



# The Physiologist

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## Mutual Respect: A Key to Facilitating Learning

Daniel Richardson, Professor Emeritus  
University of Kentucky

2006 Arthur C. Guyton Teacher of the Year Awardee

It is indeed quite an honor to have been selected as the 2006 Arthur C. Guyton Teacher of the Year by the American Physiological Society, and I am deeply appreciative of the society for offering this award and of those who supported my nomination for it. However, it is a bit troublesome to be singled out in this manner, since no one “wins” an award of this nature on their own. In my case I have over 40 years worth of folks to thank for their encouragement and support of my teaching pursuits, and it is on their behalf that I accept this award. Without them, I could not have obtained even a modest level of teaching competency.

There are far too many to list even a fraction of the people involved with my teaching career. However, the group that stands out as the most influential in my development as a teacher are the students themselves, and I have been fortunate to have had a career that has allowed me to teach a wide range of stu-



Daniel Richardson

dents; from fourth graders to undergraduate non-science majors to health care professionals to graduate students.

What, in my experience, fourth graders through graduate students have in common is an innate desire to learn. In this context, what teaching seems to be all about, whether in a fourth grade or graduate school setting, is fostering students' desire to learn, then facilitat-

ing their learning. As the Committee on Undergraduate Science Education of the National Research Council put it, *someone has not taught unless someone else has learned* (2).

Teaching, as the aforementioned science education committee defines it, involves much more than the dissemination of information to a class of students. No matter how well organized or eloquently information is presented, learning will not occur until the information is cognitively internalized into an existing mental schema of the learner. Terms such as “comprehend” and

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“understand” are what are meant by the internalization of information. (i.e., the information becomes an integral part of the learner). Accordingly, *teaching is the collective behaviors, procedures, and methods that teachers use to facilitate the cognitive process of learning.*

How does a teacher foster a desire to learn and then become a facilitator of learning? To take the latter first, the education buzz word for the process that best facilitates learning is *active learning*. However, the term *active learning* is somewhat of a misnomer because its opposite *passive learning* doesn't exist. That is, learning will take place if, and only if, a student is actively engaged with the material being presented. In getting students to become engaged in a topic, I have found that active learning is not a particular method, but rather a shared attitude between students and teachers that allows them to perform as a team—a team in which teachers orchestrate the processes and procedures for learning to occur and students become engaged in these processes in ways that learning will occur (4). In other words, with regard to the role of the teacher, it is not what you do but how you do it. In a philosophical frame, this begins by establishing an atmosphere of mutual respect between instructor and students, and it helps if the usual notion of “teacher–student” as a distinct dichotomy gives way to a more collegial relationship in which instructors and students are partners in the learning process. Once respect is established, the innate desire of students to learn will surface.

How is mutual respect between instructor and students established? In my experience, a good starting point is to let the students know you as a person. Take some time to relate how you got to be where you are—in front of a class—including failures as well as successes along the way. Following this, do a get acquainted activity that the students can participate in. A simple one that works well, particularly in a small class, is to share some of your favorite things, like favorite food, favorite pastime, etc. To help the students feel comfortable with this, use yourself as an example before asking them to relate their items to the class. Having the students participate in some sort of get acquainted activity early on in the course helps to

establish a habit of student participation in a non-threatening atmosphere.

Once the class gets into course material, an effective way to continue to establish, and maintain, mutual respect is for teachers to recognize the importance of students' own ideas and experiences and to encourage them to incorporate these into learning new material. Relating new information to existing knowledge increases student interest and facilitates the learning process. And, yes, even fourth graders have a lot of experiences that, when tapped, can help them in the learning process.

Utilizing experience in teaching is where the idea of relevance comes in. Regardless of how you do it—lecture, discussion, case-based learning, whatever—material should be presented in a

***“...teachers facilitate learning by first and foremost establishing a collegial classroom atmosphere based on mutual respect that recognizes that we are partners with our students in the learning process.”***

relevant manner. And I don't mean relevance as in “this will be on the exam.” I mean relevance as in “this material directly affects your life.” The best way to do this is through examples that students themselves come up with based on their own life experiences. For example, a good lead in to presenting the nervous system is to discuss the sense of smell. Have students think of smells that evoke pleasant memories or ones that conjure unpleasant memories. This can lead to coverage of almost the entire central nervous system including the emotional correlates of memory. Again, to give students an idea of what you are asking them to do, start with yourself. I tell the story of how I don't like the smell of perfume because when I was about four or five years old a lady came into my dad's automotive repair shop reeking of the stuff so bad that I got sick and threw up. My students love this story because they can all picture a four-year-old kid upchucking and the fact that I was that kid, and willing to tell them about it, lets them know that I am human and makes them feel more comfortable in the class. The important point is that once you relate a personal story of your own to a class, it will open

a floodgate of similar personal experiences from your students which will help to make the topic being discussed relevant and will facilitate learning.

In short, my experience tells me that teachers facilitate learning by first and foremost establishing a collegial classroom atmosphere based on mutual respect that recognizes that we are partners with our students in the learning process. Once such mutual respect is established, students' innate desire to learn will surface and they will become engaged in the class. As a result, learning will take place regardless of the academic level of the class or of the particular pedagogical methods used to cover course content.

Given that, if students are engaged in the course, they will learn independent of teaching methodology; if you prefer didactic lectures, use them. But first, take some time to “actively” engage the students so that they become comfortable with you and mutual respect is established. Then when lecturing, don't just rattle on for 50 or so minutes straight, but break the lecture up with

brief activities that give the students a chance to participate. Asking questions and/or relating personal stories that underscore relevance makes a good lecture break. Additionally, there is a wealth of guidebooks that are full of active learning suggestions. For example, Angelo and Cross (1) have presented a large variety of brief active learning exercises that they have termed “classroom assessments.” These seem to work well as intermittent activities that can be sprinkled into a didactic lecture. More recently, Michael and Modell (3) have presented details, as well as providing some theoretical underpinnings, on incorporating brief active learning activities in the lecture hall. These seem to be particularly well suited to the teaching of physiology, probably because the authors are physiologists.

If you are ready to scrap didactic lectures and use active learning methods as your mainstay, then do that, but limit yourself to the methods and procedures with which you are comfortable. Nothing falls flatter on its face than a teaching procedure with which the instructor is uncomfortable or unfamiliar. I have certainly had my share of these, and one that particularly stands

out is “role playing.” I am too shy and inhibited to have even thought about doing such a thing as role playing in a classroom, let alone actually try it. But I did, and it was a complete disaster. Another active learning exercise that I have attempted several times without success is “concept mapping.” Regardless of how many times the “experts” have explained it to me on cocktail napkins at Experimental Biology, I just don’t get it. (What’s the difference between a concept map and a flow chart?) If I, as an instructor, don’t understand something like concept maps, it is for sure my students won’t, and didn’t. But, for me, the important thing was that before my active learning disasters occurred, the students and I had established an atmosphere of mutual respect and they were engaged in

the course. As a result, they quickly forgave me; so we had a good laugh and moved on. And your students will forgive you for your blunders if mutual respect is present. So, my parting words of wisdom are that by establishing an atmosphere of mutual respect in the classroom, students will become engaged in the course and, as long as they feel that you have their interests at heart, they will be tolerant of you trying different teaching methods and procedures. So, don’t be afraid to try new things. No matter what, your students will learn if mutual respect is an integral part of your classroom culture.

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2. Committee on Undergraduate Education (CB Moore, Chair). *Science Teaching Reconsidered: A Handbook*, National Academy Press, Washington, DC, 88 pp, 1997.

3. Michael, JA and HI Modell. *Active Learning in the Secondary and College Science Classrooms: A working model for helping the learner to learn*. Lawrence Erlbaum and Assoc., Mahwah, NJ, 171 pp, 2003.

4. Richardson, D. Active learning: A personal view. *Adv. Physiol. Ed.* 10: S79-S80, 1993. ♦

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**Beth Young**  
Univ. of Wyoming

**Anderson Zago**  
Univ. Sao Paulo, Brazil

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Louisiana State Univ. HSC

**Mark J Pilgrim**  
Coastal Georgia Commun. Coll.

**Carl L. Thurman**  
Univ. of Northern Iowa

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Stratford, NJ

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membership information can also be changed by visiting the Members Only portion of the APS Website at <http://www.the-aps.org>. ❖

## Council Meets in Bethesda

The APS summer Council meeting was held in Bethesda, MD, July 6-8, 2006. During the meeting Council met with the APS committee chairs. The chairs presented reports of the committees' programs and accomplishments during the past year, and plans for the coming year. They also contributed ideas of ways to advance the Society through future Strategic Plan initiatives. These committee reports are published in this issue of *The Physiologist*.

The Animal Care and Experimentation Committee (ACE) reported that the *Resource Book for the Design of Animal Exercise Protocols* was published in February 2006. In January 2005, APS convened a working group to discuss regulatory issues related to pain and distress. One of the main themes that emerged was the need for our regulatory system to treat pain and distress as distinct entities. Those discussions impacted NIH's decision to ask ILAR to undertake an update of its 1992 report on recognition and alleviation of pain and distress in laboratory animals in two separate reports. The first part of the update will deal with distress and will be followed later by a report on pain.

In April 2006, the ILAR committee began its fact finding with a Workshop

on Recognition of Distress in Laboratory Animals. Former ACE Chair J.R. Haywood was invited to make comments about the scientific challenges in developing a science-based definition of when stress becomes distress, recognizing distress in laboratory animals, and validating assessments of distress in laboratory animals. At the workshop, the HSUS announced it will publish its own pain and distress report as part of its Project 2020 to eliminate pain and distress in laboratory animals by that year.

The Committee also reported that APS is partnering with States United for Biomedical Research (SUBR) in a new outreach program. SUBR is a consortium of state and regional associations that promote public support for biomedical research and the use of animals in research. The APS/SUBR Partnership is a pilot program to design, test and implement a physiologist speaker/public outreach project that includes public information on the humane use of animals in research, education and testing.

The Committee will be presenting a symposium at EB 2007 entitled "Alternatives Revisited: Scientific Perspectives." Issues relating to study design, and the notion that good science

often requires an interplay rather than a substitution of animal and non-animal models will be discussed.

The Communications Committee reported that the Communications Office produced 30 press releases based on scientific papers appearing in nine journals. That was an increase of 50% over last year. The Committee reported that releases were written, for the first time in several years, on papers from the *Journal of Neurophysiology*, *AJP-Cell* and *AJP-Renal*.

The Committee reported that it has developed a "Calendar of Physiology" that will highlight the physiological connections to recurring holidays, events, traditions, seasons, etc. that can be used in a variety of ways for public communication. One of the first implementations of this "Calendar of Physiology" occurred last February when the APS Communications Office initiated a program aimed at linking "Groundhog Day" (Feb. 2) to physiology and making APS the primary source of information for the media.

The Committee organized, in conjunction with the Public Affairs Committee, a Communications Symposium at EB '06 entitled "Ground-Floor Communications: Creating a Buzz about Science



**APS Council: Back row (l-r) Irving Zucker, Gary Sieck, J. Michael Wyss, James Hicks, Curt Sigmund, Irving Joshua, Carole Liedtke, Peter Wagner, Dee Silverthorn, Thomas Lohmeier, and Rob Carroll. Front row (l-r) Susan Barman, Hannah Carey, Dale Benos, Douglas Eaton, Kim Barrett.**

through Community and Constituency Outreach.” The purpose of the workshop was to help physiologists be advocates for their own work, emphasize the value of science, and help them speak on various topics, including evolution, stem cell research and the use of animals in research. All the PowerPoint presentations from the EB ‘06 Workshop are available online at: <http://www.the-aps.org/press/news/EB06Comms-PA symp>. The Communications Committee will be presenting another workshop at EB ‘07. The Committee has tentatively scheduled two nationally recognized journalism “headliners” to speak at the workshop—Joe Palca of National Public Radio and Rick Weiss of the Washington Post.

