledge in the physiological principles and concepts that are considered minimal and essential for further progress in understanding mechanisms of disease and body defenses, particularly in medical training. They were initially published in 2000. The Renal, Fluid Balance, and Acid-Base section was revised in December 2010. Cardiovascular, Cell, Endocrinology and Metabolism, Gastrointestinal, Integration and Exercise, and Muscle sections were revised in February 2011.

ADInstrumentsMacknight Progressive Educator Award

A new initiative this year was the ADInstrumentsMacknight Progressive Educator Award. This award is presented to an APS member (early career or established investigator or equivalent position) who demonstrates the greatest potential for incorporating innovative teaching techniques and effectively utilizing technology resources in engaging undergraduate students in physiology education. The support of ADInstruments is gratefully acknowledged. The 2011 awardee was Gregor Belusic, Biotechnical Faculty, Ljubljana, Slovenia. His application included a description of a "singing greeting card beeper as a finger pulse sensor and acceleration transducer" that he has developed for use with undergraduate and high school students.

APS Refresher Courses at EB

The APS Refresher Courses are designed to provide both an intensive overview of content in one of the areas of physiology and an opportunity to review new teaching methods and materials for physiology instruction. They are targeted especially for non-specialists who have teaching responsibilities in the Refresher Course's content area in medical education. The Refresher Course materials are also widely disseminated via the website and APS journals. The 2011 Refresher Course focused on cell physiology with an emphasis on signal transduction.

Undergraduate Research at EB

The David S. Bruce Awards were established in 2004 to recognize excellence in undergraduate research. They are made annually at EB to undergraduate students. Finalists were selected based on their submitted abstracts and award application materials, and these finalists went on to be interviewed and judged on their poster presentations at EB. Given its continued recognition and success, the program was split in 2011 into two levels of award. All finalists received the David S. Bruce Outstanding Undergraduate Abstract Award, which includes a two-year student membership in the APS. Those selected on the basis of the interviews and poster presentations received the David S. Bruce Excellence in Undergraduate Research Award, as well as \$500. In addition to support from the APS, the David Bruce Award program has received generous contributions from Dr. Isis, her ScienceBlogs readers, SEED Magazine, the APS Central Nervous System Section,

and individual APS members Marlowe W. Eldridge, Ida J. Llewellyn-Smith, and Linda C. Samuelson.

Since 2004, the APS has invited all undergraduate students who are first authors on abstracts submitted to APS EB sessions to present their posters at a special APS Undergraduate Poster Session. In 2011, approximately 200 APS members came to see over 100 undergraduate physiology posters and to talk with the students. For the first time, the American Association of Anatomists (AAA) joined APS in promoting undergraduate research. AAA had 24 anatomy students participating in the poster session. Partial support for the program came from 15 sponsors. These are institutions and departments who reserve recruitment tables and promote their graduate programs to the undergraduate students at the session.

APS-sponsored Speakers

As a partner with several professional societies focused on science education, the APS sponsors keynote speakers at several meetings. The Education Committee identifies and recruits these speakers. The Human Anatomy and Physiology Society (HAPS) is an association of physiology educators, primarily from community and four-year colleges. The 2011 HAPS Conference was held May 28 through June 2 in Vancouver, BC. APS-sponsored speaker Virginia Brooks, Oregon Health and Science Univ. gave a presentation entitled "Brain Insulin: A Sweet Deal for Normal Baroreflex Function." The National Association of Biology Teachers is a professional organization of biology educators, primarily from K-16. For the Nov. 3-6, 2010 meeting in Minneapolis, MN, James Hicks, Univ. of California, Irvine, gave a presentation entitled "The Power of Comparative and Evolutionary Physiology: Insights from the Natural World."

Frontiers In Physiology Professional Development Program For Teachers

The APS Frontiers in Physiology Summer Research for Teachers program provides year-long fellowships for middle and high school science teachers from across the nation, engaging them in biomedical research, building connections with researchers, improving their teaching methods and curricular materials, and deepening the understanding of both teachers and students of how biomedical research is done and how animals are used in research. Over the years, funding has been provided by the APS, NIH, and NSF. APS members volunteer to host teachers in their laboratories and provide the needed lab materials and supplies for each teacher's research, as well as part of the travel costs for the teacher.

For 2010-2011, 22 teachers from 18 states completed a pilot Frontiers Online Teacher Program, a year-long online-only modification of the comprehensive Frontiers Research Teacher Fellowship. This was an expanded version of the Frontiers online professional development course using material from the traditional summer research fellowship experience. The teachers met for the first time at EB 2011 in Washington, DC, and participated in various APS Education Office and Committee activities. They were honored at a luncheon with leadership from the APS, along with the NCRP Director (Barbara Alving) and SEPA Program Officers (L. Tony Beck and Krishan Arora). This one-year modification of the traditional APS summer research program served two purposes: 1) it facilitated an explicit evaluation of the absence and presence of a physiology laboratory experience for teacher fellows in the program; and 2) it

developed a new model to allow APS to reach out to more teachers via online professional development.

For 2011-2012, the APS will add back to the Professional Development program the comprehensive Frontiers in Physiology Summer Research Teacher Fellowship, including the laboratory experience. The project is sponsored by the APS, the individual Society members who serve as research mentors, an NCRP SEPA grant, and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) at the NIH. The NIDDK funding supports the involvement of under-represented minority teachers and teachers working primarily with minority students, under-represented in science. From a pool of 40 applications, the Education Committee selected 17 teacher fellows to participate in this program.

In the fall of 2010, the APS received a one-year supplemental grant from the National Center for Research Resources (NCRP) at the NIH as part of the existing three-year Science Education Partnership Award (SEPA) grant. The award allows the APS to replicate the pilot Online Teacher Course and specifically target teachers affiliated with existing SEPA projects and IDEa state programs. Thirty such teachers have been enrolled in the program.

Physiology Understanding Week (PhUn Week)

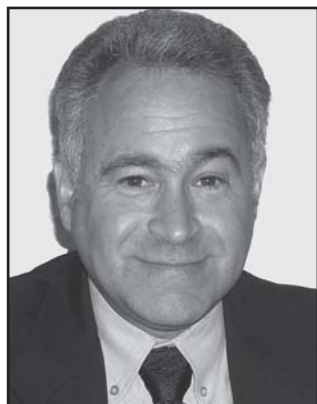
The objective of Physiology Understanding Week is to increase student interest in and understanding of physiology in their lives and to introduce them to physiology as a possible career. Each November, APS members are encouraged to visit their local school(s), explain what physiology is and what a physiologist does, and lead students in interactive learning activities. The PhUn Week 2010 theme was exercise and health. 240 physiologists at 63 locations across the US and Canada interacted with approximately 8,900 students. One group of students in Weymouth, MA, gave a presentation on their PhUn Week experience to the local school board. Video of the presentation is available on YouTube (<http://www.youtube.com/watch?v=XO3FUzEZIFg>).

USA Science and Engineering Festival (USASEF)

On October 23-24, 2010, the APS participated in the inaugural USA Science & Engineering Festival on the National Mall in Washington, DC. The organizers' intention was "to be the ultimate multi-cultural, multi-generational and multi-disciplinary celebration of science in the United States." Hosted by Lockheed Martin, the Festival and two-day Expo was the first national science festival in which science and engineering organizations from across the nation had the opportunity to engage the public in fun, hands-on science activities to inspire the next generation of scientists and engineers. The APS Exhibit Booth/program leveraged the PhUn Weeks materials to promote "Understanding Physiology for PhUn." Visitors to the booth engaged in two physiology activities: one in comparative physiology and one in cardiovascular physiology, touching on both the biomedical aspects of physiology and the "one physiology" aspect of adaptations. Presenters included APS Education Committee members Tom Pressley and Jodie Krontiris-Litowitz, APS member Rudy Ortiz, and current and former APS K-12 Outreach Fellows, TanYa Gwathmey, Mesia Moore-Steed, and Clintoria Richards-Williams. Additional staff from the APS Education Office included Miranda Byse, Melvin Limson, and Marsha Matyas.

- Council accepted the Education Committee report.

Finance Committee



Jeff Sands, Chair

During the spring meeting of Council, the Finance Committee reported that the Society's financial condition remains relatively strong through sound management and investment practices.

Subscription Pricing Proposal

The Committee discussed the idea of converting the Society's journal subscription price structure from a cost plus 10% method to a tiered pricing method. Tiered pricing has been adopted by a large number of non-profit publishers and most commercial publishers. Using the tiered method, APS would assign institutional subscribers to one of five tiers based on the perceived value of the journal to the institution. Prices are set relative to the size of the organization and their usage trends. It assumes a journal is more valuable to a larger institution, with more users and higher

usage, than to a smaller one. The implementation of tiered pricing would span three years until a 10% differential exists between each of the five tiers. The Committee approved converting to a tiered pricing model.

Current and Pending Grants

The current grant activity totals \$2.1 million and pending grant requests total \$60,000.

Dues Increase

Dues are currently \$140 per year. The Committee submitted a proposal to Council that dues be increased \$15 every other year until 2018 when the limit of \$200 is reached, and that student membership remain \$10 in year one with an increase to \$25 in subsequent years. Council approved the recommendation.

Managed Accounts

It was reported that, at December 31, 2010, two fixed income accounts was +10.69% for the year, which was slightly less than the Society's composite benchmark index of +11.20%.

Three Year Financial Forecast

The forecast projects a surplus of \$83,000 and \$37,000 in 2012 and 2013, respectively and a deficit of \$56,000 in 2014. The projection shows both revenue and expenses growing at annual rates of 0.2% and 0.4%, respectively from 2011 to 2014. By comparison, the March 2010 projection showed revenue and expenses growing at rates of 0.6% and 0.9%, and projected deficits of \$50,000, and \$119,000, for the years 2012 and 2013, respectively.

2010 Financial Results

Revenue, including \$1.3 million from reserves, was \$17.4 million and expenses over the same period were \$16.6 million, resulting in a surplus for the year of \$805 thousand. Note that the 2010 budget called for a projected surplus of \$50,500. The Society was approximately \$755,000 over budget at year-end. Revenue for the year was \$52,000 over budget, and expenses were \$703,000 under budget. Under budget revenue categories included Grant Income and Meetings Income. Two journal-related expense categories, Editors and Mailing, were under budget by a total of \$239,000.

2011 Budget

Reductions in revenue of \$154,000 and decreases in expenses of \$195,000 resulted in a small increase in the 2011 projected budget surplus from \$39,000 to \$80,000. Budgeted revenue was decreased from \$18.24 million to \$18.09 million, and budgeted expenses were decreased from \$18.21 million to \$18.01 million.

2010 Audit

The Committee reported that the Society's financial statements were audited in accordance with general accepted auditing standards. The Society's audit firm, Rogers & Company rendered an unqualified opinion that the Society's statements presented fairly, in all material respects, the financial position of the Society at December 31, 2010 and 2009.

APS Statement of Financial Position as of December 31, 2010 and 2009

ASSETS	2010	2009
Cash and cash equivalents	\$ 810,989	\$ 1,029,739
Investments	47,380,435	44,622,417
Accounts receivable, net	1,080,861	1,349,071
Pledges receivable, net	179,910	179,047
Accrued interest receivable	143,074	186,215
Advances to section editors	355,622	387,048
Prepaid expenses	228,913	164,797
Inventory	42,227	40,068
Property and equipment, net	1,425,541	976,906
Total assets	\$51,647,572	\$48,935,308

LIABILITIES AND NET ASSETS

LIABILITIES	2010	2009
Accounts payable and accrued expenses	\$ 1,919,694	\$ 1,945,766
Deferred subscriptions	5,803,899	6,030,076
Deferred dues	631,740	689,690
Total liabilities	8,355,333	8,665,532
NET ASSETS		
Unrestricted	42,554,438	39,516,710
Temporarily restricted	725,301	740,566
Permanently restricted	12,500	12,500
Total net assets	43,292,239	40,269,776
Total liabilities and net assets	\$51,647,572	\$48,935,308

Council accepted the Finance Committee report.