The Education Committee reported that it is developing live, web, and CD-ROM short courses that focus on critical professional skills areas. Each course will include a strong focus on the interaction of racial/ethnic background and culture with the development of these skills. Students who complete the course(s) will: improve their performance in specific professional skills areas; increase their understanding of how these skills can impact career opportunities and advancement in biomedicine; increase their understanding of how diversity issues, especially cultural influences and background experiences, can interact with the development of professional skills targeted by the course; and increase their knowledge of resources and materials that can further assist in their development of these key professional skills.

The Education Office developed materials for a live short course focused on writing and reviewing for journals. The materials’ development was facilitated by contributions from previous Women in Physiology Committee EB workshops and from individual members. Two live short courses were held in 2006 to field test the materials. Numerous APS members were speakers and small group leaders. The short courses also included participants and group leaders from other biomedical research societies (American Society for Microbiology, Society for Neuroscience, and Society for Developmental Biology). The web-based version of the workshop should be available by early 2007.

The Committee sponsored a Refresher Course at EB06 entitled “Gender Differences in Physiology.” In 2007, the EB Refresher Course will restart the

cycle of major topics, with gastrointestinal physiology as the focus.

The Liaison with Industry Committee sponsored its fifth symposium at EB ‘06 entitled “Advances in Ion Channel Physiology.” The symposium included topics on ion channels in pain pathways, cardiac arrhythmias, therapeutic agent to rescue the mutant cystic fibrosis transmembrane conductance regulator (CFTR) function, and therapeutic potential of positive allosteric modulators of glutamate AMPA receptors. The Committee will be sponsoring the “Stem Cells in Physiology and Drug Discovery” workshop at EB ‘07.

The Publications Committee reported that they are continuing to respond to the open access movement. In response to the NIH policy requesting that authors submit their accepted manuscripts to the NIH database for archiving and public dissemination, the Committee has added language to the Manuscript Submission Form, along with an explanatory memo to authors, granting authors permission to voluntarily submit their accepted manuscript to the NIH’s PubMedCentral, with public release 12 months after final publication in the Journal. The Publications Committee believes that this decision will help APS authors meet the perceived requirement of the NIH while still preserving APS’ free-access policy

(all content of APS journals is free on the journal web site 12 months after publication).

The Committee also reported that the Journal Impact Factors made a strong showing again in 2005; and that journal submissions were up 5% across all journals in 2005.

The Public Affairs Committee reported that APS has joined a new coalition of scientific societies to support a research and polling initiative that will investigate the public’s views on the teaching of evolution in public schools. The goal of this coalition is to better understand how societies can be advocates for the teaching of evolution, which serves as a foundation for understanding biological principles. The coalition includes a diverse group of organizations such as FASEB, the American Chemical Society, the National Academies of Science, and the American Physical Society.

The Public Affairs Committee is planning a symposium at EB ‘07 entitled “Human Subject Research Ethics: Issues for Going from Bench to Bedside.” Planning is also underway for a joint public affairs symposium involving all the societies participating in EB ‘07. The symposium will feature NIH director Dr. Elias Zerhouni and former Congressman John Porter. The discussion will focus on the FY 2008 NIH budget and how scientists can become



**APS Committee Chairs: Back Row (l-r) Sinya Benyajati, Michael Portman, Lisa Harrison-Bernard, and John Williams. Front Row (l-r) Gregory Florant, Angela Grippo, William Galey.**

advocates for research.

The Trainee Advisory Committee (TAC) reported that the first Trainee Symposium was held at EB '06 entitled "Transitioning from Postdoc to Jr. Faculty: Surviving the Initial Years." The session was very well attended and the presentations received very high ratings from the participants. The 2007 Trainee Symposium will be titled "Multiple Career Paths for a Physiologist: Understand Your Options and How to Get There."

The Women in Physiology Committee reported that the third Bodil Schmidt-Nielsen Distinguished Mentor and Scientist Award was presented to L. Gabriel Navar, Tulane University School of Medicine. Navar gave a 30-minute lecture on mentoring entitled "From Mentee to Mentor: Lessons Learned Along the Way."

At EB '06, the Women in Physiology

Committee co-sponsored a workshop with the ASPET Committee on Women in Pharmacology entitled "Mastering the Juggling Act: Laboratory, Life, and Leadership Roles." The workshop was designed to inform young physiologists how to deal with many of the issues they will face balancing research, teaching, service activities, job and family, and dual careers. This session was the first time that an audio recording was simultaneously made with the PowerPoint presentations and both will be made available as a resource on the APS website.

The Women in Physiology and ASPET Women in Pharmacology Committees will co-sponsor a mentoring workshop for EB '07 in Washington, DC. The focus of the workshop will be "Being Heard: The Microinequities That Tilt the Playing Field," with specific topics include being heard as students and

postdocs, being heard as junior faculty, and being recognized as senior faculty. The target audience is young scientists of both genders interested in learning skills for their future/current careers. The workshop also offers a venue for networking between junior and senior scientists.

Reports from the Awards, Careers, Committee on Committees, Finance, International Physiology, Joint Program, Long Range Planning, Membership, Perkins Memorial Fellowship, Porter Physiology Development, Section Advisory, and Senior Physiologists Committees were also presented to Council.

For more information, see the Committee Reports section beginning on page 271. ❖

## Benos Thanks APS Staff

APS President Dale Benos hosted a staff appreciation reception for the Society's employees on Thursday, July 6. The event was attended by the APS staff, Council and Committee chairs. APS Executive Director Martin Frank and President Benos, on behalf of the Council and chairs, thanked the staff for their efforts over the past year. Benos said it was a pleasure to work with the APS staff, and that their efforts help to make the jobs of the Council and Committee chairs easier.

During the appreciation reception, a ceremony is held to recognize those staff members who have served the Society. This year, Benos presented a 25-year certificate to Linda Allen (Manager, Membership Services); 20-year certificates to Melinda Lowy (Higher Education Programs Coordinator), Krysia Moore (Journal Supervisor), Santa

Vadala (Secretary); 10-year certificate to Penny Cochran (Peer Review); and 5-year certificates to Sean Boyer (Copy Editor), C. Brooke Bruthers (Education Department Office Manager), Miriam Capers (Peer Review), Peggy Choe (Copy

Editor), Linda Dresser (Executive Assistant), Zeki Erim (Copy Editor), Janice Hudson (Subscriptions Processor), and Benjamin Weston (Art Editor). Benos thanked the employees for their years of service. ❖



**APS Employees who were recognized for service to APS were: Back Row (l-r) Peggy Choe, Zeki Erim, Krysia Moore, Linda Allen, Martin Frank, Dale Benos, Janice Hudson, Brooke Bruthers, Sean Boyer, Linda Dresser; Front Row: Melinda Lowy, Benjamin Weston, Santa Vadala, Miriam Capers.**



## 2005 APS Impact Factors Are Published by Thomson/ISI

Thomson/ISI has released its 2005 Science Edition of the Journal Citation Reports, which gives journal impact factors and rankings of 6,034 science journals. The 2005 impact factors of the journals of the APS, along with a comparison of the

past 3 years, are given in the table below. The table also shows the rank of APS journals in the physiology category, and each journal's rank in its related field, as well as each journal's cited half-life. ❖

**Table 1. APS Journal Impact Factors and Rankings.**

Journal	2002	2003	2004	2005	2005 Cited Half-Life	2005 Rank, Physiology (out of 75)	2005 Rank, Related Field	Related Field
<i>PRV</i>	26.532	36.831	33.918	28.721	6.7	1		
<i>Phys Gen</i>	4.667	4.368	3.855	4.636	2.8	5	33 of 153 50 of 261	Cell Bio Biochem & Mol Bio
<i>AJP-Endo</i>	3.620	3.828	4.431	4.456	6.0	6	18 of 89	Endo & Met
<i>AJP-Renal</i>	5.044	4.344	4.354	4.263	5.8	11	4 of 51	Urol & Nephro
<i>AJP-Cell</i>	3.936	4.103	3.939	3.942	5.8	14	49 of 153	Cell Bio
<i>AJP-Lung</i>	3.900	3.735	4.051	3.939	4.9	15	6 of 33	Respiratory
<i>JN</i>	3.743	3.876	3.592	3.853	8.0	16	52 of 200	Neuroscience
<i>AJP-Regu</i>	3.156	3.627	3.405	3.802	6.4	17		
<i>AJP-Heart</i>	3.369	3.658	3.539	3.560	5.9	20	11 of 72	Cardio
<i>AJP-GI</i>	3.346	3.421	3.479	3.472	6.2	21	10 of 46	Gastro & Hep
<i>JAP</i>	2.720	3.027	2.824	3.037	9.9	23	3 of 70	Sport Sciences
<i>Physiology*</i>				2.113	7.0	39		
<i>Advances</i>	0.744	0.755	1.291	1.043	3.7	60	4 of 21	Education

\*This is the first year the journal *Physiology* has an impact factor since its title changed from *News in Physiological Sciences* in 2004.

### The American Physiological Society Medical Physiology Curriculum Objectives

<http://www.the-aps.org/education/MedPhysObj/medcor.htm>

Download in HTML or PDF format

**NOW AVAILABLE IN PRINT FORM; UP TO 15 COPIES FREE PER DEPARTMENT.**

### NEW UPDATES: Cardiovascular and Respiration Section

The **Medical Physiology Curriculum Objectives** is a joint project of The American Physiological Society and the Association of Chairs of Departments of Physiology.

APS Education Office  
9650 Rockville Pike, Bethesda, MD 20814-3991  
Phone: 301-634-7132; Fax: 301-634-7098; Email:  
education@the-aps.org; <http://www.the-aps.org/education.htm>

## Introducing David P. Brooks

In April 2006, **David P. Brooks** succeeded Joey P. Granger as Chair of the Water and Electrolyte Homeostasis Section. Brooks has been involved heavily in the Section from its inception, serving as its Secretary-Treasurer from 1996 to 1999. A member of APS since 1983, Brooks has served on a number of APS committees, including the Liaison with Industry Committee, which he chaired for three years, the Program Advisory Committee, the Careers Opportunities in Physiology Committee, the Long Range Planning Committee and the Fund Raising Task Force. Brooks has served on the Public Affairs Committee and the Animal Care and Experimentation Committee in an ex-officio capacity. Brooks served on the Editorial Board of the Regulatory, Integrative and Comparative Physiology Section of the *American Journal of Physiology* and has also been a member of the Editorial Boards of the *Journal of Pharmacology and Experimental Therapeutics*, the *British Journal of Pharmacology* and *Drug Discovery Today* (Urogenital Section Editor).

Brooks is currently Vice President of Cardiovascular and Urogenital Biology at GlaxoSmithKline Pharmaceuticals in King of Prussia, PA. He received his BS degree in Physiology from Queen Elizabeth College, University of London, before going to Southampton University, UK, where he obtained an MS degree in Biochemical Pharmacology and a PhD in Physiology. He then moved to the University of Hawaii, School of Medicine and Tripler Army Medical Center in Honolulu to do a Postdoctoral Fellowship with **John R. Claybaugh**. After working two years with Claybaugh on the regulation of vasopressin secretion and the role of vasopressin in high altitude sickness, Brooks became an Assistant Professor of Physiology and Biophysics at the University of Tennessee, School of Medicine in Memphis, TN. There, he worked with **Leonard Share** conducting further studies on the control of vasopressin secretion and the role of vasopressin in hypertension. In 1986, Brooks joined the Renal Pharmacology Department at Smith Kline & French Pharmaceuticals. During the last 20 years at Smith Kline & French, SmithKline Beecham and



**David P. Brooks**

GlaxoSmithKline, his research interests have included the discovery and development of agents to treat cardiovascular diseases, especially progressive renal disease, hypertension and heart failure. Recently, he has also been studying the mechanisms involved in preeclampsia and preterm labor.

As Chair of the Water and Electrolyte Homeostasis Section, Brooks plans to continue the excellent momentum provided by Joey P. Granger and the Steering Committee in strengthening the Section. In particular, this will involve working with Michael W. Brands, the Joint Program Committee Representative, in putting together a strong and exciting group of symposia, feature topics, and poster sessions at Experimental Biology in order to continue to attract the high caliber science that we have become accustomed to. This is not always easy given the various research interests of our section members, which include the control of salt and water excretion; neurohumoral control of cardiovascular and renal function; hypertension; developmental physiology and pregnancy; neurohypophysial hormones; and obesity and diabetes. In addition, Brands and the Secretary/Treasurer, Jennifer S. Pollock, are working to put together an awards symposium for trainees. The programming at Experimental Biology has been strengthened by having some outstand-

ing presentations from our Ernest H. Starling Distinguished Lecturers and New Investigator Awardees in Regulatory and Integrative Physiology. It was with great pleasure that one of Brooks' first responsibilities as Chair of the WEH Section was to invite Dr. Pedro A. Jose to be the 2007 Ernest H. Starling Distinguished Lecturer. Manuscripts from these presentations, as well as from the New Investigator presentations, have been published in the *American Journal of Physiology: Regulatory and Integrative Physiology* where much of the research conducted by the WEH Section members is presented. The Editor, Pontus B. Persson, an ex-officio member of the Steering Committee, has been instrumental in maintaining the strong relationship between the Journal and the Section.

As Chair, Brooks is committed to ensuring that the Water and Electrolyte Homeostasis Section continues its tradition of having its members play an active and visible role in the American Physiological Society. The Section has provided the Society with a number of its leaders and with the help of Committee on Committees Representative, Jane F. Reckelhoff, continues to encourage its section members to be involved in APS committees, programming and other APS initiatives. In particular, Brooks wishes to continue the commitment to aid younger members of the Society to become active. Thus, in recent years, some of the newer members of the Steering Committee, Christine G. Schnackenberg, our Liaison with Industry Committee Representative, David L. Mattson, Magdalena Alonso-Galicia, our Councilors, and Sean D. Stocker, our Trainee Member, have served as the Section's Awards Committee. Information on the WEH Section can be found on the APS website. This includes the Section's newsletters that provides a list of the Steering Committee Members and their contact information, programming notes, announcements of awards and information on the Business Meeting Luncheon, an extremely popular and well attended event that occurs annually at the EB meeting. ♦

## Nebraska Physiological Society Annual Meeting

The ninth annual meeting of the Nebraska Physiological Society (NPS) was held on Friday, May 12, in the Durham Research Center at the University of Nebraska Medical Center (UNMC), Omaha, NE. Attendance at the meeting totaled 80 registered individuals, and 42 research posters were presented by graduate students and postdoctoral fellows from seven research institutions. The meeting began at 9:00 am with welcome and introductory remarks from William G. Mayhan, NPS President and Professor, Department of Cellular and Integrative Physiology, UNMC. Mayhan thanked this year's sponsors for their support. Sponsors included the American Physiological Society; the Department of Cellular and Integrative Physiology, UNMC; the Department of Animal Science, UNL; the Dean's Office of the College of Medicine, UNMC; the Dean's Office of the School of Medicine, Creighton University, Omaha, NE; The Nebraska Medical Center; corporate sponsors were DSI Data Sciences, International; LICOR Biosciences; LBA Scientific; EMD Biosciences; Life Science Products, Inc.; VisualSonics; The American Physiological Society; Animal Science Department, UNL; Creighton University; University of Nebraska Medical Center; The Nebraska Medical Center; and the Department of Cellular and Integrative Physiology, UNMC.

The meeting began with an education-



**NPS President, William G. Mayhan, Predoctoral poster winner Michelle Baltes, Postdoctoral poster winner - Tarek Mousa, APS sponsored keynote speaker Michael Wolin, Irving H. Zucker, Center back row: Martin Frank, Center right: Robert G. Carroll.**

al seminar by Robert G. Carroll, East Carolina University, Greenville, NC. The title of Carroll's presentation was "The Role of the Teacher in Physiology Education."

Carroll's seminar was followed by student and postdoctoral fellow research presentations. Two graduate students and two postdoctoral finalists were selected to present their research projects based on the quality of the abstracts

submitted. Each presenter was allowed a 10 minute session followed by a short question/answer period. Awards of \$250 were presented to: Tarek M. Mousa, Department of Cellular and Integrative Physiology, UNMC, Postdoctoral Fellow Award: "Heart Rate Variability and Central Angiotensin II Receptors in Heart Failure"; and Michelle M. Baltes, Department of Animal Science, University of Nebraska, Lincoln (UNL), Graduate Student Award: "Vascular Endothelial Growth Factor (VEGF) 164 Increases Vascular Density During Testis Morphogenesis and may be Regulated by the Inhibitory Isoform VEGF164b."

The APS-sponsored keynote address was presented by Michael S. Wolin, Professor, New York Medical College, New York, NY. The title of Wolin's presentation was "Oxidant Redox Signaling Mechanisms in Vascular Regulation and Dysfunction."

The NPS business meeting was called to order by Mayhan and began with an update on the state of the American Physiology Society presented by Martin Frank, Executive Director, American Physiological Society. Frank highlighted current programs and strategic goals of the parent society. George J. Rozanski, NPS Secretary-Treasurer and Professor, Department of Cellular and Integrative Physiology, UNMC, presented the cur-



**NPS Award Finalists: Yan-Xia Pan, Tarek Mousa (Postdoctoral Finalist), William G. Mayhan, NPS 2006 President, Michelle Baltes and Lynn Roy (Predoctoral Finalists).**

rent financial status of NPS. He noted that the current financial status of the NPS is sound. Janet Steele, Department of Biology, University of Nebraska, Kearny NE, (UNK) updated the members on the status of the Nebraska Local Outreach Team (LOT), which is a branch of the APS Frontiers in Physiology program.

Mayhan presented a plaque in recognition of prior NPS president, Andrea Cupp, Professor, Department of Animal Science, UNL. He then thanked the staff for their help and support during his presidency: Cindy Norton, Dorothy Burgin, Pearl Sorensen, Linda Tegeder, and Richard Robinson. Mayhan then introduced NPS President for the coming year Harold D. Schultz, Department of Cellular and Integrative Physiology, UNMC.

Officers for the coming year are: President: Harold D. Schultz, Dept. Cellular and Integrative Physiology, UNMC; President-Elect: Thomas E. Pisarri, Dept. Biomedical Sciences,

Creighton University; Secretary/Treasurer: George J. Rozanski, Dept. Cellular and Integrative Physiology, UNMC; Councilor: Robert A. Cushman, USDA Meat Animal Research Center, Clay Center, NE; Councilor: Kaushik P. Patel, Dept. Cellular and Integrative Physiology, UNMC; Councilor: Janet E. Steele, Dept. Biology, UNK.

Following the business meeting, participants visited the sponsors' displays and viewed the research posters. Departments and institutions represented in the poster session included the Departments of Cellular and Integrative Physiology, Pharmacology and Experimental Neuroscience, Genetics Cell Biology and Anatomy, Obstetrics and Gynecology, Olson Center for Women's Health, Pediatrics, and Internal Medicine, UNMC; VA Medical Center, Omaha, NE; Departments of Animal Science, and West Central Research and Extension Center, UNL; Departments of Biomedical Sciences, Pharmacology, and Exercise Science and

Athletic Training, Creighton University, Omaha, NE; King Science and Technology Center, Omaha, NE; Department of Biology, UNK; USDA Meat Animal Research Center, Clay Center, NE; Vascular Biology Center, Medical College of Georgia, Augusta, GA; Division of Basic Biomedical Sciences, University of South Dakota, Vermillion, SD; Departments of Exercise Science, and Anatomy and Cell Biology, University of Iowa, Iowa City, IA; Departments of Biology, Pharmaceutical Sciences and Environmental Sciences, Drake University, Des Moines, IA; Raytheon Polar Services, Centennial, CO; Department of Cell Biology and Physiology, University of New Mexico Health Sciences Center, Albuquerque, NM.

The meeting concluded at 4:00 pm. ❖

*George J. Rozanski,  
Secretary/Treasurer*

## APS Education

### 2007 Program and Award Deadlines

**Caroline tum Suden/Francis A. Hellebrandt Professional Opportunity Awards for Graduate Students and Postdoctoral Students**

Deadline: **November 8, 2006**

\$500 and free registration to the Experimental Biology 2007 meeting

<http://www.the-aps.org/awards/student.htm>

**Applications for 2007-2008 Porter Physiology Fellowships for minority graduate students now available. Deadline: January 15, 2007**

[http://www.the-aps.org/education/minority\\_prog/stu\\_fellows/porter\\_phy/ov\\_pp.htm](http://www.the-aps.org/education/minority_prog/stu_fellows/porter_phy/ov_pp.htm)

**Applications for 2007 Undergraduate Summer Research Fellowships Now Available. NEW for 2007: Program expanded - 24 Fellowships now available**  
Deadline **February 2, 2007**

<http://www.the-aps.org/education/ugsrf/index.htm>

**David S. Bruce Awards for Excellence in Undergraduate Research**

New Deadline: **January 12, 2007**

Get your EB abstract in by Nov. 8, 2006 to be eligible

<http://www.the-aps.org/awards/student/bruce.htm>

### APS Education EB '07 Workshops

#### Women in Physiology and Pharmacology Mentoring Workshop

"Being Heard: The Microinequities That Tilt the Playing Field"

Sessions for students and postdocs, junior faculty, and senior faculty

[http://www.the-aps.org/careers/careers1/mentor/wr\\_kshp.htm](http://www.the-aps.org/careers/careers1/mentor/wr_kshp.htm)

#### Trainee Symposium

"Multiple Career Paths for a Physiologist: Understand Your Options and How to Get There"

Sessions on careers in small undergraduate colleges, small pharmaceutical/biotechnology companies, US government, and scientific writing <http://www.the-aps.org/trainees/EBsymposia.htm>.