APS Statement of Activities for the year ended December 31, 2010

	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
Operating revenue:				
Subscriptions	\$ 9,818,840	\$ -	\$ -	\$ 9,818,840
Author charges	3,506,992	-	-	3,506,992
Membership dues	1,001,282	-	-	1,001,282
Grants and contracts	324,815	-	-	324,815
Conferences and meetings	592,867	-	-	592,867
Contributions	129,045	139,246	-	268,291
Advertising	275,848	-	-	275,848
Other income	352,309	-	-	352,309
Release from restrictions	<u>154,846</u>	<u>(154,846)</u>	<u>-</u>	<u>-</u>
Total Operating Revenue	<u>16,156,844</u>	<u>(15,600)</u>	<u>-</u>	<u>16,141,244</u>
Operating expenses:				
Publications	11,552,785	-	-	11,552,785
Society general	2,917,840	-	-	2,917,840
Society programs	695,695	-	-	695,695
Education	1,328,920	-	-	1,328,920
Marketing	<u>346,519</u>	<u>-</u>	<u>-</u>	<u>346,519</u>
Total Operating Expenses	<u>16,841,759</u>	<u>-</u>	<u>-</u>	<u>16,841,759</u>
Operating change in net assets	(684,915)	(15,600)	-	(700,515)
Net realized gain on investments	965,963	-	-	965,963
Net unrealized gain on investments	2,082,233	-	-	2,082,233
Interest and dividends	1,082,505	335	-	1,082,505
Investment management fees	<u>(408,058)</u>	<u>-</u>	<u>-</u>	<u>(408,058)</u>
Total Investment Income	3,722,643	335	-	3,722,978
Change in net assets	<u>3,037,728</u>	<u>(15,265)</u>	<u>-</u>	<u>3,022,463</u>
Net assets, beginning of year	<u>39,516,710</u>	<u>740,566</u>	<u>12,500</u>	<u>40,269,776</u>
Net assets, end of year	\$ <u>42,554,438</u>	\$ <u>725,301</u>	\$ <u>12,500</u>	\$ <u>43,292,239</u>



Bryan Mackenzie, Chair

International Physiology

International members—comprising a quarter of the Society's regular members—are a large and important constituency within the American Physiological Society. The International Physiology Committee (IPC) seeks to assist APS by identifying and implementing ways in which APS can best serve its international members and students. As APS positions itself as the premier professional organization devoted to fostering

education, scientific research, and dissemination of information in the physiological sciences, the IPC seeks to identify and implement ways by which APS can achieve those goals internationally and raise its global stature. In 2010, APS Council charged the IPC with finding ways to increase international membership in APS.

Demography of International Members

International (non-US) membership of APS has grown from 20% in the year 2000 to now 25%. International physiologists comprised 32% of the new regular members joining in 2009–10, and 26% of the new regular members in 2010–11, so that international members are a large and important constituency within APS. Whereas Canada, United Kingdom, Japan, and Brazil account for the largest numbers of new international members—both historically and now—new regular members in 2010–11 came from a total of 42 nations over six continents (Fig. 1). Notably, disproportionately few new regular members come from India and China.

International Early-Career Physiologist (IECP) Travel Awards

On the recommendation of the IPC, APS Council established the International Early-Career Physiologist (IECP) Travel Awards in 2008 to enable students, trainees and jun-

ior faculty from outside of the US to attend and participate in Experimental Biology (EB). Council approved funding for up to 10 awards annually, each of \$500. Ten awards were made in 2011 and the awardees were recognized at the APS Business Meeting at EB2011.

The IPC considers this program to be both an exciting means of encouraging the very best and most promising young international physiologists to attend EB and present their research, as well as a means by which the Society can engender the interest of international students, trainees, and junior faculty in joining APS. Although still a new program, the IECP Travel Awards program has received fewer applications than the IPC had expected. In an effort to remedy this, the IPC will better promote the IECP travel award program to APS international members and will simplify the application process.

The IPC recommended that Council approve increased funding for the IECP travel award program (increasing both the number and monetary value of the awards) to ensure that APS can bring the very best young international physiologists and the most promising students to EB 2012 and to join in the APS 125th anniversary celebrations.

Latin-American Initiative

Established in 2000, the APS Latin-American Initiative provides financial support for symposia, conferences, courses/workshops and other events held in Latin America, with the aim of strengthening ties between APS and sister societies in Latin America, and fostering interactions between APS members and physiologists working in Latin America. Up to four awards of up to \$5,000 are funded annually.

Over the past three to four years, the Committee has worked to improve the quantity and number of applications. Specific revision of the application guidelines in 2008 led to some improvement in quality of the applications since 2009. The primary deadline for submissions is June 30 for awards to support events in the following year. The Committee now provides applicants with a brief résumé of the review and has established the habit of calling for a second round of applications (November 1) such that applications generating enthusiasm, despite specific concerns, can now be revised and resubmitted with enough time remaining for funding in the following year.

Figure 1. New regular members joining APS in 2010–11 by country/region of affiliation or place of work.



In the 2011 funding cycle, the Committee reviewed a total of five applications, three of which were funded. In the coming year, the IPC will review reports of recent events funded by the Latin-American Initiative, and evaluate the outcomes and long-term value of this program.

Increasing International Membership in APS

In 2010, Council charged the IPC with finding ways to increase international membership in the Society. IPC recommended that Council remove the requirement for sponsorship of new member applications and that APS evaluate the merits of introducing a developing-country reduced membership rate. The IPC recognizes that the quality of the society's scientific meetings, especially EB, to be a major strength and that increasing attendance at EB should serve as a strategy for increasing international membership. The IPC will collaborate with the Membership Committee to find ways of attracting new international members and increasing retention, and with the Chapter Advisory Committee, to help foster establishment of international chapters.

Survey of International Members' Needs

In a 2010 survey of international members, IPC found that the top reason international members had joined APS was for the "opportunities to interact with physiologists from the US and other countries." International members cited a second important tangible benefit to be "online access to APS publications." Two thirds of survey respondents were unaware of either the IECF Travel Award program or the Latin-American Initiative. To improve communication with the international membership, the IPC will ask the Executive Director to establish an international email list-serve and to provide an international page on the new APS website.

- Council approved an increase in the monetary value of the International Early Career Physiologists Travel Awards to \$1,000 for EB12.



Ronald Lynch, Chair

Joint Program

Experimental Biology 2011

The 2011 EB Meeting was held in Washington, DC April 9-13. The scientific and poster sessions were well-attended and overall enthusiasm for the meeting remains high. Participating societies were: APS, ASPET (pharmacology), ASN (nutrition), ASBMB (biochemistry), ASIP (pathology) & AAA (anatomy).

APS also supported two unopposed Techniques and Technology in Physiology

Workshops on Saturday entitled "Translational Research: A Primer for the Basic Scientist," and "Small Animal Models." The Physiology InFocus program entitled "Molecular and Clinical Physiology in Human Disease," organized by Peter Wagner included four symposia on "Left Heart Failure:

Molecular, Physiological & Clinical Integration;" "Idiopathic and Inheritable Pulmonary Arterial Hypertension (PAH): From Genes to Clinical State;" "Physiology and Genetics of Obesity: Molecular Discovery and Translational Research;" and "Translational Biology of the Renal Podocyte." The Award lectures included the 12 Section Distinguished Lectureships; the MCS Landis Award Lecture was presented by Michael J. Davis; the Physiology in Perspective—The Walter B. Cannon Memorial Award Lecture was presented by Roberto Bolli; The Henry Pickering Bowditch Award Lecture was presented by Larissa Shimoda; and The Walter C. Randall Lecture in Biomedical Ethics was presented by Gerald P. Koocher.

APS also sponsored four "Cross-Sectional" Symposia entitled: "Role of microRNA in Cardiovascular System," "Gas Channels," "Therapeutic Potential of the ACE2/Ang-(1-7)/MasR Axis in Disease," and "Understanding Blood Pressure Regulation Through Neural, Vascular, and Renal Specific Knockout/Knockdown Approaches."

At EB11, APS programmed 323 sessions in total; 180 poster sessions, 71 symposia, 45 featured topics, 17 lectures, three workshops, and one refresher course, one awards session and five special sessions. The meeting program was organized using the Clustering of Sectional Programs for the first time.

A total of 7,049 volunteered abstracts were submitted; an increase of 15% over the total number submitted for EB 2010 in Anaheim. APS programmed 2,480 (35%) of the total number of abstracts submitted. This represents an increase of 11% total abstracts programmed by APS from EB 2010; however, it also represents a decrease of 1% in APS-programmed abstracts overall from EB 2010. There were 649 late-breaking abstracts submitted, a decrease in total late-breaking abstracts of 11% over EB 2010. Of that total, 226 (35%) were submitted to APS for programming versus 187 submitted in EB 2010.

The APS hosted five guest societies: The Microcirculatory Society (MCS), the Biomedical Engineering Society (BMES), the American Federation for Medical Research (AFMR), the Society for Experimental Biology and Medicine (SEBM), and The Physiology Society (TPS).

Clustering of Sectional Programs: Meeting within a Meeting Concept

The 2011 meeting was the first meeting in which sections "clustered" their programming on specific days within the meeting. The "clustering" of sessions by section provided a framework which facilitated session programming/slotting allowing more time for optimizing the scheduling of rooms (sizes) to match sessions. When possible, sectional programming was scheduled consecutively in the same room or an adjacent room to optimize flow.

A survey was developed to assess membership/registrant satisfaction with the new meeting format. Overall, the data show that the majority of responders either didn't notice the change in format (better advertising required?), or found it to be useful. However, a significant number of responders were not satisfied with the clustering program. Based on anecdotal feedback, as well as feedback from SAC, it was noted that having Plenary Sessions during poster sessions reduced poster attendance, and the programming of posters on the same days that all oral sessions and the section's Plenary Lecture were scheduled caused a significant amount

of conflict, and also possibly lower attendance at the poster sessions. The JPC is discussing ways to resolve these issues.

Experimental Biology 2012

The JPC has received 14 Cross-Sectional symposium proposals for EB 2012. The four proposals selected are "Essential Insights into Protein Interactions in Epithelia," "Recent Advances in Physiology and Disease," "The Role of the Circadian Clock in Neural, Cardiovascular and Metabolic Function," "Brain Insulin: The Forgotten Metabolic Partner of Leptin?" and "Hypoxia Inducible Factors (HIFs) in Health and Disease." In addition, two Techniques and Technology workshops will be scheduled. The two workshops are "Overcoming the Fear of Making Your Own Transgenic and Knockout Mice," and "Toolkit for Genomic Biomarker Discovery by Physiologists." These workshops were designed to complement the Physiology InFocus (PIF) series organized by APS President Joey Granger. The (PIF) program is entitled Physiology in Medicine and will feature a series of three symposia including, "Hypertension and Chronic Kidney Diseases," "Obesity and Diabetes," and "Using Physiology to Translate Cardiac Remodeling and Heart Failure." The 4th slot, normally reserved for a PIF symposium, will now be designated as the "Nobel Prize Lecture," and will be held on Wednesday afternoon.

As is customary, the meeting will also feature sessions organized by the APS Publications, Careers in Physiology, Public Affairs, Women in Physiology, Trainee Advisory, Physiologists in Industry and Education Committees.

- Council accepted the Joint Program Committee report.

Membership Committee



Robert Brock, Chair

The Committee will leverage the key priorities that emerged from the strategic planning meeting held in January by the Society leadership to develop and recommend new strategies on issues related to membership recruitment, retention, and engagement. The APS Membership Committee met at the Experimental Biology Annual Meeting in Washington, DC. At that meeting, the Committee discussed

several issues including the idea that the charge of the Committee should be revised and updated to better reflect the direction and function of the Committee as it serves the APS. Not only should the Committee provide recommendations for member recruitment and retention, but also recommendations on how to engage members throughout the APS.

The Committee also needs to evaluate and propose ways to specifically target individuals involved with translational research—not only in attracting translational researchers as members, but also including translational research in APS meetings and journals. The Committee will work to develop a series of strategies for bringing translational researchers into the APS. Potential avenues to pursue include engaging clinicians into

meeting programs via symposia, a designated listserv, as well as inclusion with the governance of the individual sections.

Finally, the Committee will continue to work to identify additional tangible benefits specifically for APS members.

- Council approved removing the requirement for sponsorship from the membership process.
- Council approved introducing a discount to nonmembers who join APS at the Experimental Biology meetings, or other APS sponsored meetings.



Esther E. Dupont-Versteegden, Chair

Perkins Memorial Award Committee

The John F. Perkins, Jr. Memorial Award for International Physiologists promotes cultural exchange and scientific collaborations by providing supplementary aid to families of foreign scientists working for a minimum of three months in the US. In this way, young scientists are able to bring their families and, thus, make full use of the cultural exchange, as well as the scientific benefits associated with an international collaboration. This award is intended to support family visits to the US for postdoctoral fellows and junior faculty from overseas. Application for the Perkins Award must be made jointly by the host, who must be an APS member, and the visiting scientist. The recipient receives funds generally not exceeding \$5,000.

Applications for the Award are accepted in the spring and fall, with application deadlines of April 15 and October 15. For the April 2010 deadline, the Committee received six applications, and funded one. The recipient was Dr. Gabor Raffai, Semmelweis Univ., Budapest, Hungary. The APS host member is Dr. Julian Lombard, Medical College of Wisconsin. For the October 2010 deadline, the Committee received two applications, but neither applicant met the award requirements.