#### Careers Symposium

"Guide for Successful Collaboration: From the Handshake to the Collaborative Research Agreement"

Sessions on initiating successful collaborations, collaborating with the pharmaceutical industry or the military/VA, setting up collaborative research agreements

<http://www.the-aps.org/careers/careers1/EBSymposia.htm>. ❖

## APS Presents Awards to Outstanding High School Students at the 57th Annual International Science and Engineering Fair

The 57th Annual International Science and Engineering Fair (ISEF) was held in Indianapolis, IN May 8-12, 2006. Nearly 1,500 students from 47 countries, regions and territories competed in the world's largest pre-college science competition awards. During the two evenings of awards ceremonies, over \$4 million in scholarships, cash prizes, and awards were distributed, including scholarships, cash, scientific field trips and the grand prizes: two \$25,000 awards sponsored by Ricoh and three \$50,000 scholarships from Intel. Grand Awards in each of 14 categories ranging from \$500 to \$5,000 were presented by the Intel Foundation, Ricoh, Shell Oil, and Merck. Special Awards are presented by over 70 organizations and include scholarships, summer internships, book and equipment grants, and scientific field trips. The APS has provided ISEF awards in physiology since 1991.

In 2006, the APS presented four awards in the form of cash prizes, plaques, and student subscriptions for the best projects in the physiological sciences. This year's APS judging team was **Nancy Kanagy**, University of New Mexico, who acted as lead judge and fellow judges: **Britt Wilson** from the University of South Carolina along with **Subah Packer**, **Stephen Kempson**, **Robert Bigsby** and **Joseph Unthank** all from Indiana University-Purdue University of Indianapolis.

The city of Indianapolis was bristling with the energy and enthusiasm of the nearly 3,000 students and judging scientists crowded into the Indianapolis Convention Center. During the week, students were interviewed multiple times by judges, treated to tours of the

Indianapolis Speedway, and participated in a panel discussion featuring several Nobel Laureates. As judges, we previewed almost 200 projects to select 19 that best fit the category of "physiology." We interviewed each finalist to evaluate their involvement in the study and to determine their understanding of the science and experimental of the project. After two days of interviews, we chose these projects to receive APS awards for excellence in physiological research.

Receiving \$1,000 and first place was **Jonathan Blake Sellon**, 18, of Staples High School, Westport, CT for his project titled "**Modeling Auditory Attention by Implementing IHC Movement into Frequency Selectivity of the Inner Ear: A Novel Approach to Stimuli Separation.**" Jonathan examined and then modeled the movement of cochlea's inner hair cells following introduction of varying frequency stimuli to create a novel application of an algorithm to separate complex sounds into individual components. The hypothesis was that cochlear-based attention contributes to differentiation of complex sounds into individual components. The development of a cochlear implant based on this technology that can process and potentially screen multiple inputs has the potential to tremendously improve the acuity of those with impaired hearing.

Winning an APS award for the second year, **Sarah S. Mousa**, 18, of Columbia High School, in East Greenbush, NY presented her updated research on "**Cellular and Molecular Mechanisms of Nicotine's Pro-angiogenesis Activity: Potential Impact on Different Disease Processes.**" Last year, Sarah presented her



The 2006 APS-ISEF award judges gather to begin their review of the nearly 200 physiology-related projects.

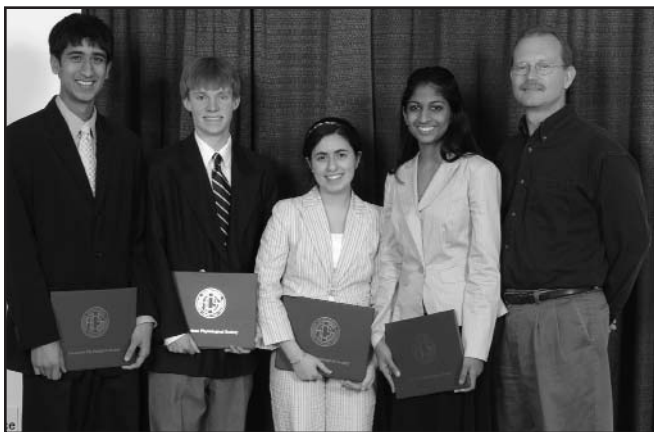
research using a chick egg angiogenesis model and cultured epithelial cells to examine growth-promoting effects of nicotine. After receiving a patent for her work from last year, Sarah extended her research to examine the mechanism of the angiogenic effect of nicotine including using antagonists to determine the signaling pathway of nicotine in cultured endothelial and epithelial cells.

For one of the two third place awards, judges selected the project of **Sabrina Lakshmi Prabakaran**, 15, from Canterbury School in Fort Myers, FL. Her project was entitled, "**Treatment of Age-related Macular Degeneration, Year Two: Effect of Intraocular Steroid on Choroidal Neovasculation and Vitreal Vascular Endothelial Growth Factor Level.**" Sabrina's enthusiasm and knowledge of VEGF signaling and the implications of her research using triamcinolone to improving macular degeneration are the basis of a manuscript being prepared in conjunction with her mentor.

The second third place project was presented by **Sheel Tyle**, 14, of Pittsford Mendon High School in Pittsford, NY. His project, "**The Impact of Muller Cell Reactivity During Retinal Degeneration,**" demonstrated a unique interaction between Muller cells and photoreceptor cells. He observed that Muller cells appear to exert an effect that requires an actual physical association to decrease the viability of photoreceptor cells.

These projects are just a small sampling of the many projects we had the opportunity to observe. I was proud to represent APS at this celebration of the scientists of tomorrow. ❖

Nancy L. Kanagy,  
APS Education Committee



APS ISEF award winners Sheel Tyle, Jonathan Blake Sellon, Sarah Mousa, and Sabina Lakshmi Prabakaran receive their award certificates from APS Education Committee member, Britt Wilson.

## Arthur C. Guyton Physiology Educator of the Year Award Call for Nominations

The Teaching Section of the American Physiological Society invites you to nominate a fellow physiology educator the Fifteenth Annual **Arthur C. Guyton Physiology Educator of the Year Award**.

Nominees must be faculty members of accredited colleges or universities and members of the American Physiological Society. The Selection Committee will look for independent evidence of: (1) excellence in classroom teaching over a number of years at 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.

In the past, all nominees have shown excellence in teaching and have made significant contributions in student advisement, graduate education, and/or curriculum design and reform at their institution. Consequently, 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.

Each nominee must be nominated by a member of APS. The **Nominator** should send a letter of support outlining the qualifications of the nominee to the Chair of the Award Selection Committee, no later than Wednesday, November 15, 2006. The **Candidate** will be asked to submit a portfolio that includes a statement of teaching philosophy and achievements; summaries of student evaluations, teaching honors and awards; and evidence of education-related activities outside the classroom. Letters of support from colleagues and, if desired, students of the candidate will also be requested. The committee requests electronic submission of all material by **January 15, 2007**.

The person selected will receive the award during the APS business meet-

ing at the April 2007 annual meeting of the American Physiological Society (Experimental Biology 2007, April 28 – May 2 in Washington, DC). The Arthur C. Guyton Physiology Educator of the Year will receive a framed, inscribed certificate, an honorarium of \$1,000 and expenses of up to \$600 to attend the meeting. The awardee is requested to write an essay on his/her philosophy of education for publication in *The Physiologist*.

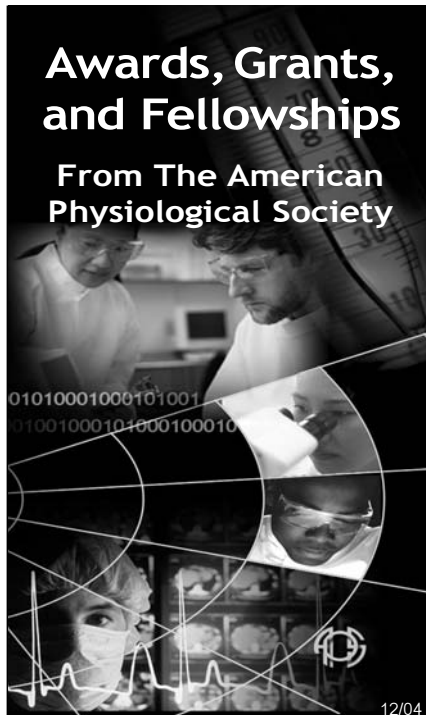
The **Chair** of the Guyton Award Selection Committee is Vikki McCleary, Assistant Professor, Department of Pharmacology, Physiology and Therapeutics, University of North Dakota School of Medicine and Health Sciences. Email: vmccleary@medicine.nodak.edu, Tel.: 701-777-4293, Fax: 701-777-4490.

### Previous Awardees:

2006 Daniel R. Richardson;  
2005 Robert W. Gore;  
2004 Robert G. Carroll;  
2003 George A. Ordway; and  
2002 John West. ❖

## Awards, Grants, and Fellowships

From The American  
Physiological Society



**T**he American Physiological Society (APS) provides leadership in the life sciences by promoting excellence and innovation in physiological research and education and by providing information to the scientific community and to the public.

The Awards, Grants, and Fellowships programs are designed to strengthen and shape the discipline through awards that support, recognize, and publicize the scholarly and research activities of APS Members.

### For Full Details or Questions

...on all awards, grants and fellowships,  
visit the APS web site at:

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

## A Fizzy What? 13 Steps to Getting “Physiology” into the Public Vocabulary

Hannah V. Carey, APS President-Elect  
Francis L. Belloni, Chair, APS Communications Committee

We’ve all received blank stares and puzzled looks when we tell our friends, neighbors and even family members that we are physiologists. Obviously, this presents a problem for the profession.

If people don’t know what we do, we risk losing young minds to other professions. And with competition for grant funding becoming more demanding, having physiology as a recognizable and well-respected science is more important than ever.

While the problem of unfamiliarity with physiology may seem a bit overwhelming, each of us can do a lot to spread the word. Society President Dale A. Benos has called for increased member activism to promote the important role physiology plays in our lives and to get the general public excited about our discipline.

Here’s are a baker’s-dozen steps each APS member can take to enhance public perception of physiology:

1. Focus first on your neighbors, friends and family members and then expand from there. Tell your story to people close to you. They will pick up on your enthusiasm for science and physiology and value it.

2. As you become more comfortable, start giving talks at school events and civic organizations in your community. Start to talk to your local media. The APS Communications Office can assist you with tips on how to talk to the public and the media.

3. Identify yourself as a physiologist. Mention APS and its programs, including the awards, educational and career development programs.

4. Say “physiology” as often as you can. Explain what physiology is and give examples of how physiology affects the lives of the people you’re talking to, the lives of their animals and pets, and the larger ecosystem.

5. Join your institution’s speakers’ bureau and include APS as a resource in your talk or slide presentation.

6. Meet with your legislators when opportunities arise to discuss the value of science and physiology. Describe how bioscience and our physiology in particular affect the health and economic well-being of their local regions and the nation.

7. Be ready, if necessary, to respond to questions regarding use of animals in research.

8. Encourage other scientists you know (especially physiologists) to join APS by explaining the valuable work the Society does.

9. Check the APS web site frequently for new and updated information that you can use in your public outreach. The Society plans to develop a downloadable slide presentation you can use for speaking engagements “as is” or with your own modifications. The slide presentation will include specific examples of how advances in the physiological sciences have made an impact.

10. Let APS know when you give presentations, and mention what worked and what didn’t. Simply send an email to one of the Communications Office staff.

11. Include links on your own or your lab’s website to the APS website, PhysiologyINFO.org and other physiology resources.

12. Get involved in APS through your interest section or by volunteering for one of the APS committees.

13. Consider joining a state-wide biomedical research association if there is one in your region (see <http://www.statesforbiomed.org/>) for more assistance in public outreach, and opportunities to talk with local and national representatives who affect science policy and research funding.