- Council accepted the Perkins Memorial Award Committee report.



Kelly Pitts, Chair

Physiologists in Industry Committee

The Physiologists in Industry Committee (PIC) met at the EB11 meeting in Washington, DC. The Committee is chaired by Kelly Pitts and is composed of representatives from each of the APS sections, who are nominated to serve by their sections. The current committee membership is John T. Liles (Cardiovascular), David

Breckenridge (Cell & Molecular Physiology), Michael Finley (Central Nervous System), Kenneth Olson (Comparative Physiology), Joe Broznick (Endocrinology and Metabolism), Karen Mittelman (Environmental and Exercise Physiology), Shailla Basavappa (Gastrointestinal & Liver), Alison Strack (Neural Control and Autonomic Regulation), Bill Noonan (Renal), Rebecca Persinger (Respiration), Nancy Pelaez (Teaching of Physiology), and Eugene Shek (Water and Electrolyte Homeostasis).

At EB2011, Committee sponsored the "Stem Cells in Physiology and Drug Discovery" symposium. Recent breakthroughs have allowed the generation of induced pluripotent stem cells (iPS cells) from somatic cells which maintain all the potential of embryonic stem cells without using embryos, eliminating ethical concerns. These findings have generated excitement and interest in the biomedical research community as well as the pharmaceutical industry. The first stem cell trial in the US has recently been approved by the FDA for severe spinal cord injury. Beyond therapeutics, the promise of using differentiated human stem cells in drug discovery as disease relevant and toxicology models is maturing. Stem cells and cell lines derived from iPS cells of patients can accelerate the development of existing targets for different diseases and provide opportunity to explore innovative treatments in regenerative medicine. This symposium reviewed the current use of pluripotent stem cells as enabling technology in drug discovery, as well as provided examples of therapeutic approaches.

In addition, the APS Translational Physiology Group and PIC co-sponsored a symposium entitled "The Cardiac Sarcomere as a Therapeutic Target." The cardiac sarcomere is the core structure responsible for active mechanical heart function and dynamics. A better understanding of the interactions at the crossbridge level has led to the discovery of novel pathways and to the development of new clinical targets. In this symposium, key opinion leaders in the field reviewed the sarcomere components associated with regulating basic cardiac function, discussed the effect of calcium signaling on sarcomere proteins, addressed the clinical consequences of certain genetic mutations of the sarcomere, and reviewed the successes and challenges that sarcomeric modulators are experiencing in the clinic. Attendees gained an appreciation for the translational nature of studying and targeting the cardiac sarcomere.

The PIC Novel Disease Model Award is now sponsored by Plato BioPharma, Inc., a world leader in in vivo model development and execution. The PIC Novel Disease Model Award is granted to a graduate student and a postdoctoral fellow who submit the best abstracts to the EB meeting that describes a novel disease model. The model can be in vitro or in vivo but should clearly emphasize the potential utility of the system for future research related to a disease. The award is \$500 for the graduate student and \$800 for the postdoctoral fellow. This year, the awards were presented by Craig F. Plato, President and CEO of Plato BioPharma, Inc. The 2011 Postdoctoral awardee was Nicole L. Nichols, Univ. of Wisconsin and the Predoctoral awardee was Emily Young, Univ. of Mississippi Medical Center.

The Committee hosted the 11th Annual Physiologists in Industry Committee Mixer at EB 2011. At the mixer, a slide deck presentation on Drug Discovery and Science in Industry was projected in the room allowing for discussion and mentoring of new scientists. Trainees expressed significant gratitude

and a newfound awareness of "what goes on in industry."

At EB2012, PIC will sponsor the symposia entitled "MicroRNAs in Human Disease and as Novel Therapeutics" that will be chaired by Rebecca Persinger, and John Liles. MicroRNAs (miRNAs) are a class of short (~19-25 nucleotides), single-stranded RNAs that have been shown to regulate gene expression through irregular base pairing to the 3'-untranslated region of target mRNAs. Although miRNAs do not code for proteins, they play an important role in post translational gene expression regulating families of genes involved in developmental, cell death, metabolism, and disease. First described by Victor Ambros in *c. elegans*, miRNAs have been found in nearly every biological system examined with more than 800 described in humans. A number of companies have developed strategies targeting miRNAs as a novel class of therapeutics to treat cancer and diseases of the cardiovascular and renal systems. The proposed symposia speakers include: Eric Nelson, Univ. of Texas Southwestern Medical Center, will provide an overview of miRNAs and their role in human disease; Eva van Rooij, Miragen Therapeutics, will discuss miRNAs as a novel treatment for cardiovascular disease; Eric G. Marcusson, Regulus Therapeutics, will review miRNA as a therapeutic target in hepatocellular carcinoma; and Zheng Dong, Medical College of Georgia, will review the role of miRNAs in renal disease. Attendees will gain a broad appreciation for the role of miRNA in pathophysiology of disease along with an appreciation for how miRNAs may be novel therapeutic targets.

- Council accepted the Physiologists in Industry Committee report.



Dexter Lee, Chair

Porter Physiology Development Committee

The goal of the Porter Physiology Development Program is to encourage diversity among students pursuing full-time studies toward the PhD (or DSc) in the physiological sciences and to encourage their participation in the American Physiological Society. The program provides one- to two-year full-time graduate fellowships. The program is open to underrepresented ethnic minority

applicants who are citizens or permanent residents of the United States or its territories.

2010-2011 Porter Physiology Fellowship Program

In 2010-2011, the program provided funding for eight fellows.

2011-2012 Porter Fellowships - New and Renewal Applications

A total of two new and six renewal applications were submitted for the January 15 deadline and reviewed by the Committee. The stipend paid to the Porter Fellows for 2011-2012 will be \$27,300, consistent with the NIH scale.

Porter Facebook Fan Page

A Facebook Fan Page was launched for current and past Porter Fellows to facilitate networking among minority physiologists. Many of the Porter Committee members and APS staff are trying to post two-three times per week.

2010-2011 Travel Awards

The Porter Committee reviewed and recommended award recipients for Minority Travel Fellows (EB & workshops). Four travel fellows received funding to attend "2010 APS Intersociety Meeting: Global Change and Global Science: Comparative Physiology in a Changing World," August, 2010 in Westminster, CO. In January 2010, the Committee selected 31 travel fellows to attend EB 2011 in Washington, DC.

2010 APS Awards

The APS exhibited at the November 2010 meeting in Charlotte, NC to promote undergraduate programs, graduate study in physiology and the APS programs for minority students. The APS was pleased to provide \$2,500 for cash awards for the most outstanding undergraduate presentations in physiology research. APS was represented by Jessica Ibarra, 2010 APS K-12 Minority Outreach Fellow, and Brooke Bruthers, APS Minority Programs Coordinator.

Eight undergraduate students received APS-sponsored awards for the best oral and poster presentations in the physiological sciences. Students also received a complimentary one-year print subscription to the APS journal, *Physiology*, and an APS denim shirt. Awardees were added to the APS Minority Physiologists and APS Trainee Listservs.

2010 APS Exhibit

In 2010, the theme for the SACNAS annual conference was "Science, Technology & Diversity for a Sustainable Future." The conference took place from September 30–October 3, 2010 in Anaheim, CA. A total of 3,300 attendees participated in the conference. A SACNAS record-breaking 883 students presented their research at this national conference (44% in biological, agricultural, and environmental life science). There were also more than 330 exhibitors.

- Council accepted the Porter Physiology Development Committee report.



Hershel Raff, Chair

Publications Committee

Editor appointments

Interviews were held for the Editor-in-Chief of *AJP-Lung*. Sadis Matalon was chosen to be the new Editor-in-Chief; his term will begin January 1, 2012. Paul Insel, Editor-in-Chief, *AJP-Cell* and David Linden, Editor-in-Chief, *Journal of Neurophysiology* have been reappointed for a second three-year term.

Impact Factor

The 2009 Journal Impact Factors (IF) held steady for all journals. *PRV*, once again ranked first in the field of physiology, with an IF of 37.726 and *Physiology* ranked third, with an IF of 6.945.

Journal Statistics

Accepted manuscripts. Time from manuscript submission to first decision for 2010 averaged 25 days, three days fewer compared to 2009. The average rejection rate for all journals decreased to 55% in 2010 from 56% in 2009.

Manuscript submissions. Manuscript submissions in 2010 decreased by 3% vs. 2009 across all journals and all manuscript types, an improvement compared to the 10% decrease in 2009 vs. 2008.

Published Articles and Pages. The number of regular research articles published in 2010 decreased by 4% from 3,383 in 2009 to 3,232 in 2010; published invited articles decreased by 6% from 546 in 2009 to 515 in 2010. The number of manuscripts in *AiPS* decreased 6% from 3,666 in 2009 to 3,442 in 2010. Journal pages published decreased by 3% compared to 2009. The number of published pages was 8% under the 2010 page cap.

Supplemental data. A total of 648 data supplements were published in 2009, this represents a 17% increase.

AuthorChoice. There were 33 requests for AuthorChoice in 2010 (compared to 40 in 2009), which represents less than 1% of all accepted articles during that period.

Color figures. In 2010, 4,727 color figures were published in APS journals of which 2,839 were published by APS member authors at no charge.

'Call for Papers' in APS journals. In 2010, there were 216 submitted and 62 published papers in response to Calls for Papers.

PubMed Central Deposits. In 2010, 1,754 NIH-funded and 40 Wellcome Trust-funded research articles were deposited into PMC by the APS on behalf of authors, representing 54% and 1%, respectively, of the total number of research articles published in 2010.

Subscription Sales. Journal prices for 2010 were set using a cost-based model, with a 5% increase implemented across all journals. Subscription count attrition in 2010 was 3% vs. 4% in 2009. Attrition through May 2011 is 2%. Sales were made to 51 consortia and multi-sites in 2010, up from 47 in 2009.

Color Charges. In 2010, the number of color figures published increased by 1% (following an increase of 3% in 2009), although total pages published decreased by 3% vs. 2009. In 2010, 60% of color figures were printed by APS members and, therefore, were free.

Journal of Neurophysiology

Neuroscience Peer Review Consortium. The *Journal of Neurophysiology* (JN) has participated in the Neuroscience Peer Review Consortium on a trial basis since the inception of NPREC in January 2009. The trial concluded in December 2009; however, the Publications Committee is extending the trial period through December 2011. At the end of the trial extension period, the Publications Committee will review the Editors' assessment of the trial.

Journal of Neurophysiology 'preprint server' Trial. Fourteen unique manuscripts were submitted to JN that had been posted to a preprint server. Of these manuscripts,

two were rejected, one was withdrawn, nine were in process, and two were accepted.

Press Releases and Social Media

In 2010, 30 press releases were distributed (45 in 2009). Of these, 30% (45% in 2009) were related to APS journal findings. APS journal findings continue to be picked up by top-tier mainstream media.

Publications Ethics

The number of ethical cases arising during peer review and production has increased significantly over the past few years. The overall total number of ethical cases that originated in 2010 was 134. This total marks an increase of 13 cases (11%) over 2009. The largest number of cases by category was figure manipulation (85 cases) followed by duplication of data (16 cases). To help deter ethical problems, the Society has taken several steps including creating a set of procedures/flowcharts for each ethical category and hiring an Ethical Policy Manager.

Book Program

Comprehensive Physiology. The first issue of *Comprehensive Physiology* was published on January 28, 2011 and includes all "Handbook of Physiology" content digitized ("Classic Content") and 25 new articles. A free trial to members of the APS runs through the end of 2011. As of May 2011, 349 articles have been invited, of which 100 have been accepted and 57 are in review or revision.

Book Series. Proposals for books continue to be submitted to the Book Committee from APS members. Dee Silverthorn has accepted Hershel Raff's invitation to Chair the new Book Monograph Sub-Committee.

Committee Issues

Corresponding authors signing manuscript submission form on behalf of all authors

The APS requires that all authors attest that they have read and take responsibility for the submitted manuscript. The APS allows the corresponding author to attest to this and sign on behalf for all authors.

Book Series Sub-Committee. The current Book Sub-Committee comprises the Advisory Board of *Comprehensive Physiology*, and its Chair, Ron Terjung, is Editor-in-Chief. Therefore, a new Book Monograph Subcommittee has been created that will work with a new, separate publishing partner who is dedicated to the monograph program.

Publish AJP Sections in online-only format from 2012. There are few print subscribers to the individual AJP sections (i.e., the vast majority of print subscriptions are to the Consolidated version from institutions, which will continue to be offered in print) and it currently costs more to produce and deliver the AJP sections in print than we earn in subscription revenue. For subscribers who will not/cannot convert to electronic, we can offer print on demand at prices that fully subsidize the cost.

Implement tiered pricing for subscriptions and Legacy content starting in 2012. Tiered pricing for APS journals and Legacy content for 2012 was recommended. Also for 2012, the branding of all APS journals as a package: "Digital Library" from 2012 at an attractive rate (i.e., 2011 pricing) and offering AJP journal sections as online only, with a print-on-demand option was also recommended.

Ethical Issues. The APS is committed to developing educational materials and courses in publications ethics and is investigating an NSF grant as a potential source of funding to support education goals in this area. Also, APS has subscribed to the CrossCheck service which provides iThenticate plagiarism software and a members-only database of subscription-access scientific and medical publications against which to check manuscripts.

- Council accepted the Publications Committee report.

Science Policy Committee



John Chatham, Chair

Over the past year the APS Science Policy Committee has continued to advocate for strong support for federally funded research. This included visits to Capitol Hill during the 2011 Experimental Biology meeting where the committee sponsored a symposium about how to become involved in advocacy. The committee has also been closely following efforts at the NIH to foster translational research with the goal of highlighting the important role of physiology.

Enhancing communication with the NIH

With a stagnant budget and increasing numbers of grant applications, the NIH is under significant pressure to do more with fewer resources. In response to those pressures, the NIH has instituted many changes, including the "Enhancing Peer Review" efforts and the proposed creation of the National Center for Advancing Translational Sciences (NCATS). Many in the scientific community have raised concerns about these changes but received minimal response from the NIH.

The APS Science Policy Committee (SPC) is working to increase communication with the NIH so that we can better raise concerns on behalf of our members. Last year members of the APS Executive Cabinet had a series of meetings with NIH officials, and NIH Chief of Staff (now Deputy Director) Kathy Hudson met with the SPC. Going forward we will continue to seek opportunities for constructive interaction with officials at the NIH.

Translational Research

The SPC has been closely following efforts to foster translational research so that we can highlight the important role that physiology plays in filling in the gaps between basic and clinical research. Last fall when Dr. Hudson spoke to the committee about the need to bridge the gap between basic and clinical research, she outlined some of NIH's plans to address the problem. Members of the Science Policy Committee emphasized that physiology has an important role to play in translational research, particularly with the APS membership's expertise in inte-

grative physiology and whole animal research. Discussion centered on identifying and focusing resources on those areas that are most in need of investment on the continuum between basic research and clinical application. Committee members also raised concerns about how to train the next generation of researchers to effectively carry out this mission, and the need to ensure that peer review accurately identifies and assesses proposals that focus on translational research. Dr. Hudson indicated that the NIH would look to the APS and others for nominations to the Board of the Cures Acceleration Network. We subsequently provided some recommendations to the NIH.

With respect to the proposal to create a National Center for Advancing Translational Science, the committee wrote a letter outlining concerns about this structural change, specifically with regard to changes in the Comparative Medicine and Animal Facilities programs. The Animal Care and Experimentation Committee also provided input into this letter.

Upon the recommendation of Council, an ad hoc committee of APS members in industry has been formed to include in future discussions about translational research efforts.

NCATS Letter: A letter outlining APS concerns about the creation of NCATS and the dissolution of NCRR was sent to the NIH on January 3, 2011.

Recommendations for CAN and NCATS Boards: APS sent a letter on June 3, 2011 recommending physiologists for the NIH to consider for the boards of the Cures Acceleration Network and NCATS.

Advocacy

The APS sent letters in support of the FY 2012 budgets for the National Institutes of Health, the National Science Foundation, NASA and the Medical and Prosthetic Research Program at the VA to members of the House and Senate Appropriations Committees. In addition, in January 2011 an email alert was sent urging all APS members to contact their Members of Congress with a message in support of research funding.

On Tuesday, March 15, 2011 APS President Peter Wagner, Past President Gary Sieck, President-elect Joey Granger and I met with several Congressional offices to discuss funding for biomedical research, the humane use of animals in research and publications access. The meetings took place at a critical point in the appropriations process, as Members of Congress worked to avoid a government shutdown and complete spending bills for the remainder of FY 2011. In a challenging fiscal climate that is focused on cutting federal spending, we were assured that investment in research is a priority for many Members of Congress, but that no federal programs will be exempt from consideration as Congress seeks to achieve long-term deficit reduction.

We thanked Members of Congress for supporting federally funded research and emphasized the need for predictable, sustainable budget increases to allow scientists to capitalize on decades of federal investment in research. We also stressed the important role that federal funding plays in training the next generation of researchers and expressed concern that dwindling funding and dismal success rates may discourage young scientists from pursuing academic careers.

In the Senate we met with staff in the offices of Senators Richard Shelby (R-AL), Thad Cochran (R-MS) and Al Franken (D-MN). On the House side, we met with Representative Brian Bilbray (R-CA) and with staff for Representative Susan Davis (D-CA).

Because EB 2011 was held in Washington, DC, some members of the SPC and ACE committees were able to spend a day visiting Members of Congress on Capitol Hill. Fourteen APS members visited a total of 19 offices to discuss federal research funding recommendations for FY 2012 and issues related to the humane use of animals in research.

Also at EB 2011, the SPC held a symposium entitled "How to be an Advocate: a Workshop for Early Career Scientists." The session was chaired by JR Haywood and Bill Talman, and it featured Jennifer Zeitzer, Director of Legislative Relations for FASEB. The first part of the symposium Zeitzer gave a talk aimed at helping participants understand the federal appropriations process and how they could become involved as advocates. During the second part, participants were divided into small groups to role play Congressional meetings with the help of SPC members. The session was well attended with approximately 50 participants.

During the SPC's meeting at EB, those who had participated in the Hill visits gave summaries of their meetings. With the retirement of Senator Arlen Specter, a committed advocate for the NIH, the committee has been working to identify potential new champions in Congress. Representatives Tim Walz (MN) and Brian Bilbray (CA) and Senators Richard Shelby (AL) and Bob Casey (PA) were identified as potential champions for the NIH based on their public statements of support for the agency. Sen. Shelby, who recently became the senior Republican member of the Senate Labor-HHS-Ed Appropriations subcommittee, has made several public statements indicating his support of the NIH in recent months. My interactions with his staff both in Washington and Birmingham have been very positive. We will continue working to establish relationships with these offices and encouraging them to support the NIH. The SPC also recommended that the APS work on making the case for research funding with fiscal conservatives and members of the Tea Party, possibly by identifying APS members who reside in key Congressional districts.

To maximize our effectiveness by collaborating with other organizations, the APS participates in these advocacy coalitions:

Ad Hoc Group For Medical Research. APS supports the Ad Hoc Group, which is recommending \$35 billion for NIH in FY 2012.

Coalition for Science Funding. APS supports the CNSF recommendations for the National Science Foundation.

Friends of VA. APS supports the Friends of VA's recommendations for VA medical and prosthetic research.

- Council accepted the Science Policy Committee report.



**Pamela K. Carmines,
Chair**

Section Advisory Committee

The Section Advisory Committee (SAC) is composed of the elected chairs of each of the APS Section. The duties of SAC include: a) assisting the Joint Program Committee in the organization of scientific meetings; b) serving as the Society's Long-Range Planning Committee; and c) making recommendations to Council regarding the strengthening of the Sections' role in programs, publication,

public affairs, and governance of the Society. Below are summarized SAC's primary activities over the past year.

Organization of Scientific Meetings

With EB1011 came implementation of some changes in the structure of APS programming. Specifically, the duration of the meeting was expanded by two hours to achieve a full day of scientific programming on Wednesday. This expansion provided one additional program slot (symposium or featured topic) for each Section. In addition, Sectional programming was arranged in "clusters" that provided a meeting-within-a-meeting format for attendees. SAC devoted considerable attention to assessing the extent to which these changes served the needs of our members, as well as non-member physiologists attending EB. A subcommittee of SAC developed a post-EB survey that was distributed electronically two days after the EB2011 meeting, and the results were used by SAC as one means of pinpointing aspects of the EB structure that required further attention. The survey revealed some interesting data, both anticipated and unanticipated. For example, the survey confirmed that you can't please everyone: 27% of survey respondents prefer clustering of Sectional programming, 21% prefer the previous system and 52% have no preference. One third of respondents did not know about the changes in programming prior to the meeting?this despite the lead article in the October 2011 The Physiologist highlighting these changes, as well as inclusion of this information in each Section's newsletters. Indeed, we realized that there would be a "learning curve" and envision that those who experienced first-hand the Sectional clustering at EB2011 will not be caught by surprise when they attend EB2012. Other issues that were brought to light by the post-EB2011 survey include the impression that there was insufficient poster viewing time, including frustration with the overlap of poster viewing with Distinguished Lecturer plenary sessions. As a result, SAC recommended some modifications of the program schedule to the Joint Program Committee, which was able to implement some relatively minor changes in the meeting structure for EB2012 that should minimize or alleviate these issues. Finally, as attendance at poster and platform presentations continues to be lower on Wednesday than on other EB meeting days, continuing efforts are aimed at changing the perception that Wednesday is a "leftover" day of programming at EB. While we cannot control the fact that the exhibitors pack up and

leave on Tuesday evening, the SAC, JPC and Council are being proactive in shifting some major events to Wednesday—including the Nobel laureate lecture and Closing Celebration that will be implemented as part of the APS 125th anniversary celebration at EB2012. SAC will continue to assess the impact of EB restructuring and will make recommendations for further adjustments to APS programming, as necessary, to best meet the needs of APS members and other physiologists attending EB.

Long-Range Planning

As the Society's long-range planning committee, SAC has played a major role in development of the new APS Strategic Plan. All members of SAC participated in the Strategic Planning Retreat in January 2011, and it is anticipated that SAC members will sit on several of the Task Forces currently being formed to address specific focus areas within the Strategic Plan.

Strengthening the Sections' Role in the Society

With input from the Finance Committee, SAC presented to Council the guidelines and procedures for Sections to establish endowments to fund specific activities deemed beneficial to furthering the mission of the Section. As approved by Council, the APS will match (up to a maximum of \$25,000) new monies raised to fund such an endowment. Endowment proposals developed by a Section must be vetted by SAC, who will then forward the proposal to Council for final approval. The initial endowment approved for funding via this mechanism supports the Respiration Section Trainee Highlights Breakfast at the EB meeting.

- Council accepted the Section Advisory Committee report.



Margaret Anderson, Chair

Senior Physiologists Committee

Five senior physiologists (Drs. Clark Blatteis, William Dantzler, Frank Knox, and Philip Posner) comprised the Senior Physiology Committee in 2010. One of the primary duties of each Committee member is to "develop and maintain liaison with emeritus members and members about to retire." This liaison is accomplished by submitting, on behalf of the Society, a personal 70th, 80th, 90th, or 100th birthday greeting. Thus, each committee member makes about three dozen mailings in the course of the year. Each greeting includes an invitation for the senior recipient to inform APS about his current activities, interests and whereabouts, and requests "words of wisdom" for younger colleagues. The historical and philosophical commentaries evoked by this invitation provide the material subsequently published in "Senior Physiologist's News" in each issue of The Physiologist. By the end of 2010, the Senior Physiologist Committee members will have sent birthday wishes to 97 members reaching age 70, to 60 members reaching age 80, and to 25 members reaching age 90.

Nineteen letters have been received and published in *The Physiologist*.

Responses from recipients of these birthday greetings are extremely positive and enthusiastic. Whether retired or still working in their labs, the majority of seniors obviously retain their passion for science. They express in innumerable ways how fulfilling they have found life and how important APS has been during their careers.

Another responsibility of the Senior Physiologists Committee is to review applications and recommend to Council the annual awardees of the \$500 G. Edgar Folk, Jr., Senior Physiologists Award. This award is designed to support the scientific activities of a senior member. In 2010, two awards were made. The awardees were Walter J. Freeman, MD to help defray costs of travel to and registration fees for the Organization for Human Brain Mapping meeting and N. Herbert Spector, PhD, to help defray costs of travel to Rome, Italy, from Carlsbad, CA to speak at the 5th Stromboli International Conference on Aging and Cancer.

- Council accepted the Senior Physiologists Committee report.



Erica Wehrwein, Chair

Trainee Advisory Committee

Trainee Survey

In 2004 and 2007, the Trainee Advisory Committee (TAC) trainee survey was implemented online. In 2010, the survey subcommittee submitted a manuscript describing the 2004 and 2007 survey results to *Advances in Physiology Education*. The manuscript was accepted for publication and the article was published in the June 2011 issue:

Marsha L. Matyas, Melinda E. Lowy, Karen L. Sweazea, and Diego F. Alvarez. Monitoring physiology trainee needs to focus professional society responses: the APS Trainee Needs Surveys *Advan in Physiol Edu* June 2011 35:168-177.