The Communications web site (Press Room, under “Member Resources” <http://www.the-aps.org/press/>) already has the beginning of an APS “toolkit” with tips to help members who are ready to talk to the press get started.

You can also use the information on the Communications/Press Room website and <http://www.physiologyINFO.org> to help formulate your talks.

There are Power Point templates available for use in talking to undergraduates about choosing physiology as a career at <http://www.the-aps.org/education/undergrad/outreach.html> in the APS Education website.

The Society has developed a Timeline of Physiology and is developing other helpful materials and programs, including a timelines of sectional sub-disciplines and a partnership with States United for Biomedical Research to train physiologists on the art of speaking out.

With positive experiences in your first public speaking steps, you will have the confidence to act as a spokesperson for physiology before larger and more diverse audiences later on. ❖

### Refresher Course

“Refresher Course in GI Physiology”  
sponsored by the Education Committee

[http://www.the-aps.org/  
education/refresher/index.htm](http://www.the-aps.org/education/refresher/index.htm).

### Education Office Fall Committee Meetings

The **Education Committee** will be meeting at the APS Headquarters in Bethesda, MD on November 13 and 14.

The **Career Opportunities in Physiology Committee** will be meeting at the APS Headquarters in Bethesda, MD on November 15 and 16.

The **Trainee Advisory Committee** will be meeting at the APS Headquarters in Bethesda, MD on December 11 and 12.

Committee members...please contact the Education Office for further information at [education@the-aps.org](mailto:education@the-aps.org) or 301-634-7132. ❖

## APS Explorations in Biomedicine Undergraduate Retreat

The APS held its first undergraduate student retreat as part of its overall effort to increase undergraduate interest in physiology studies and careers. The Explorations in Biomedicine Undergraduate Physiology Retreat was held at the Sheraton Denver Cherry Creek Hotel in Denver, CO on June 9-11, 2006. A group of 40 undergraduates from across the US, including Alaska, and their advisors joined members of the APS Education and Career



**L. Gabriel Navar delivers a keynote talk on cardiovascular physiology.**

Opportunities in Physiology Committee at the retreat. The workshop was especially designed to attract Native American and other minority students. APS members in various physiology careers also came to talk about opportu-

nities in physiology.

Three APS members gave plenary talks on hot topics in biomedical research. L. Gabriel Navar (Tulane University) talked on “High Blood Pressure, Cardiovascular Health and Kidney Function”; Barbara Horwitz (University of California, Davis) discussed “Obesity & Diabetes: The Good, the Bad, & the Unknown”; and Gregory Florant (Colorado State University) presented, “To be Fit and Fat: Physiological Consequences of Obesity in Mammalian Hibernators.”

Robert Carroll (East Carolina University) led the undergraduates and faculty in hands-on experiments on the cardiovascular system entitled, “The Elvis Experiments.” Marsha Lakes Matyas (APS) led the group in “A Kidney Under Pressure,” a clinical discovery unit.

Thomas Schmidt (University of Iowa) discussed career opportunities in physiology and then invited the students to join round table discussions about specific careers with the following physiologists: Rayna Gonzales (University of California, Irvine), Rudy Ortiz (University of California, Merced), Keri Kles Poi (Eli Lilly and Co.), Rolando Rumbaut (Baylor College of Medicine), and Mesia Moore Steed (University of Louisville), as well as the three plenary speakers.

Overall, students found the weekend both useful and enjoyable. One student



**Greg Florant describes his research on the physiology of hibernating mammals.**

said, “I really liked being able to talk with PhD’s about their research to learn more and different techniques that are used...” Another student commented, “I truly enjoyed this conference. All of the speakers were very interesting and provided us with interesting facts and info. The hands on activities were fun! What a cool way to engage us. Thank you for making this opportunity available to us.” Funding for the retreat was provided by the National Institute for General Medical Sciences. ❖



**Undergraduate students explore cardiovascular flow rates in the “Elvis Experiments.”**



**Students design and test their own flow models to determine the effects of radius, viscosity, and length.**



## APS/NIDDK Minority Travel Fellows Attend the 2006 Comparative Physiology Meeting in Virginia Beach

The APS regularly awards Travel Fellowships for underrepresented minority scientists and students to attend APS scientific meetings with funds provided by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). These Fellowships provide funds for registration, transportation, meals, and lodging. Six Fellows will attend the APS Intersociety Meeting, "Comparative Physiology: Integrating Diversity" Virginia Beach, VA from October 8-11, 2006.

Fellows in the NIDDK Minority Travel program not only receive financial support to attend this meeting, but will also be provided professional guidance through pairings with APS members who serve as mentors to the

Fellows for the duration of the meeting. Thanks to the time and expertise offered by mentor volunteers, Fellows will be able to maximize their time and more fully experience the many aspects of this meeting.

Fellows at "Comparative Physiology 2006":

**Sydella Blatch**, Arizona State University

**Andrew Clark**, University of California, Irvine

**Sue Ebanks**, University of Miami

**Erica Gonzalez**, Baylor College of Medicine

**Mervin Hastings**, University of British Columbia

**Adrienne Prysock**, Georgia Institute of Technology

The travel awards are open to graduate students, postdoctoral students, and advanced undergraduate students from minority groups underrepresented in science (i.e., African Americans, Hispanics, Native Americans, and Pacific Islanders). Students must be U.S. citizens or permanent residents. The specific intent of this award is to increase participation of pre- and postdoctoral minority students in the physiological sciences. For more information, contact Brooke Bruthers in the APS Education Office at 301-634-7132 or [bbruthers@the-aps.org](mailto:bbruthers@the-aps.org), or visit [http://www.the-aps.org/education/minority\\_prog/index.htm](http://www.the-aps.org/education/minority_prog/index.htm) on the APS website. ❖

## Announcing the APS Professional Skills Training for Minority Students APS/NIDDK K-12 Outreach Fellowship for 2006-2007

### Do you want to...?

improve your teaching skills at all levels?

reach out to the next generation of minority scientists?

participate in outreach activities to K-12 students and teachers?

become more comfortable talking about physiology careers?

The APS K-12 Minority Outreach Fellowship seeks to foster communication between minority graduate and postdoctoral students and middle/high school minority life sciences students. Program activities include year-long outreach fellowships for senior graduate students and postdoctoral fellows to visit K-12 class-

rooms, help conduct teacher professional development workshops, and attend scientific meetings.

### What Does the 2007 Outreach Fellowship Provide?

Registration and travel costs for the 2007 and 2008 Experimental Biology meetings and the 2007 ABRCMS meeting;

Travel costs for the 2007 Science Teaching Forum (no registration fee required);

Travel costs, materials, and supplies for two visits to minority student classrooms.

### Who can apply?

Upper level graduate students (have passed preliminary exams or finished coursework) AND postdoctoral fellows. Applicants must be US citizens or permanent US residents.

Applicants must be current or past APS Minority Travel Fellows or Porter Physiology Development Fellows. Awardees must already be student or regular members of the APS or must be willing to join.

### Applications available at:

[http://www.the-aps.org/education/minority\\_prog/stu\\_fellows/k-12\\_minor/ov\\_k12.htm](http://www.the-aps.org/education/minority_prog/stu_fellows/k-12_minor/ov_k12.htm). ❖

## APS Exhibiting at Conferences

The APS Education Office will be exhibiting and/or major conference sponsors at the following fall meetings and conferences. Please stop by the exhibit booth to learn more about the variety of education activities that we support.

### National Association of Biology Teachers (NABT) Annual Meeting

October 8-11, 2006

Albuquerque, NM

APS will be at exhibit booth #303/305.

Meeting web site: <http://www.nabt2006.org/MS/MS3/>

### Society for Advancement of Chicanos and Native Americans in Science (SACNAS) National Conference

"Science Revolution in Minority Communities: What Progress Have We Made?"

October 26 -29, 2006

Tampa, FL

APS will be at exhibit booth #504.

Meeting web site: [http://](http://www2.sacnas.org/confNew/co)

[www2.sacnas.org/confNew/co](http://www2.sacnas.org/confNew/co)  
[nfClient/](http://www2.sacnas.org/confNew/co)

### Annual Biomedical Research Conference for Minority Students (ABRCMS)

November 8-11, 2006

Anaheim, CA

APS will be at exhibit booth #315.

Meeting web site: <http://www.abrcms.org/index.html>.

## Federal Funding for Research in FY 2007

Congressional action on Fiscal Year 2007 (FY 07) funding got off to a promising start this summer when the House of Representatives finished 11 of the 12 annual appropriations bills by the end of June. However, the Senate, which traditionally takes up the bills after the House, was slower to act. The Senate had voted on only one funding measure before adjourning for the August recess. Given the press of other legislative priorities and the upcoming mid-term elections, it is likely that Congress will need to return for a lame duck session to complete action on this "must pass" legislation.

The current status of House and Senate action on biomedical research funding is provided below.

### National Institutes of Health (NIH)

The Labor, Health and Human Services and Education funding bill was the only one that the full House of Representatives did not take up before its August recess. The delay was due to concerns about a controversial amendment that would raise the minimum wage. The FY 07 funding bill is disappointing for researchers because the House Appropriations Committee accepted the administration's no-growth budget request. On the Senate side, NIH's champions on the Senate Appropriations Subcommittee on Labor-HHS-Ed bill recommended an additional \$220 million in FY 07, which would provide an increase of less than 1% over FY 06. The bill faces opposition from moderates in both chambers who have expressed dissatisfaction with cuts to vital health and education programs in the bill.

### National Science Foundation (NSF)

The administration requested \$6.02 billion for the National Science Foundation (NSF) in FY 07, as part of its Competitiveness Initiative, and appropriators in both the House and Senate funded the NSF at that level. The measure has passed the House but has yet to be voted on by the Senate. The increase to \$6 billion would represent an 8% increase in NSF's budget and is the first step towards doubling the agency's budget over the next 10 years.

### National Aeronautics and Space Administration (NASA)

Despite significant controversy over NASA spending priorities, appropriators in both chambers approved an increase for the agency that would bring its total budget to approximately \$16.8 billion in FY 07. While the overall increase is good news for the agency, the Human Systems Research and Technology development program is still expected to be cut by 56% to \$276 million in FY 07. This cut is particularly ill-timed because of NASA's increased focus planning for human space exploration.

### Veterans Affairs Medical and Prosthetic Research (VA)

Appropriators in both the House of Representatives and the Senate were able to restore proposed cuts to VA medical and prosthetic research, allocating \$412 million for the program. This brings funding for the program back to last year's level but provides no increase over FY 06.

## APS Comments on the NSF Draft Strategic Plan

In June of 2006, the National Science Foundation (NSF) issued a draft strategic plan for Fiscal Years 2006-2011 enti-

led "Investing in America's Future." The agency invited the stakeholder community to provide input on the plan, and the APS submitted comments in July. The NSF will review the plan and issue a final version this fall. The following are excerpts from the APS letter sent to NSF Director Arden Bement.

"The APS agrees with the NSF's focus on supporting individual investigators and small research groups. By working to ensure the quality, transparency and consistency of the merit-based review, the agency will continue to identify and support outstanding research.