The 2010 survey was conducted in conjunction with the Strategic Planning process and was implemented in November/December 2010. Each TAC member promoted the survey to their Sections and notices were sent via other APS outreach methods (listservs to members, trainees, and minority physiologists, APS Facebook pages, and Twitter feeds). Nearly 900 trainees and new investigators completed the survey (n=885). A full analysis of the survey results, analyzed by educational level, will be provided to Council this fall.

EB Symposia

The 2011 TAC Symposium was entitled, "The Individual Development Plan—Plotting a Career Trajectory," and was organized by Melissa Bates and Grant Simmons. It included presentations on how to create an Individual Development Plan (IDP) and then offered opportunities to discuss career planning with physiologists from a variety of career paths. The session speakers were very highly rated by the attendees.

In 2012, the TAC symposium will focus on "E-Media Tools for the Professional Scientist." and will include an overview of the changes in communication among scientists over the 125 years of the APS, in honor of the APS 125th anniversary.

Trainee Web Page

In 2006, the TAC launched an APS Trainee Website (<http://www.theaps.org/trainees/>). The site provides information on APS programs and services as well as links and information on current topics of interest to trainees and new investigators. In 2008, the TAC worked with staff to reorganize the webpage to provide drop down menus, information and links for each APS Section, a scrolling list of announcements, and rollover graphics at the bottom of the page offering instant synopses and hyperlinks to information on awards, symposia, professional development opportunities, and more. Each Section's trainee relevant activities are highlighted for one month at the top of the website. The content on the webpage has been updated by staff on a regular basis, with information pertinent to APS trainees.

APS Trainee Facebook Site and Twitter

(<http://www.facebook.com/apstraineess>, @apstraineess)

TAC launched a Facebook page and a Twitter feed in January 2010 for APS Trainees to provide "... a place for you [physiology trainees] to stay in touch with other trainees, ask questions, and get important information about grants, awards, meetings, and other career-related info." TAC members distribute cards promoting both the Facebook page and Twitter feed at EB. The APS Trainee Facebook page currently has 177 Facebook "Fans." Postings come from staff, TAC members, and APS Twitter feeds, providing regular communication to the trainee Fans from the APS and the committee.

Dale J. Benos Early Career Professional Service Award

The Dale J. Benos Early Career Professional Service Award honors an early career stage APS member (graduate student, postdoctoral fellow, Assistant Professor or equivalent position) who is judged to have made outstanding contributions to the physiology community and demonstrated dedication and commitment to furthering the broader goals of the physiology community. The TAC received six complete applications for the award in 2010. The Committee agreed unanimously that Jessica A. Dominguez, Assistant Professor in the Department of Anesthesiology at the Univ. of Colorado, Denver School of Medicine, was the most outstanding candidate. Dominguez received the award at EB 2011 and will prepare an article for a future issue of *The Physiologist*.

Outreach to Undergraduates

TAC members are actively involved in APS efforts to encourage undergraduate student involvement in research and in EB activities. TAC members continue to use social media tools (Facebook and Twitter) to engage undergraduate students. TAC business cards were distributed again at EB 2011 to increase awareness of these social media websites. TAC members attended the EB 2011 Undergraduate Poster Session and engaged many of the undergraduate students in discussions of their research. The Committee also collaborated with the Career Opportunities in Physiology Committee on the 2011 EB Undergraduate Orientation Session, presenting some of the orientation talks and interacting with undergraduate students at the session tables. The TAC plans to

continue these activities in 2011-2012. Finally, the TAC expanded the TAC survey to include undergraduates in 2010.

- Council accepted the Trainee Advisory Committee report.



Angela J. Grippo, Chair

Women in Physiology Committee

Bodil Schmidt-Nielsen Distinguished Mentor and Scientist Award

This award honors an APS member who has made outstanding contributions to physiological research and demonstrated dedication and commitment to excellence in training of young physiologists. Eight excellent nominations were received for the 2011 award.

Members of the Women in Physiology Committee reviewed the nominations and selected Douglas Eaton, Emory Univ., as the awardee. At the 2011 Experimental Biology (EB) meeting, Dr. Eaton gave a presentation on mentoring, entitled, "Mentoring, or the Fine Print in My Diploma." An article based on the lecture will be published in *The Physiologist* later this year, and the presentation will be posted on the APS web site.

Caroline tum Suden/Frances Hellebrandt and Steven M. Horvath Professional Opportunity Awards

These awards provide monetary prizes and complimentary registration for graduate students and postdoctoral fellows of either gender who give presentations at the EB meeting. The Women in Physiology Committee received 138 applications for the 2011 Caroline tum Suden/Frances Hellebrandt and Steven Horvath Professional Opportunity Awards. The Committee funded 35 tum Suden Awards and two Horvath Awards.

Career Mentoring Website

The APS Career Mentoring Website provides resources for both female and male trainees who are looking for information and assistance in developing and maintaining a good mentoring relationship with more senior and junior scientists. The website includes links to mentoring articles and resources, access to EB workshop materials, discussion forums, and guidelines for successful mentoring. Over the past year, the Committee commissioned several articles for *The Physiologist* with related bulletin board discussion topics on the mentoring website, including the following topics: transitioning from being a graduate student/postdoc to a new faculty member; research and teaching at a small liberal arts college; handling research, teaching, service and life; being part of a dual-career science couple; transitioning from academia to industry; and a research advisor's checklist. Additional articles are planned for the coming months, focusing on the following topics: philosophy of mentoring; MentorNet information; overcoming the "glass ceiling," and conflict resolution.

MentorNet Mentoring Program

MentorNet is an award-winning (2001 Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring) nonprofit e-mentoring network that addresses the retention and success of individuals in engineering, science, and mathematics. It especially, but not exclusively, focuses on women and other underrepresented groups. The Committee will continue to recruit students and mentors in the coming year and hopes for additional program growth as students become aware of the program.

Experimental Biology Mentoring Workshop

The EB 2011 mentoring workshop was entitled, "Work-Life Balance; Every Choice Matters." The workshop was well-attended, and the speakers were excellent as noted by high ratings from the audience members. The EB 2012 mentoring workshop will be entitled, "Conflict Resolution," and will focus on several strategies to successfully handle conflicts in the laboratory environment.

Representation of Women in APS and Scientific Community Leadership

One of the charges of the Women in Physiology Committee is to support advancement of women in science in APS and in the scientific community at large. In reviewing the membership of the APS Section Advisory Committees (SACs) and other Society committees, the Committee found that the representation of women on the general Society committees was very good. The Committee is pleased that the APS Council has four women members out of nine, and the President-Elect is Sue Barman. SAC has five women representatives (42%) and the new chair will be Ann Schreihöfer. There is a similar number of women on SAC Steering Committees as in the previous year (35%).

FASEB Excellence in Science Award

The Excellence in Science Award was established by FASEB in 1989 to recognize outstanding achievement by women in biological sciences. All women who are members of one or more of the FASEB societies are eligible for nomination. The 2012 awardee is Dr. Susan Wessler, from the Department of Botany and Plant Sciences at Univ. of Georgia. The Committee has been discussing strategies to increase the number of APS women who are National Academy of Science members, as that is a critical element for successful candidates for this prestigious award. Currently, the National Academy of Sciences has 255 female members; of these, only six are members of APS.

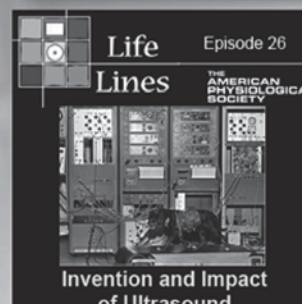
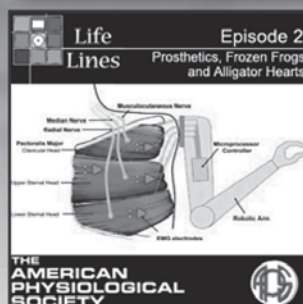
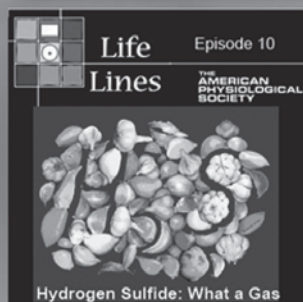
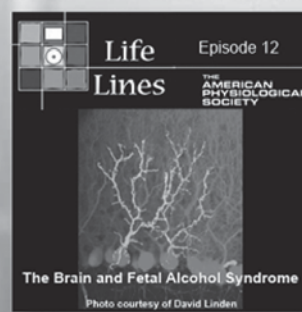
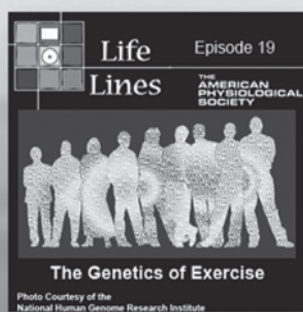
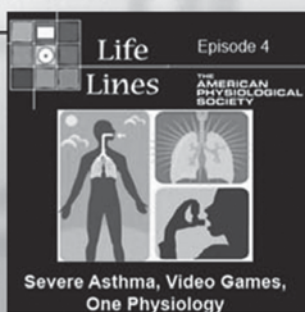
Women and APS Awards

Historically, there have been few women selected for the major APS awards. There have been six female Bowditch awardees and four female Cannon awardees. The Committee has been discussing possible outstanding female candidates that should be nominated for these awards and lectureships. ❖

Council approved reinstituting the Mentoring breakfast in association with the Mentoring Symposium.

Life Lines

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1887-2012

at Experimental Biology 2012
San Diego, California
April 21-25, 2012

David Megirian writes: "Many kind thanks for your letter of 17th June 2011 acknowledging my 50 year membership of the American Physiological Society. My membership has been a rich part of my career. Some of my publications with colleagues have been in Journals of the Society.

"This is the year in which I shall also cease my career as a physiologist and take up a different career, one that continues to challenge a renaissance focus from days before I undertook formal education in the life sciences.

"My plaque sits on one of my book shelves in the home to which I shall soon move, in northern Tasmania. My modestly populated library offers diverse opportunities to explore a broad canvas of cultures."

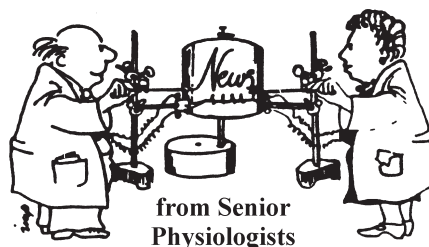
Letter to Margaret Anderson

Hoshang J. Khambatta writes: "I have had the honor of belonging to several professional societies but must confess that the American Physiological Society has been the only one to wish me a happy 80th birthday. It is very much appreciated.

"Ten years ago I retired from Columbia University, New York. During this period I did do some per diem consulting work and have been on 14 medical missions. These medical missions are hard work; a typical work day is 6:00 am to 7:00 pm. Nevertheless, they are very satisfying. My last mission was October 2010 to China. While on medical missions, we did some very interesting work under challenging conditions, the old bug survives and I have had several publications. On most medical missions, I took my wife along. During the day she doubled up as a go-for and we all had fun evenings. At the end, we took two weeks of vacation and did a lot of sightseeing.

"During my years at Columbia University I had a laboratory for bench work and a pool of patients for clinical studies, which resulted in several publications. Sans these facilities like many professionals, I now write Literature Reviews for the newsletter of the Society for Pediatric Anesthesia.

"Over the years my wife and I have done a lot of traveling. We have been around the world and have seen a lot of our country. The US is truly beautiful and a very diverse country for vacationing. We live just five miles outside of New York City, so we take full advantage



of the cultural activities in the city.

"After considerable thought, I have now decided to discontinue per diem consulting work while I still have my marbles in tact and before those marbles start rolling about. I am also considering discontinuing medical missions; they are becoming too arduous. But I will keep up writing literature reviews. I hope to continue with vacations both inside and outside of the US. I will also continue to enjoy with my wife of 48 years, what life in New York City has to offer."

Letter to Phil Posner

Tito Pantaleo writes: "First of all, very many thanks to the American Physiological Society for its interest in my life.

"I am going to be retired on November 2011, but I think that I will continue my scientific work mainly at the Department of Physiological Sciences of Firenze for some years, or at least until my health will be good enough.

"At this time of my life, my thought and gratitude go to my mentor Prof. Curt Von Euler, who gave me so much both from the human and the scientific point of view.

"I hope that the collaboration with the other components of my research group (chiefly Fulvia Bongianini and Donatella Mutolo) can go on. My main interest remains focused on the neural control of breathing both in *in vitro* (lampreys, neonatal rodents) and in *in vivo* (rabbits) preparations. I have still much enthusiasm for research activities and I would like very much to achieve further results on the neural mechanisms underlying respiratory rhythm generation and the cough reflex.

"With aging, all faculties decline perhaps except (at least in some cases) the ability of reasoning and wisdom. I suggest to younger colleagues to take advantage of the advice of senior scientists, to have always much enthusiasm

for the research and to like best the truth instead of easy scientific fashion."

Letter to Franklyn G. Knox

Alan F. Hofmann writes: "Thanks for the birthday greeting. However, I hardly needed any reminder that I had reached four score years.

"The engraved dates on the rows of the beautiful tombstones in the Bavarian cemeteries remind me that I haven't got much time left! How to prioritize what books or articles to read, what music to listen to, what plays or films to see, what countries to visit, what new languages to attempt to learn, let alone spending time with one's wife, children, and grandchildren?

"The five decades that I spent studying the chemistry and biology of bile acids were exciting and satisfying ones, and this very old field shows new signs of life now that bile acids have been recognized to be signaling molecules, influencing both carbohydrate and lipid metabolism. Moreover, two semi-synthetic bile acids are in clinical trials for cholestatic liver disease, and for any physician-scientist there is no greater thrill than to see a molecule move from the bench to the bedside (and show efficacy and safety).

"Bile acids are the only class of small molecules that vary considerably in structure and with my longstanding colleague Lee Hagey at the Univ. of California, San Diego (UCSD) and Takashi Iida, our collaborator at Nihon Univ. in Tokyo, we continue to identify new natural bile acids, i.e., new sites of hydroxylation on the steroid nucleus. Last year, I wrote a light-hearted 50-year retrospective that was published in the journal *Hepatology*, and it summarizes what I like to think I accomplished, thanks to the hard work and talent of my many junior colleagues who spent time in my laboratory at Mayo and later at UCSD.

"I give advice to junior colleagues with reluctance because I think that the environment for the physician-scientist is changing—and not for the better. In our day, obtaining grants was relatively easy, and journals accepted most submissions. Today, obtaining grants is difficult and unpredictable, and acceptance rates at leading journals are well below 50%. Much valuable time that should be spent doing research is spent writing grant applications. There are institutions, such as

the Mayo Clinic, that have an endowment whose yield is used to fund research, but such places are quite rare. Moreover, the relevance of cutting edge research to clinical disease is often uncertain, and clinical medicine itself has become much more complex. In addition, values have also changed. Eighty years ago, it was considered wrong to patent an idea that might help patients and might offer a reward for the discoverer. Today, exactly the opposite is true. It is considered wrong not to patent a new idea and foolish not to gain from it. Indeed, that is the function of our university offices of technology transfer.

"Another variable in the changing environment is the growth of the biotech industry. Here high paid teams work to clarify physiological or pathological processes only to the extent that it is necessary to advance their drug development. Publication is not necessary. The biotech labs have the latest in equipment and funding is generous, so long as the venture capital rolls in. To obtain venture capital, one has to sell the project with clarity and enthusiasm, and with time, achieve benchmarks. But the clock is always ticking, and the end result is bringing a product to market, being acquired (either or both of which usually means a real monetary

reward for key personnel, or, as is frequently the case, failure, bankruptcy, and job loss. It is high stakes poker.

The rewards of discovery, of peer recognition, of friendships, of international travel, of mentoring—these are great—and I am happy with the rather unusual career path that I ended up following. But experimental science is time-consuming, and one must give up some of the many non-scientific pleasures that the fascinating planet has to offer. For me, the tradeoff was well worth it; but this is a highly individual decision." ♦

People & Places

APS Member Phyllis M. Wise Named to Lead Urbana-Champaign Campus

Phyllis M. Wise has been selected to become a Vice President of the Univ. of Illinois and the Chancellor of the Univ. of Illinois at Urbana-Champaign. Wise has served in senior leadership roles at three major public research universities, most recently as provost and executive vice president at the Univ. of Washington, where she has served since 2005. During the just completed 2010-11 academic year, Wise was the interim president at the Univ. of Washington. From 2002-2005, she was dean of the College of Biological Sciences at the Univ. of California-Davis. She holds a bachelor's degree from Swarthmore College and a doctorate from the Univ. of Michigan. She has been awarded an honorary doctor of science degree from Swarthmore College.

Dora Angelaki is now the Wilhelmina Robertson Professor and Chair of the Department of Neuroscience at Baylor College of Medicine, Houston, TX. Prior to this move, Angelaki was Associate Professor in the Department of Anatomy and Neurobiology at Washington Univ. School of Medicine, St. Louis, MO.

Sheila E. Crowe is presently a Professor and Director of Research at Univ. of California, San Diego Department of Medicine. Prior to this position, Crowe was a Professor at the Univ. of Virginia Department of Medicine, Charlottesville, VA

Heinrich E. Lob is a Research Scientist in the Department of Biomedical Science at Cornell Univ. College of Veterinary Medicine, Ithaca, NY. Prior to this move, Lob was an Instructor in the Department of Medicine, Division of Cardiology at Emory Univ., Atlanta, GA.

George G. Rodney Jr. has taken a position at Baylor College of Medicine as Assistant Professor in the Department of Molecular Physiology and Biophysics, Houston, TX. Prior to this position, Rodney was an Assistant Professor at the Univ. of Maryland School of Nursing, Baltimore, MD.

Enrique Verdu has moved to the Department of Medical Science at Universitat de Girona, Girona, Spain. Prior to this move Dr. Verdu was Assistant Professor in Department of Cell Biology and Physiology at University Autònoma-Barcelona, Spain.

Daniel Wayne Wesson is now Assistant Professor in the Department of Neuroscience, Case Western Reserve University School of Medicine, Cleveland, OH. Prior to this move Dr. Wesson was Postdoc Fellow in the Emotional Brain Institute, New York University, Nathan Kline Institute, New York, NY. ♦

Central Regulation of Autonomic Functions. Second Edition

Edited by Ida J. Llewellyn-Smith and Anthony J. Verberne
New York, USA: Oxford Press, 2011,
432 pp., illus, index.
ISBN: 978-0-19530-663-7

Ida Llewellyn-Smith and Anthony Verberne have taken on the task of editing a second edition of the Oxford Press monograph *Central Regulation of Autonomic Functions*, now 21 years after the first edition edited by Arthur Loewy and Michael Spyer. The first edition has aged well and remains a “must have” addition to any department or university library and is a primary reference source for students in the field. The second edition aims to update the subject by incorporating reviews that detail the increased “..... sophistication of physiological and anatomical methods used to study central nervous pathways....” Along the way, the authors appear to have been instructed (or at least took the approach) to discuss the physiologic consequences of new anatomic information, and in several chapters they are on target. While not equal in impact to the first edition, the second edition will be a valuable resource for students entering the field and for more established scientists looking for comprehensive references. The monograph is a welcome addition to the review literature and should be made available to graduate and medical students in training. It will get a great deal of use in our laboratory, particularly as students prepare for comprehensive examinations, and I plan to use it as a resource in my graduate and medical school teaching.

Five authors from the first edition return and their chapters are important strengths of the monograph. In particular Patrice Guyenet’s chapter on “Cardiorespiratory Integration,” William Blessing’s (with Shaun Morrison) chapter on “Central Nervous System Regulation of Body Temperature,” and Pascal Carrière’s chapter on “Central Circulatory Control: Psychological Stress and the Defense Reaction,” were informative, enjoyable texts. New material from Alan Sved (with Patrick Card and Ann Schreihofer) summarizing “Central Autonomic Pathways and The Ventrolateral Medulla and Sympathetic

Regulation of Arterial Pressure,” as well as the chapters by Pamela Hornby and Paul Wade on “Central Control of Gastrointestinal Function” and Alberto Travagli and Kirsteen Browning on “Central Autonomic Control of the Pancreas,” are welcome additions.

The monograph contains two major foci: anatomic pathways and functional connectivity. It begins with succinct overview of Central Autonomic Pathways by Card and Sved, which was written in such a way that those new to the subject are brought along slowly, without being overwhelmed. Chapter Two by Michael Andresen and Julian Paton is an excellent description of the organization of afferent information processing in the Nucleus Tractus Solitarius. While well written, the chapter’s comprehensive nature makes it in places a difficult read. The importance of hypothalamic centers is highlighted next in two solid chapters, by Roger Dampney and Javier Stern. Direct and indirect connections of hypothalamic “command” neurons with sympathetic and parasympathetic preganglionic neurons are described by Dampney before detailing the afferent pathways to those command centers. The author finishes the chapter with a concise summary of the potential importance of hypothalamic structures in autonomic dysfunction. Stern then provides an outstanding description of the cytoarchitecture of the hypothalamic paraventricular nucleus and introduces the concept of “autocrine” regulation.

The anatomic focus continues with a detailed, yet easily digested, description of the ventrolateral medulla and autonomic regulation by Schreihofer and Sved. The authors conclude the chapter with a provocative discussion of differential regulation of sympathetic outflow that leads nicely to their concluding remarks about the ventrolateral medulla and hypertension. This chapter will be required reading for my students and fellows. Ida Llewellyn-Smith and David Jordan follow with descriptions of the organization of sympathetic and parasympathetic preganglionic neurons. Chemical phenotyping and stereospecificity are particularly emphasized here and Jordan’s discussion of neurotransmitter influences on neurons in the dorsal vagal nucleus and nucleus ambiguus is thoughtful and detailed. Susan Duechars provides insight into the importance of spinal cord interneurons in the final co-ordi-

nation of sympathetic and parasympathetic outflow and gives a clear assessment of the difficulty of studying these diffuse and phenotypically disparate cells. John Longhurst isolates three reflex “arms” of autonomic function by describing visceral afferents informing the CNS of ischemic events, somatic afferents responsible for the exercise-pressor response, and then visceral/somatic afferents and their role in long-loop sympatho-inhibition. Many of the diagrams in the monograph in general provide excellent overviews, and Figure 9-8 in this chapter is a great example.

Functional integration takes center stage in the ensuing chapters with another “must read” by Guyenet who describes central coupling of parasympathetic outflow to the heart with sympathetic vasomotor activity. A strength of this chapter is the discussion of the level of uncertainty of the mechanisms linking lung mechanoreceptors to sympathetic nerve activity while acknowledging the potential importance of respiratory pattern generator-dependent and -independent pathways. Cortical and limbic influences on autonomic function are next in line. Anthony Verberne describes cortical centers of regulation by distinguishing the pre-limbic areas as cognitive centers, and infra-limbic and insular cortex as visceromotor centers. The evidence for the importance of the medial prefrontal and insular cortex in vasomotor control, the baroreflex, and the emotional component of autonomic regulation is clearly summarized. In yet another “must read” chapter, Pascal Carrière provides an excellent description of the historical development of our understanding of the organization of the central circuitry activated during psychological stress and the defense reaction. Importantly, the author isolates the multiple response circuits into those impacted by exteroceptive versus interoceptive stimuli. Neurons in the hypothalamic-defense region are described to play a critical role in the cardiovascular response to psychological stress (e.g., conditioned fear, resident-intruder stress), but not the response to physical stress (e.g., air-jet, restraint). This is a significant distinction for anyone considering experiments examining the interaction of hypothalamic and medullary centers in the co-ordinated neuroendocrine and autonomic responses to stress. Here is where, in

my opinion, the monograph falls short. This would have been a critical point where a chapter on the interaction of neuroendocrine, behavioral, and autonomic responses to stress could have made a valuable contribution.

Five chapters then address issues of autonomic regulation of peripheral tissues. Brendan Canning addresses the relative lack of understanding of the mechanisms for interaction of sympathetic and parasympathetic branches in airway autonomic control. Likewise, while vagal input to autonomic centers has been studied in detail, less apparently is known about the central organization of excitatory and inhibitory outflow to the airways. In contrast, Pamela Hornby and Paul Wade are able to summarize a wealth of knowledge concerning autonomic control of gastrointestinal function. They review the organization of vagal and splanchnic innervation with equal attention to both afferent and efferent limbs. The importance of the anti-inflammatory role of the vagus is an excellent addition although only covered in brief detail. Alberto Travagli and Kirsten Browning contribute a concise description of the autonomic control of the pancreas with attention to evidence for the importance to both endocrine and exocrine function. Keeping with the theme of autonomic regulation of peripheral tissues, William De Groat provides a comprehensive review of the functional anatomy of the lower urinary tract with clear illustrations and a logically organized text. The author should be credited for an excellent review of gaps in our knowledge, in particular the basis of neuroplasticity underlying the development of bladder control in children. A

final chapter by Lesley Marson presents a straightforward review of the autonomic innervation of erectile tissues encompassing vasomotion, sensory afferents, and somatic control. While the concept of reward is repeatedly mentioned, the anatomic basis is not described in detail, leaving the chapter more focused on genital component of the sexual response. To Marson's credit a description of the potential importance of peptide neurotransmitters in the sexual response is included.