"Physiology research often involves taking a whole systems approach to problems in biology, and the APS is strongly supportive of the NSF's plans to foster collaborative, interdisciplinary research. The NSF provides critical funding support to scientists who are not typically supported by other agencies, including those that carry out non-medical biological research, as well as those in the physical and behavioral sciences and engineering. The APS is supportive of maintaining this broad range of disciplines in the NSF portfolio, however, the Society is concerned that the agency is under growing pressure to focus on the physical sciences to the exclusion of the other disciplines. The APS urges the NSF to be inclusive of its longstanding role in supporting biological research in its plans and initiatives.

"As a Society committed to fostering science education, the APS strongly supports the NSF's initiatives to improve the quality of science education. The APS believes that the NSF is uniquely qualified to design and implement programs that will advance science through improved education at all levels. In particular, the APS appreciates efforts to promote discovery based learning and integrate science education and research. In addition, we support the goal of increasing minority representation in the scientific workforce by working with diverse institutions, including those that serve largely minority populations.

"The APS applauds the budget support that the agency is expected to receive as part of the American Competitiveness Initiative and is pleased that Congress and the Administration have recognized the outstanding science programs at the NSF. Over the next ten years as the agency's budget doubles, we hope that NSF will not only make the most of the opportunities that come with more funding,

## Concerned about waning federal support for biomedical research? Make your voice heard!

Next year's Experimental Biology meeting will be held in Washington, D.C., providing an excellent opportunity for physiologists to tell Members of Congress about the importance of sustained support for biomedical research. The APS Public Affairs Committee and staff are already organizing so that members can easily plan visits to Capitol Hill during EB

2007. For more details, see our website: <http://www.the-aps.org/pa>.

To see what other Public Affairs events are being planned for EB, including a symposium entitled "NIH at the Crossroads: How Diminished Funds Will Impact Biomedical Research and What Scientists Can Do About It," visit: <http://www.the-aps.org/meetings/eb07/program.htm#pa>. ❖

including maintaining its key role in supporting research in non-medical biological sciences, but also look ahead and plan for the years following the doubling of the budget.”

To see the full text of the APS comments, go to: <http://www.the-aps.org/Fa/resources/archives/comments/NSFstrategicplan.pdf>.

## Bill Would Add Research Protections

In recent years, the ferocity and scope of animal rights extremism has escalated beyond the reach of laws intended to protect its potential targets. Legislation introduced in the Senate by Sen. James Inhofe (R-OK) as S. 1926, the Animal Enterprise Terrorism Act (AETA), would amend the Animal Enterprise Protection Act of 1992 to address the tactics of today's extremists. Representative Thomas Petri (R-WI) has introduced a comparable bill (H.R. 4239) in the House.

The AETA would close the loopholes in existing law to prevent extremists from threatening and harassing those working to relieve human suffering through medical discovery. Contrary to the complaints of some activists, it would have no effect on legitimate and peaceful protests because its provisions would only take effect when a crime has been committed.

Extremists not only target research facilities, but also individual employees

and others who are associated with companies that do business with targeted facilities. These techniques are known as secondary and tertiary targeting.

At a May 2006 hearing of the Subcommittee on Crime, Terrorism, and Homeland Security in the House, GlaxoSmithKline Vice President of Corporate Security and Investigations, William Trundley, testified that because of his company's connection to Huntingdon Life Science, animal rights extremists have targeted GSK employees, shareholders and others only tangentially connected to the company. Trundley provided examples of harassment, vandalism, slander, theft and death threats. Although by his count, there had been 150 incidents over the preceding 21 months, none had resulted in a criminal conviction.

The problem is that there are gaps in current laws that the extremists eagerly exploit. Because their actions in any one jurisdiction may only amount to petty crimes, the extremists orchestrating these campaigns have largely evaded arrest. Although federal law enforcement authorities recognize the significance of the totality of these actions, they currently lack the tools to investigate and prosecute them. According to Trundley, “the Animal Enterprise Terrorism Act will provide law enforcement with those tools.”

Campaigns of intimidation increase the cost of research because of the need to increase security, replace damaged property, and recreate spoiled work. However,

it has impacts even more costly than the financial burden. These campaigns slow the pace of medical progress itself. In a recent case, an associate professor of neurobiology at ULCA was forced to leave the field. This individual was targeted by a number of activist groups including the Animal Liberation Front (ALF) because of his research with macaque monkeys to learn how the brain controls vision. He had already endured years of harassment including home demonstrations and leafleting his neighborhood, when in late June activists tried to leave a Molotov cocktail on the doorstep of one of his colleagues. The researcher then sent an Email telling the ALF press office, “You win. Effective immediately, I am no longer doing animal research.” The researcher asked in return that he and his family be left alone, but the director of the Primate Freedom Project, said that the group would not remove his name from its web site until he provided a videotaped statement declaring that he will no longer use any animal in any experiment and apologizing for having caused pain and suffering to animals. This kind of incident is extremely damaging because it derails a productive research career and dissuades young scientists from even entering the field because of fears that they too will become targets.

The APS has joined with other organizations in urging Congress to pass S. 1926 and H.R. 4239 to ensure that law enforcement has the tools it needs to cope with animal rights extremists. ❖

# Communications

## Soma Laboratory Makes Racing History

The laboratory of Lawrence R. Soma at the University of Pennsylvania School of Veterinary Medicine, working with the Pennsylvania Equine Toxicology and Research Laboratory, has developed a new test to detect blood doping in race horses. The new test detects the presence of human erythropoietin (EPO) in race horses, not just antibodies produced by the protein foreign to the horse. Eric Birks led the effort in Soma's lab.

Soma is the equine research director at the New Bolton Center of the University of Pennsylvania School of Veterinary Medicine and has been an APS member since 1975. The New Bolton Center received much attention

after Kentucky Derby winner Barbaro arrived for treatment of his shattered leg, suffered in the Preakness.

“We first were able to extract the protein-based drug (EPO) from plasma,” Soma explained of his laboratory's work on the groundbreaking test. “Then, Dr. Fuyu Guan, who works closely with Dr. Cornelius Uboh at the Pennsylvania Equine Toxicology and Research Laboratory, was able to develop a brand new method of breaking apart the protein of the human EPO molecules into smaller fractions (peptides). This allowed the positive identification of the EPO itself using very sensitive liquid chromatographic tandem mass spectrometry technology,” he said.

Dr. Uboh's laboratory was able to confirm laboratory readings from an ELISA test conducted in a Toronto laboratory on three racehorses in Ontario, which resulted in a lengthy suspension for the trainer of the horses by the Ontario Racing Commission.

Pennsylvania Harness Racing Commission Chairman Roy Wilt applauded the cutting-edge work done by the laboratories, which helps ensure the integrity of horse racing. Blood doping not only constitutes cheating, but can threaten the lives of horses that are injected with the substance. Dr. Soma's laboratory receives funding from the horse racing and harness racing commissions in Pennsylvania. ❖

## Navigating the Interview: How to Make It Work for You

Career Symposium at Experimental Biology 2006

**Organizers: Nansie A. McHugh, Huntingdon Life Sciences; William R. Galey, Howard Hughes Medical Institute**

The Interview is the great equalizer! No matter how high your GPA, where you received your degree, who you studied with; or, how much experience or what experience you have—if you are not able to interview successfully, you're not likely to get the job!

The skills and abilities to successfully navigate the interview process don't come naturally. Moreover, the unfamiliarity of most candidates with the process adds to the stress and the likelihood of making a mistake that could cost them the job.

The Careers Symposium at Experimental Biology '06 provided potential interviewees with information about what to expect in the interview, the etiquette of interviewing and possible pitfalls to be aware of during the interview process. The program focused on how to prepare for an interview, the similarities and differences between industrial and academic hiring processes and the skill sets most wanted by industrial and academic employers.

Attendees heard from individuals who have been involved in hiring for academic and industrial institutions, an individual familiar with the differences between industry and academia, and recent successful job applicants.

Below are written synopses by each speaker of his/her talk. To hear the actual presentations and see the PowerPoint slides, please visit <http://www.the-aps.org/careers/careers1/Postdoc/symp2006.htm>.

### Interviewing in Industry versus Academia

**Richard E. Klabunde**  
Ohio Univ. College of Osteopathic Med.

After several years of graduate school and postdoctoral training, you and your advisor feel that you are ready to begin searching for your first job. Although most, if not all, of your research experience has been in an academic environment, you have decided that you would like to consider employment opportunities in industry as well as at academic institutions. You have observed the

interview process in academic institutions and feel like you have a general idea of the interview process for a junior faculty (assistant professor) position. But what about interviewing in industry? How does the interview process differ between academia and industry?

I would like to provide you with an overview of how the different cultures of academia and industry influence the interview process. My comments are based on my own personal experiences as a tenured faculty member at two different medical schools and as a senior research scientist at a large pharmaceutical company. I will first describe the differences in culture between academia and industry, and then summarize how these differences should influence how you present yourself during the job interview.

The first question I want to address is: what are the similarities and differences between the cultures of academia and industry?

*Academic Culture.* The traditional, tenure-track academic position has three components to its job description: teaching, research, and service. The relative importance of these three components differs considerably among institutions depending on the institution's focus. At institutions having a strong research culture, such as major universities and their professional schools, (e.g., medicine, veterinarian), research may comprise 50-90% of the weight among the three areas. In contrast, the teaching and service components may comprise the largest share of the job description in small institutions that focus on teaching, particularly undergraduate teaching. Therefore, academic institutions differ considerably in the teaching, research, and service requirements, and these differences are very important to understand before interviewing.

Most advertised tenure-track junior faculty positions at academic institutions, whether research or teaching in emphasis, are for new faculty who can fill one or more specific teaching needs. Some institutions may advertise for a non-teaching, research faculty position; however, these positions generally do

not lead to tenure. Teaching institutions are often looking for faculty who can teach multiple areas within their discipline, and sometimes outside of their primary discipline, and, therefore, are seeking individuals who have already demonstrated some level of experience and excellence in teaching. Research institutions, in contrast, are often seeking someone with specific research and teaching expertise that can provide graduate and professional lectures on specific topics. Because of the narrow scope of the teaching responsibilities at research institutions, the teaching load is relatively light compared to teaching institutions that have broader teaching requirements.

The research culture also differs among academic institutions. Research institutions are comprised of independent investigators who have established their own research programs. Although academic investigators need to be independent to successfully compete for external funding, researchers also need to collaborate with other investigators either from within or outside of their institution. External funding is expected and, in many institutions, is required for future tenure. In academic institutions, research is self-defined, meaning that the investigator decides what research to pursue. The academic investigator generally determines his or her research goals and deadlines for writing grants and manuscripts. The goal of research, particularly in research institutions, is to publish research in peer-reviewed journals and to obtain external funding. Presentation of research at scientific conferences or as seminars at other academic institutions is expected. Research in teaching institutions has many of these same considerations; however, the expectations for publications and external funding may be less because of greater teaching and service workloads. Furthermore, research at some teaching institutions, particularly four-year liberal arts colleges and universities, often serves to complement the teaching and training of undergraduate students.

Service is an important function at academic institutions; however, like

research and teaching, service expectations can vary considerably among institutions. Service includes participating on various faculty and institutional committees, student advising, and, in some cases, public service.

**Industry Culture.** Most biomedical scientists with terminal degrees who are considering jobs in industry are looking for research positions. Unlike academic positions that have teaching and service components along with research, research scientists in industry function almost exclusively as scientists, especially in entry level positions. Other job components such as participating in research group meetings and supervising laboratory personnel are closely coupled with the scientist's research activities. Written and oral communication skills are highly valued in industry and scientists have many opportunities to develop and express these skills. Occasionally a scientist may serve on a specific task force or committee, but this more commonly involves senior level scientists.