Interspersed within the five chapters described above are three chapters that focus on hypothalamic and medullary centers of regulation. Shaun Morrison and William Blessing clearly detail the anatomic substrate for heat loss and gain responses revealing where gaps in knowledge exist. This is another "must read" chapter for students as it provides a wonderful overview of the subject of temperature regulation, with carefully chosen references. The two remaining chapters address the important issue of how circulating factors access autonomic centers in brain. In the first edition, Kim Johnson and Arthur Loewy discussed the circumventricular organs in terms of anatomical substrates and their potential function in fluid and electrolyte homeostasis. In the second edition, Alastair Ferguson places more emphasis on the integrative nature of the sensory circumventricular organs pointing out their multifunctionality and introducing the concept of their broader roles in immune regulation, reproduction, and energy homeostasis. This leads logically to the subsequent chapter by Barry Levin and Alison Strack that details the autonomic regulation of energy homeostasis. This is

one area where tremendous advances in our understanding have occurred since the first edition and the authors make a valiant effort to summarize this burgeoning field. A highlight is their discussion of homeostatic versus non-homeostatic control of ingestive behaviors and the concept of defended body weight. Likewise their description of short- versus long-term afferent signaling to autonomic centers important in energy homeostasis is exceptionally detailed; however the text covering the counter-regulatory response to hypoglycemia is a bit confusing. Just the same this chapter is informative and provocative, and can be added to the "must read" list.

In summary Llewellyn-Smith and Verberne have organized a solid update to the original monograph with outstanding authors and objective treatment of major issues in the field. The references alone make this a valuable publication and it represents an excellent, single text students can use in their academic preparation. As with any attempt to summarize or highlight an important area of physiology, not everything can be covered and there are some topics that might have been good additions. Notably missing are coverage of endocrine interactions with autonomic responses and more detail on behavioral aspects of autonomic integration. Perhaps those topics will be highlighted when the third edition is compiled, hopefully sooner than the 21 years that have passed since publication of the first edition. ❖

Willis K. Samson
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Regenerating the Heart: Stem Cells and the Cardiovascular System

Edited by Ira S. Cohen and Glen R. Gaudette
New York, USA: Humana Press, 2011,
556 pp., 91 illus., 51 in color, \$239.00
ISBN: 978-1-61779-020-1

Regenerating the Heart: Stem Cells and the Cardiovascular System is a recently released textbook that provides an accurate and timely review of the various applications of stem cells in repairing the heart and other related

tissues. While this is a relatively new and emerging field, a tremendous amount of information is presented in specific chapters written by experts in their subfields. While at times it appears that the chapters are stand-alone review articles, it is helpful that the book is divided into four sections.

"Part I: Stem cells for regeneration of mechanical function," is by far the longest of the four sections, followed by "Part II: Stem cells for regeneration of electrical function," "Part III: Regenerating cardiac tissue" and "Part IV: Technical issues for stem cell therapy in the heart." A limitation of the book is

that there is a lack of standard formatting between the four separate sections, as well as all of the chapters. Every chapter could stand alone as a review; however, the book often lacks a sense of cohesion and it is sometimes hard to determine "where do we go from here."

In Part I, a series of chapters introduce the major types of stem cells that can be used in repairing cardiac tissues and their specific uses. The reader is also provided with an overview of differentiation of stem cell types into cardiomyocytes and clinical or pre-clinical data that is currently available. Chapters nine and 10 are particularly

interesting, focusing on evidence of cellular turnover in the heart, the types of cardiac stem cells and the signaling pathways that mediate mononucleated myocytes reentering the cell cycle.

Part II reviews the physiology of arrhythmias and myocyte-myocyte electrical signaling before examining biological pacemakers, gene therapy and cell therapy in various types of arrhythmias and conditions that can lead to arrhythmia. While the first chapter of this section, chapter 16, contains a wealth of useful background information on cardiac arrhythmias, it does not add much to the discussion of stem cells in cardiac regeneration.

Part III contains a series of chapters discussing the use of stem cells to generate or regenerate various cardiovascular tissues, including blood vessels and valves. These chapters all contain inter-

esting information on the engineering and scaffolding of biomimetic tissue so that the tissue takes on the required shape of the valve or vasculature.

The final section, Part IV, covers technical issues involved with administering stem cells to the heart. This includes methods of delivery, labeling and imaging as well as measuring regional function of the heart. Chapter 25 covers the measurement of regional function, albeit interesting, it would be helpful to include a bit more information specifically on measuring stem cell generated regions.

A significant weakness of this text is the similarity to other recently released books. The authors or editors do not differentiate what information is new and what is simply being recapitulated from previous publications.

The book's strength lies in its exami-

nation of stem cells and the cardiovascular system from a basic science level to the clinical level. Many chapters include excellent summary tables of clinical and pre-clinical studies using various types of stem cells in different cardiovascular repair situations. *Regenerating the Heart* is recommended as a resource for professionals and clinicians and certainly has the breadth of information to appeal to both basic and clinical practitioners. ❖

Sarah C.W. Stevens

Loren E. Wold

The Research Institute at Nationwide
Children's Hospital, Columbus, OH;

Email: Sarah.Stevens@
nationwidechildrens.org

Email: Loren.Wold@
nationwidechildrens.org

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Biology of the Central Cilium and Cystic Diseases of the Kidney

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Programming Normal Renal Development and Modeling Disease Pathogenesis

(Submission deadline: January 1, 2012)

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American Journal of Physiology—Gastrointestinal and Liver Physiology

Physiology and GI Cancer

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Integrative Aspects of Energy Homeostasis and Metabolic Diseases

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Faculty Positions

Chair in Cardiovascular Physiology (Full Professor, continuing position), Sydney Medical School:

Reference no. 955/0511: The Univ. of Sydney, Australia, invites applications for appointment to the position of Chair in Cardiovascular Physiology in the Discipline of Physiology, School of Medical Sciences. The successful applicant will possess a PhD or equivalent degree and have an international profile with an outstanding record of original research in the field of cardiovascular physiology, as well as an appreciation of other research interests represented in the discipline. In addition, the appointee will provide leadership in research training, teaching and curriculum development. The Univ. of Sydney is Australia's premier Univ. with an outstanding global reputation for academic and research excellence, and employs over 7,500 permanent staff supporting over 49,000 students. The Faculty of Medicine (known as the Sydney Medical School) is the first and largest medical school in Australia with an annual budget in excess of \$250m. The Discipline of Physiology is part of the School of Medical Sciences within the Sydney Medical School, and provides a vibrant and dynamic environment for conducting high quality research and teaching. The Univ. of Sydney has recently committed to establish a new Centre for Obesity, Diabetes and Cardiovascular Disease, which will be housed in a \$385 million building that will provide state-of-the-art research and education facilities. The successful applicant will have an outstanding opportunity to shape the future direction of physiology research and teaching, particularly in the cardiovascular field, and to contribute to the success of the Centre for Obesity, Diabetes and Cardiovascular Disease. For further information regarding this position, please visit <http://sydney.edu.au/positions/> and search by the reference number (955/0511), or else contact Professor David Allen (email: david.allen@sydney.edu.au) or Professor Roger Dampney (email: roger.dampney@sydney.edu.au). All applications must be submitted online. The closing date is **2 October 2011**.

Assistant Professor, Position #12858: The Department of Biological Sciences in the Faculty of Science at

the Univ. of Manitoba invites applications for a full-time probationary (tenure-track) appointment at the rank of Assistant Professor to begin January 1, 2012. This position includes responsibilities for teaching, research and service. Applicants with expertise in developmental biology using established or emerging developmental systems, preferably with emphasis on mechanisms of development are encouraged to apply. The successful applicant must hold a PhD and preferably have postdoctoral experience in a relevant discipline. Applicants should have a publication record indicative of their ability to establish an active, independent research program. Teaching experience is a strong asset. The successful candidate will be expected to establish a vigorous, externally funded research program and to promote research synergies within the department, the Faculty of Science and across campus, and contribute to undergraduate and graduate teaching. The position entails department-based instruction in developmental biology and areas appropriate to the candidate's expertise. This is an exciting opportunity to join a newly integrated Department of Biological Sciences and to define your own niche in science! The department has 36 faculty including 2 CRC Tier 2s, 70 graduate students and over 200 Major and 1-Tonours students with research strengths across the spectrum of biology and its sub-disciplines (<http://www.umanitoba.ca/science/biologicisciences>). The department is located on the Fort Carry campus of the Univ. of Manitoba in Winnipeg, a city with a rich cultural environment and abundant outdoor recreational venues (learn more about Winnipeg at <http://jfw.winnipeg.ca>). The Faculty of Science offers excellent opportunities for research and teaching in a broad range of biological systems, collaborations across departments with biologically related interests and supportive infrastructure including a range of microscopy and imaging equipment, spectrometers and other chemical analysis instruments, molecular and cell biology Facilities, and animal and plant-rearing facilities (aquatic and terrestrial). Applications (ideally in pdf format) should include: a covering letter outlining interest in the position, CV, research plan with short and long term goals, statement of teaching experience and philosophy, and the

name and contact information of three academic referees. Applications must be sent by June 15, 2011 to Dr. Judy Anderson, 1-lead, Department of Biological Sciences, Faculty of Science, University of Manitoba, atianders@cc.umanitoba.ca. Please refer to position N 12852. The University of Manitoba encourages applications from qualified women and men, including members of visible minorities, Aboriginal peoples and persons with disabilities. All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority. Application materials, including letters of reference, will be handled in accordance with the "Freedom of Information and Protection of Privacy Act" (Manitoba).

Associate or Full Professor: The Department of Psychology at Texas Christian Univ. invites applications for a tenure-track position in Experimental Psychology (Area Open), at the level of Associate or Full Professor, beginning in August 2012. The ideal candidate will have a well-established research program, a record of success in obtaining extramural funding, and a strong commitment to teaching. The successful candidate will be expected to sustain a strong research program, supervise graduate and undergraduate student research, and teach students at all levels in their area of specialization (e.g., cognitive psychology; human learning; developmental psychology; social psychology, etc.). The Department of Psychology at TCU (<http://www.psy.tcu.edu>) consists of 14 faculty members who oversee a PhD program in experimental psychology and undergraduate majors in psychology, neuroscience, and child development. The successful candidate will have the opportunity to collaborate with internationally recognized research institutes (Institute of Behavioral Research; Institute of Child Development) that are connected to the Department of Psychology. Review of applications will begin immediately, and continue until the position is filled. Applicants must apply online at: <https://tcu.igreentree.com>. Attach a cover letter, vita, representative publications and have three letters of recommendation emailed to Jacquelyn Curry at j.curry@tcu.edu. [EEO/AA]

Assistant or Associate Professor: The Department of Physiology and Pharmacology at Des Moines Univ. seeks to fill a tenure track faculty position at level of Assistant or Associate Professor. Desirable applicants will have preparation and expertise in pharmacology and/or physiology with an interest in teaching in the medical, podiatric, and health sciences curricula. Preference will be given to those candidates with demonstrated success in teaching a variety of physiology and pharmacology content areas. Des Moines Univ. is committed to advancing its research enterprise and fostering an environment conducive to individual and collaborative scholarly success. Therefore, desirable applicants will be able to demonstrate the potential to develop an innovative and extramurally funded research program that will augment the department's current research strengths. Applicants must have an earned PhD or equivalent and a minimum of two years postdoctoral experience. For full consideration, candidates are invited to submit a letter of application stating their interest along with their curriculum vitae, a concise statement of teaching interests and educational philosophy, a well-defined research plan including specific aims and objectives and contact information for three references using the online applicant tracking system at <http://www.dmu.edu/employment>. Review of applications will begin October 1st, 2011 and continue until a successful candidate is identified and hired. Candidates with questions specific to this position may contact the Search Committee Chair, Dr. Julia Moffitt at 515-271-1512 or julia.moffitt@dmu.edu. For complete job description, Faculty benefit summary and/or information on Des Moines University, please visit <http://www.dmu.edu/employment>. DMU is an EOE/AA employer.

Academic Specialist in Physiology: The Medical Sciences Program is seeking an individual to be part of our physiology lecture and laboratory support team. The person who holds this position will be responsible for coordinating and administering the laboratory experiences in Medical Physiology (P532) and Basic Human Physiology (P215), as well as helping team-teach Disease and the Human Body (M131) lectures. Responsibilities of this position include: a) organization of each week's physiology lab materials and equip-

ment; b) management of a team of Associate Instructors (AI) and Undergraduate Teaching Assistants (UTA) who teach the individual P215 lab sections; c) teaching a block of ten 50-minute MiSt lectures in an area of personal interest that contributes logically to the course; d) P215 course administration including, but not limited to, managing the course registration waitlist, exam proctoring, exam room scheduling, and exam conflicts; e) identifying and implementing improvements to the current offered lab experiences. Knowledge of human physiology is essential to be considered for this position. The incumbent should be a competent decision maker, a team player, and a creative problem solver. Minimum requirements include teaching experience at the undergraduate level, some research or lab experience in a physiology-related field, a broad understanding of current human physiology, and a Master's of Science in a physiology-related field and/or equivalent work-related experience. Review of applications will begin on October 1, 2011 and will continue until the vacancy is filled. To apply, please send a current CV with a cover letter to Beverly Hill, Indiana Univ. School of Medicine, Medical Sciences Program, Jordan Hall 105, 1001 E. 3 St., Bloomington, IN 47405. If applying by electronic mail, please include your last name and "academic specialist" in the subject line and use the following address: bevhill@indiana.edu. Indiana University is an EEO/AA employer, M/F/D.

Postdoctoral Positions

Postdoctoral Research Position: An NIH-funded postdoctoral position is available to study the structure and function of the renal medulla and the urine concentrating mechanism, in Tom Pannabecker's lab in the Department of Physiology at the Univ. of Arizona. Tuscon. This project involves cellular and molecular studies of membrane transport proteins, including extensive immunohistochemistry, microscopy, and digital image analysis, and in vitro studies of epithelial fluid and solute transport in rat renal tubules. Research will include conducting experiments as outlined in the grant proposal, developing addi-

tional experiments as warranted by progress on the project, and preparing the research results for publication in peer reviewed journals and presentations at scientific meetings. Experience in epithelial transport, image analysis, and molecular biology techniques is preferred. The candidate must be able to independently design, perform, and interpret experiments, supervise graduate and undergraduate students working on the project, and assist with general administrative and maintenance duties involved in laboratory management. This position is open immediately and is available for three years. Salary will be based on relevant experience. Review of applicants will begin immediately and will continue until the position is filled. To apply, please send an email containing a cover letter, curriculum vitae, statement of research interests, and list of references to Dr. Tom Pannabecker, Univ. of Arizona, Dept. of Physiology, Tel: 520-626-6481, Email: pannabec@email.arizona.edu.

Postdoctoral Research Position: Available in the Department of Neurology at the Univ. of Vermont in the Cipolla Lab. Studies include how pregnancy and hypertension affect the cerebral circulation to promote neurologic complications. A variety of in vivo and in vitro experimental approaches will be used to study brain blood flow, cerebrovascular reactivity, vascular remodeling, and blood-brain barrier permeability/edema formation in animal models of preeclampsia and eclampsia. This unique position offers training in perinatal and reproductive biology, cardiovascular physiology, hypertension and brain injury. This is an emerging area of research with many unanswered questions that we are actively pursuing. 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 NINDS and a competitive salary will be offered. Please send cover letter, CV and list of three references with contact information by email to: Marilyn J. Cipolla, PhD (Email: Marilyn.Cipolla@uvm.edu). Women and minorities are encouraged to apply. ❖

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Experimental Therapeutics (ASPET)

October 1-5

6th International Conference on Sodium Calcium Exchanger, Napoli, Italy. *Information:* Prof. Lucio Annunziato, M.D., Department of Neurosciences, School of Medicine, University of Naples Federico II, Via Sergio Pansini 5, 80131 Naples, Italy. Tel.: +39-081-7463318; Fax: +39-081-7463323; Email: lannunzi@unina.it; Internet: <http://ncxconference.altervista.org/>.

October 13-16

Joint Meeting of the European Society of Microcirculation and the German Society of Microcirculation and Vascular Biology, Munich, Germany. *Information:* Conference Organizers: Prof. Dr. Med. Ulrich Pohl (ESM) and Prof. Dr. Med. Markus Sperandio (GfMVB), Ludwig-Maximilians-University Munich, Walter Brendel Center of Experimental Medicine, Marchionistr 15, 81377 Munich (DE). Email: microcirculation2011@med.uni-muenchen.de; Internet: <http://microcirculation2011.de/>.

October 15-17

4th International Congress on Image and Signal Processing (CISP 2011) and the 4th International Conference on BioMedical Engineering and Informatics (BMEI 2011), Shanghai, China. *Information:* Email: cisp-bmei@dhu.edu.cn; Internet: <http://cisp-bmei.dhu.edu.cn/>.

October 18-20

CAREX Conference on Life in Extreme Environments, Dublin, Ireland. *Information:* Nicolas Walter, CAREX Project Office, European Science Foundation, 1, quai Lezay-Marnesia, BP 90015, F-67080, Strasbourg Cedex, France. Tel.: +33 0 388 767 166; Fax: +33 0 388 370 532; Email: nwalter@esf.org; Internet: <http://www.carex-eu.org/>.

October 22-26

Canadian Cardiovascular Congress, Vancouver, British Columbia, Canada. *Information:* CCC Secretariat, c/o Intertask Conferences, 275 Bay Street, Ottawa, ON K1R 5Z5, Canada. Tel.: 613-238-2304 or 866-317-8461; Fax: 613-236-2727; Email: cardiocongress@intertaskconferences.com; Internet: <http://www.cardiocongress.org/>.

October 31-November 4

Ion Channel Signaling Mechanisms, Marrakesh, Morocco. *Information:* Internet: <http://www.icsm-ma.com/>.

November 2-4

RACMEM 2011 - Recent Advances and Controversies in the Measurement of Energy Metabolism, Maastricht, The Netherlands. *Information:* Internet: <http://www.racmem2011.org/>.

November 12-15

Scientific Sessions 2012 a meeting of the American Heart Association, Orlando, FL. *Information:* Internet: http://my.americanheart.org/professional/Sessions/ScientificSessions/Scientific-Sessions_UCM_316900_SubHomePage.jsp.

November 14-15

New Frontiers Symposium, Nijmegen, The Netherlands. *Information:* Internet: <http://www.ncmls.eu/NCMLS/NewFrontiers%202011/home.asp>.

November 29-December 1

Functional Genomics and Systems Biology, Hinxton, Cambridge, UK. *Information:* Internet: https://registration.hinxton.wellcome.ac.uk/display_info.asp?id=231.

November 30-December 2

The 31st Annual Meeting of the Israel Orthopedic Association, Tel Aviv, Israel. *Information:* Anat Regev, 19 Hayetzira Street, Ramat Gan. Tel.: +972-3-5767716; Fax: +972-3-5767716; Email: aregev@paragon-conventions.com; Internet: <http://www.israel-ortho.org.il/annual11en.html>.

December 1-4

ISOPT 2011 - International Symposium on Ocular Pharmacology and Therapeutics, Vienna, Austria. *Information:* Lyat Shahal, 18 Avenue Louis-Casai, 1209 Geneva, Switzerland. Tel.: +41 22 5330 948; Fax: +41 22 5802 953; Email: isopt@isopt.net; Internet: <http://www.isopt.net/isopt2011/>.

December 1-4

The 4th International Conference on FIXED Combination, in the Treatment of Hypertension, Dyslipidemia and Diabetes, Paris, France. *Information:* Ms. Ravit Levy, Conference Secretariat, 18 Avenue Louis-Casai, 1209 Geneva Switzerland. Tel.: +41 22 5330 948; Fax: +41 22 5802 953; Email: rlevy@paragon-conventions.com; Internet: <http://www.fixedcombination.com/2011/>.

December 3-7

51st American Society for Cell Biology Annual Meeting, Denver, CO. *Information:* Internet: <http://www.ascb.org/meetings>.

December 4-6

Innovations in Cardiovascular Interventions (ICI 2011), Tel Aviv, Israel. *Information:* Shirley Dinenson, Conference Secretariat, 19 Hayetsira Street, Ramat Gan 52118. Tel.: +972 3 5767739; Email: secretariat@icimeeting.com; Internet: <http://www.icimeeting.com/>.

December 13-17

57th Annual Conference of Association of Physiologists and Pharmacologists of India, New Delhi, India. *Information:* Internet: <http://www.APPI-CON2011.org>.

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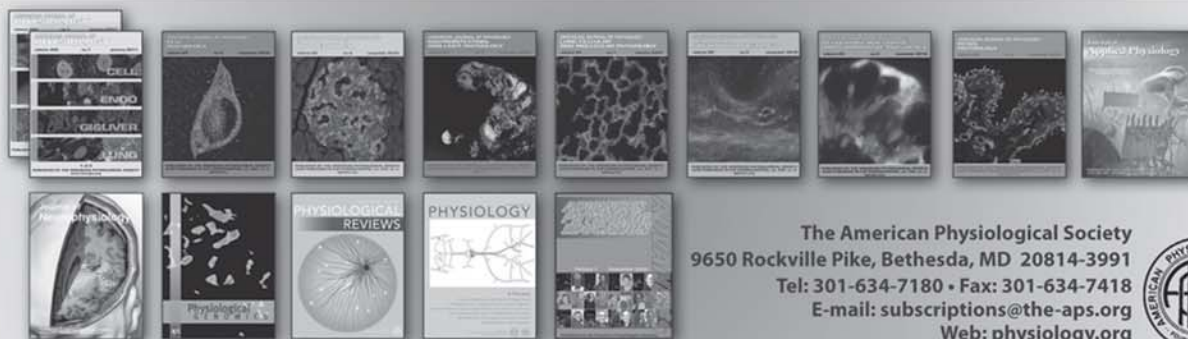
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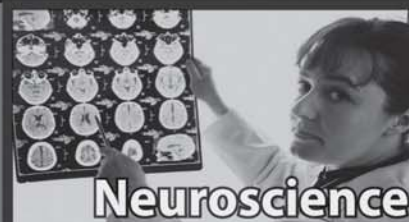
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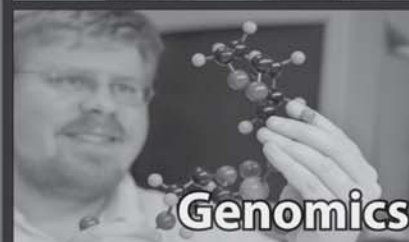
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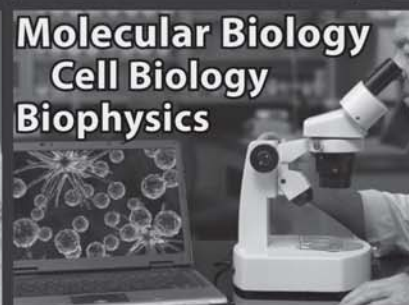
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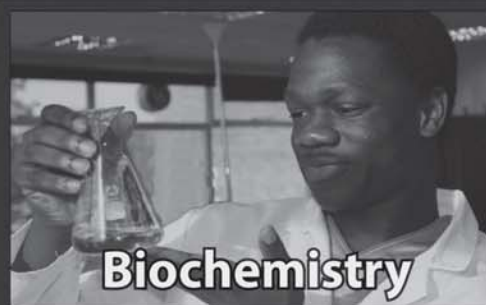
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Last Name or Family Name First Name Middle Name

3. Date of Birth _____ Optional: Male ☐ Female ☐
Month Day Year

4. Institution Name _____ Department _____
(Please do not abbreviate Institution Name)


5. Institution Street Address _____

6. City/State/Zip/Country _____

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8. Work Phone _____ Home Phone _____

9. Fax _____ E-mail _____

10. **Educational Status:**  **IMPORTANT for STUDENTS: ** If you are enrolled as a graduate student for an advanced degree, or as an undergraduate student, please include the month and year you expect to receive your degree.**

Dates** Degree Institution Major Field Advisor

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14. OCCUPATIONAL HISTORY [Check if student ☐

Current Position:

Dates	Title	Institution	Department	Supervisor
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Prior Positions:

Dates	Title	Institution	Department	Supervisor
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15. LIST YOUR MOST SIGNIFICANT PUBLICATIONS, WITH EMPHASIS ON THE PAST 5 YEARS (Publications should consist of manuscripts in peer-reviewed journals. List them in the same style as sample below.)

Sample: MacLeod RJ and Hamilton JR. Volume Regulation initiated by Na⁺-nutrient cotransport in isolated mammalian villus enterocytes. *Am J Physiol Gastrointest Liver Physiol* 280: G26-G33, 1991.

16. DOCTORAL DISSERTATION TITLE (if applicable):

17. POSTDOCTORAL RESEARCH TOPIC (if applicable):

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