Industry wants to hire the best scientists who have demonstrated excellence through their publications. But industry also likes for these scientists to be broadly trained and to possess an arsenal of techniques that can be applied to different research problems. For example, a pharmacologist at a pharmaceutical company may be involved with receptor binding studies, intracellular messengers and signal transduction pathways, as well as with *in vitro* and *in vivo* testing of new drugs. To do all of this well, the scientist needs to be broadly trained. The nature of research in industry requires that a scientist be able to adapt laboratory techniques and analytical skills to different research projects.

Research is highly multidisciplinary and interdependent. Projects are made up of teams of scientists. For example, a physiologist working at a pharmaceutical or medical device company may work closely with pharmacologists, biochemists, chemists, molecular biologists, bioengineers, etc. to develop new drugs or medical products. Scientists do not run their own research program, but instead work on projects that are approved and funded by the company, and led by a project leader who is generally a senior scientist. Corporate management sets goals; therefore, projects

are expected to move forward and deadlines met.

The company provides the research support, which can be very substantial compared to academic settings; however, the company can also suddenly cut off project funding as corporate goals and priorities change. Scientists are encouraged to be creative and to propose new research projects that can result in new products. Remember, the goal of the company is to produce new products that will generate revenue. This goal produces a sense of urgency and competition that helps to further drive the research. Most research is proprietary in nature and therefore publications and outside presentations have to be approved by the company.

The second question that I want to address is: considering the differences in culture between academia and industry, what should you emphasize during the job interview?

In academia and industry, the interview seminar is very important because it shows to a wide audience your talents as a scientist, as well as your ability to clearly communicate your ideas to others. Many of those listening to your interview seminar will likely have an opportunity to express their opinion regarding your suitability for the position that they are eager to see filled, so you need to impress them!

If you are interviewing at a research academic institution, it is especially important to demonstrate during the interview that you are capable of developing your own independent research program and that you have cut the cords to your doctoral and postdoctoral advisors. You need to express a clear vision for future research and have a plan for obtaining external funding of your research. Take an interest in the interviewers—study their backgrounds and research interests prior to the interview—and discuss possible research collaborations. If the research expectations are high for tenure, make sure that you will have protected time for research and adequate start-up funds to ensure that your research program can be quickly established. Once you are hired, the tenure clock begins ticking! If the interview is with a teaching institution, clearly communicate your qualifications and teaching strengths so that the interviewers are convinced that you can provide the excellence in teaching that they

are seeking. Seminar presentations at teaching institutions are often evaluated more on the delivery than on the scientific content. Some teaching institutions may also require that a specific lecture be given in addition to the research seminar to provide greater insight into a candidate's teaching ability.

If you interview for a research position in industry, it is very important to present yourself in a professional manner that fits their culture. Many corporations are still very formal compared to academic institutions, so your appearance and mannerisms may be scrutinized. Clearly demonstrate during the interview that you are a team player and that you welcome the opportunity to work closely with scientists from different disciplines. Show that you are flexible as a scientist by stressing your breadth of training and experience as well as your special scientific expertise. Describe techniques and analytical skills that will assist the company in achieving its research goals and, therefore, its corporate goals. Finally, make sure that you convey a sense of urgency and desire to meet goals and expectations that will be imposed on you.

In summary, as you think about interviewing for positions in academia and/or industry, remember to understand beforehand the differences in culture, and then present yourself during the interview in a way that is consistent with the expectations of the culture.

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## Interviewing for the Pharmaceutical Industry: What Does it Involve and How to Succeed?

**David P. Brooks**  
**GlaxoSmithKline Pharmaceuticals**

The pharmaceutical industry provides an excellent opportunity for pursuing a scientific career and a successful interview is an important step in the process. In this brief synopsis of a talk delivered at the EB 2006 Symposium on "Navigating the Interview: How to Make it Work for You," sponsored by the Careers Committee, I will provide information on the drug discovery and development process, the attributes that the pharmaceutical industry is looking for, how to find open positions, the interview process and finally, some of the differ-

ences between working in industry and working in academia.

The drug discovery process involves identifying the genes and proteins involved in disease, isolating novel proteins and using them to configure assays with which to screen a chemically diverse bank of compounds, optimizing screening "hits" for testing in *in vitro* assays, animal models and eventually patients. Scientists involved in these processes include molecular biologists, geneticists, biochemists, medicinal and analytical chemists, physiologists, pharmacologists, toxicologists and clinicians. The drug development process involves chemical development, evaluation of drug metabolism and pharmacokinetics, safety studies, pharmaceutical technologies, corporate intellectual property, commercial evaluation, pharmaceutical technology and, of course, clinical pharmacology and clinical development. Throughout the drug discovery and development processes, project managers and leaders coordinate the various functions.

The attributes a physiologist needs to demonstrate to make them a strong candidate for a position in the pharmaceutical industry are not dissimilar to those required for jobs in academia. They include a basic knowledge of molecular processes, an understanding of systems biology and demonstration that one can conduct quality research. Thus, pharmaceutical companies are looking for innovative individuals who are scientifically competent as demonstrated by a record of peer-reviewed publications, demonstrated ability to champion ideas and have knowledge of therapeutics. In addition, there needs to be evidence that the candidate can function independently, calculate risk, be emotionally equipped to deal with difficult situations and embrace the highest standards of scientific integrity.

Before getting an interview in the pharmaceutical industry one must obviously find the open positions. This can be done in a number of ways. One way is through networking, i.e. knowing or getting introductions via mentors to people already in the industry. The second and easier way of finding open positions is to go to the companies' websites where usually all open positions are posted. Indeed, most companies use their websites as a primary means of obtaining applications. To find a partic-

ular company's website one can use the finance sites on the internet to profile a particular company and identify their website. Applications can usually be made on line and this obviously involves submission of curriculum vitae which should be prepared carefully. CVs should be relatively simple, documenting a record of accomplishment with not too much verbiage. Publications should be separated into full publications and abstracts. A clear record of training, postdoctoral fellowships (usually a requirement) and positions with dates should be listed. If grants, honors, and prizes have been awarded, these should be listed. Demonstration of the ability to publish is important. Publishing forces scientists to defend their ideas beyond their immediate laboratories. It develops emotional strength, builds self confidence and improves communication skills. Publishing establishes scientific credibility, can provide security, and develops the skills required to be a champion of ideas.

The interview process is usually very similar between different pharmaceutical companies. The goal for the company is to evaluate whether the candidate has the attributes described above. The goal of the candidate should be two-fold; first, to demonstrate that they are excellent scientists who can deliver what is required to be successful in industry. Second, the interview is an opportunity to determine if the Pharmaceutical Industry and the particular company that is being visited, will provide the appropriate opportunity to conduct high quality research of interest and the opportunity to progress within the organization. Sometimes, there is a dinner on the evening prior to the formal interview. In a typical interview, one usually meets with the hiring supervisor first and then gives a seminar. Subsequently, one usually meets with individuals or small groups of scientists. Either at the beginning or the end of the day, the individual will meet with a representative from the human resources department who will explain the benefits, etc. As in the academic interview, the most important part of the day is the seminar. It is the chance for the applicant to present his or her work in a clear and understandable manner, demonstrate an ability to champion ideas, show enthusiasm for the research and an ability to hear the questions being

asked and to answer them in a clear and brief manner.

Discussion during the day will involve trying to find evidence that the applicant can come up with good ideas, conduct the appropriate studies and, most important, bring efforts to closure, as demonstrated by a successful publication. Individuals must show evidence of scientific acumen, excellent communication skills and how they will "add value" to the organization. When interviewing for a research position in industry, it is most important to understand that the hiring manager is only interested in hiring a scientist and not interested in filling positions with individuals who, after two years, want to move on to other parts of the organization. You will be judged based upon your scientific accomplishments and your potential to assume greater scientific responsibilities in the future. However, all good interviews do not only examine competence and credibility, but also determine suitability for a long term professional relationship.

Finally, working in industry is in many ways similar to academia. One is expected to conduct outstanding science, make regular presentations, champion ideas and, depending on the individual company, publish in peer-reviewed journals. There are, however, two main differences between working in industry and academia. One involves "having a boss"; in academia, for the most part, one is running one's own laboratory. With the exception of answering to the chairman of the department when it comes to teaching responsibilities, one is essentially one's own manager. In industry, one is accountable to the immediate supervisor, their managers and often various program teams. One is expected to report monthly on progress that is being made and meet deadlines; especially when it involves preparation of regulatory documents. Implicit in this is the ability to function as part of team, sometimes leading and sometimes supporting. A second important difference is that while in academia one is often able to work in the same area over a number of years; individuals in industry must be flexible and be prepared to change research directions as projects progress and new efforts are initiated.

In summary, working for the pharmaceutical industry provides an excellent opportunity for young scientists to con-

duct research of the highest quality and to establish national and international reputations. Appropriate preparation for an interview is important and this should involve careful preparation of the CV, diligence in putting together a tight and compelling seminar, and understanding what is required to work in industry.

## That First Faculty Position Interview: Preparation and Etiquette

Donna H. Korzick  
Penn State Univ.

Interviewing for your first academic, tenure-track faculty position is without question a career milestone. It is also an event for which you must prepare with the same intensity that you approach grant or manuscript writing, or any other important event in your professional life. Ultimately, this first academic position should be yours to accept or decline at the conclusion of the interview process, and you should prepare and conduct yourself with this goal in mind. You should also be aware of the simple fact that you will be competing with two, possibly three, other candidates for a given position. Thus, it will be important to distinguish yourself from these other individuals before, during and following the interview. Your visit will include dinners, lunches, individual meetings with future colleagues, department chairs, and search committee members. With this in mind, the following paragraphs will highlight preparation tips that may be apparent and obvious, while other suggestions not so apparent, but clearly important to successfully navigate the interview process. First and foremost, realize that you are being judged at all times, and so my first piece of advice is to keep your guard up, particularly during more social situations such as “the dinner.”

It is immediately apparent to search committees whether or not individuals have done their homework. An initial strategy in your preparation includes obtaining an itinerary prior to your trip identifying individuals with whom you will be meeting. It is incumbent upon the candidate to become familiar with all individuals on the itinerary. This “homework” will include performing lit-

erature searches, becoming familiar with core facilities and centers, perhaps even downloading pictures of search committee members so that you can recognize faces upon first meetings. You should be able to ask everyone with whom you meet one intelligent question regarding their research. An example is “I read your recent paper in \_\_\_\_\_. While this is not my direct area, I found it interesting. Can you explain \_\_\_\_\_.” Remember, these individuals are your future colleagues. Collaborations may not be intuitively obvious and you can help point out areas of potential synergies and interactions.

Future colleagues are also valuable sources of information to assist you in determining whether or not this position is a good fit for your research and teaching interests. Listening to what is being said, as well as what is not said, can assist you in assessing the collaborative climate within a given department. Appropriate questions to ask future colleagues include the following: “With whom do you collaborate? How many students do you mentor? What is the average teaching load?” In all cases, you should be attentive and show interest in the conversation. Remember, you are being judged.

You will also meet with your future department chair. It is likely that he/she will initiate discussions regarding salary, tenure policies and procedures etc, so wait for these topics to arise naturally from your discussions. One critical question that you should ask the department chair includes where does he/she see you fitting into the general scheme of the department? What is his/her vision for the department and particularly new hires? Is the position nine months or 12 months? Clearly, answers to these very important questions will help you assess whether or not this department chair will be supportive of your career development. Also, ask to see your laboratory space. The inability to provide a candidate with assigned space is usually a bad predictor of departmental commitment and support. Additional questions include department policy on teaching buy-out, department support for graduate students (i.e., assistantships, training grants), and research grant “indirect” allocation policy.

Meeting with the search committee (usually as a group) can also be a very

intimidating experience. However, you can also use this meeting time to your advantage and treat it as another opportunity to show your future colleagues that you have done your homework and are sincerely interested in the position for which you are interviewing. You should familiarize yourself with specific aspects of the undergraduate and graduate programs associated with your future department. Examples of appropriate questions to ask the search committee include the following: How are resources shared? Are there seed grant programs to get your research off the ground? Questions for which YOU should have prepared answers include how you see yourself fitting into the department and the types of courses you would like to teach, your five year plan with regard to research productivity, and grant mechanisms you will pursue during this same time frame.

You will always be asked to give a seminar. In your preparation, it will be important to know who will be in the audience, so ask ahead of time. You may need to provide additional background to assure that individuals with less familiarity with your area of interest can discern major findings from the lecture. At some point in the seminar, you should include a direction for your future research studies. In this regard, it is important to demonstrate independent thinking and to distinguish yourself from your current mentor. Because research independence is a critical characteristic for any future candidate, you may also be asked to give a “chalk talk” or seminar which focuses specifically on your future research, including specific aims and hypotheses. Whether you are asked to give one or two seminars, each of these experiences should be viewed as an opportunity to showcase and highlight your teaching skills. PRACTICE, practice, practice!

At some point, you will join your future colleagues in a social situation called “the dinner.” You will likely be tired from your busy day, so it is critical to remember to keep your guard up throughout the dinner. This is not the time to weigh in on departmental politics or share negative information about your current employer. Try to keep things positive. This is the time, however, to ask about popular housing developments, cost of living, quality of public schools, community recreational servic-

es, etc. Inevitably, you will be asked to reflect on your day and whether there are any questions that arose since your individual interviews. Try to have something prepared for this request, and by the way, limit yourself to one glass of alcohol!

Since this article deals with etiquette, upon returning from your destination, it is recommended that you send thank you letters to individuals with whom you have met, particularly the department chair and search committee. Avoid overly effusive language, but do express enthusiasm for the position and emphasize the unique contributions you will make to the department as a future colleague and faculty member. While email is most convenient, sending a more formal letter through the mail may make a more lasting impression.

In closing, that first faculty interview can be exhausting, both mentally and physically. Practice your seminar, know with whom you will be meeting, and check your curriculum vitae for mistakes—you will be asked about them. Above all, you should demonstrate enthusiasm during the entire interview process. Be competitive; make sure the job is yours to turn down!

## I Survived the Academic Interview: An Applicant's Point of View

Daniel Michele  
University of Michigan

Interviewing for an assistant professor position in academia can be a bit intimidating. I recently participated in several interviews for assistant professor positions in academia from the applicant's side of the table. Since the time that I interviewed for my first assistant professor position, a number of my postdoctoral colleagues have asked me questions and pried for advice about the academic interview process. From these conversations, some recurrent questions about the interview process highlighted some of the key apprehensions and questions of postdoctoral fellows that are approaching their next step in career advancement. The most common burning questions from my postdoctoral colleagues were:

**How did you know it was time to start applying for jobs?**

**How did the interview process work...when did you talk about this or that?**

**Now that you have gone through the process, do you have any advice for me?**

**How did you negotiate the best job offer?**

Although question 4 about negotiating the job offer is indeed very common and an intriguing part of the interview process, its is a topic that was covered in greater detail by Dr. Navar at the Experimental Biology 2006 symposium on "Transitioning from Post to Jr. Faculty."<sup>1</sup> Given the time and space constraints here I will only touch on it briefly. However, I highly recommend another excellent resource about negotiating job offers (and the entire academic interview process) entitled "Making the Right Moves" which was prepared by the Howard Hughes Medical Institute and the Burroughs Wellcome Fund and is freely distributed on the HHMI website<sup>2</sup>.

**How did you know it was time to start applying for jobs?** Choosing the time to make a career change is largely a personal decision. Ultimately, you want to be successful at both obtaining and retaining your new job. My recommendation is to do a little self-reflection by asking yourself these questions. The first question is, "Does my curriculum vitae display an *intriguing level* of accomplishment?" You need your CV to stand out from the 100 or so other applications for the position. As many of you know, most often one or two key papers in high profile journals will help set you apart. But your CV can also rise to the top if you have a consistent and highly productive body of work in one intriguing new area of research, a grant or fellowship that you can take with you to your new job, or perhaps even an outstanding amount of teaching experience. The second question is, "Considering everything I am currently doing, will my CV improve significantly in the next one to two years?" For example, let's say you already have a first author paper in *Nature*, and four first author papers in *American Journal of Physiology*. Your current project is working well, but it is largely a follow up on your previous *Nature* paper and will likely be submitted to *AJP*. Is one more paper in *AJP*, in a field you already have demonstrated you are an expert, going to improve your

CV? Likely not. However, if you have a novel, high impact project nearing completion that will be submitted to a high profile journal, or a pending major scientist development grant, my advice would be to wait. Your CV will be much more "intriguing" with its potential new additions in the next year. The third question is, "Do I have the independence and creativity to *ensure my own success*?" Once you are on your own, you will be overseeing the direction of your research, managing a laboratory, writing grants, and will be the senior author of all your papers. It's a big responsibility and hopefully you have learned some of the tricks of the trade from your current mentor. If you believe you are ready, then go for it! Importantly, your mentor needs to be supportive of your answer to this last question. From a practical standpoint, your mentor may want the "star post-doc" to stay forever and finish a particular project, or is convinced your next big experiment will lead to a paper in *Nature*. But a mentor that says "I really wish Dr. Star PostDoc would stay in my lab longer" in the letter of reference is not going to hurt your chances of success. What you do need is a letter of reference from your mentor that clearly indicates you are equipped and well-suited for a career as an independent scientist running your own research program.

**How did the interview process work...when did you talk about this or that?** Generally, most academic positions are advertised with application deadlines between September and January for the following academic school year. Interviews most often occur between January and May. Most academic interviews also have a two interview format. During the first interview, you will give a public research seminar and meet several faculty, including the chair of the department. If the chair and faculty or search committee agree that they want to pursue you for the position available, they will invite you for a second interview. In the second interview, you will meet with more faculty, learn about your laboratory space and facilities available, and begin negotiations for the job offer.

There can be variations to the standard format. In recent years, it has not been uncommon for a third visit to be offered to give you an opportunity to look for a place to live and bring your



family. Another more recent variation is that you might give a “chalk talk” during the second visit where you outline the aims of your first grant. Assuming that you have applied for several positions, you also may have to juggle several interviews. My advice would be to schedule your first choice position as the second interview. This way you will be more comfortable with the interview process, your seminar, and the types of questions you will be asked about your research and career direction. In all cases, when juggling multiple interviews, I would advise to be upfront and honest with all the chairs about the positions you are considering. Not only will they appreciate your honesty, but you will be seen as a very desirable candidate and they will be more understanding if you have to delay a decision on their job offer.

**Do you have any advice for me?** It is important to remember that the academic interview is a two-way conversation between you and your potential future employer. First and foremost, you have to convince *them* that you are the right person for the job. This should be the underlying goal of everything you do and say at the first interview. If you convince them, they will have you back for a second interview with high likelihood that they will make you an offer. However, you should also remember that part of the interview process is to convince *yourself* that the position you are pursuing is right for you. Although, you will begin to learn about the position and the university at the first interview, you need to remember that a major goal of the second interview is to gather all the information you can so that you can make a decision if this job is really right for you and your career.

**Convincing them you are the right person for the job.** There are several things that academic research universities are looking for in a new faculty recruit. First and foremost, the person has to be an outstanding research scholar, mentor, and teacher. Your “value” as a new professor to the department is primarily determined by your ability to obtain research grants, your ability to promote the national (or international) prestige of the department through your scholarly work, and your ability to participate in the teaching mission of the department either at the undergraduate, graduate or professional

level. Second, they want to see a person who has defined research goals. The department wants to be convinced that you have developed your own ideas for an independent research program that will be competitive for research grants within the first few years of your appointment. Third, they want a colleague who will contribute to the environment of the department. This means they want someone who is both willing and capable of either establishing collaborations with existing faculty and/or bringing new research approaches that may be of mutual interest to existing faculty.

Your major opportunity to convince them that you are an outstanding research scholar, mentor and teacher is your research seminar. Undoubtedly, this should be your best seminar performance ever. There are many different styles for preparing seminars and there likely is not one best way. However, here are a few tips:

*Memorize the first three slides.* I can guarantee that you will be nervous. You don’t want to stumble through the first 10 minutes of your talk, so having the first three slides “down cold” will get you rolling. I am not a big fan of memorizing entire talks but it works for some. You want to be open to questions and interruptions and that can prove difficult if you memorized your talk.

*End with 5-10 minutes of future directions to stimulate questions.* The faculty has seen your CV but will be interested to find out if you know what you are going to do next. Future directions always fuel questions from scientists because they want to know how you are going to accomplish your goals. This will help avoid dreaded post-talk silence.

*Leave at least 5-10 minutes for discussion.* You want time to be able to show your new colleagues how you will interact with them and impress them with your independent thinking. An overly long presentation can be interpreted both as a lack of preparation and as an attempt by the speaker to avoid questions and confrontation.

*Show excitement.* If you are not excited about your own work, why should anyone else be? I would encourage you to elaborate your individual “eureka moment.” This is that one experiment that let you know you were on to something interesting. This will

both show excitement and define your ownership over the key experiments in the work (especially if you come from a large laboratory with many collaborators on your papers).

*Tell a story.* Too many people try to show how great they are by showing everything they have ever done. It’s not necessary and not effective. They already have your CV. Pick a well defined story (I recommend less than 35 slides) and carefully describe the experiments that were key toward supporting your conclusions. This will display your expertise as a researcher in the laboratory and will identify the important contributions you made to the work. Furthermore, a talk that is well structured and pleasant to listen to will better show your communication capabilities as a scholar and teacher.

Your individual meetings with the chair and the other faculty members during the first interview are also critical toward convincing them that you are the right person for the job. In order to convince them that you have defined research goals I would recommend you have a five year plan for your laboratory ready. This will basically be your specific aims for your first NIH grant. It is not uncommon for people to ask you what your first grant will be on (either specifically or by asking you generally what you are going to do next). Being prepared for this question will show that you know what you want to do, how you will accomplish it, and the added bonus of being a good talking point with other scientists. The faculty you are meeting with are also looking for a good colleague. You will receive an itinerary before your visit. If you don’t, ask for one. Then research everybody that you are going to talk to and find out what they do. If you run out of things to talk about, ask them a good question about their recent papers. Showing interest in someone’s work is the ultimate flattery for a scientist. You also might be surprised by who you might identify as a potential future collaborator. If the possibility for interaction already exists, specifically tell that faculty member that you are open to collaboration and excited about the possibility of working along side them.

**Convincing yourself the position is right for you.** Hopefully, all of your first interviews will be successful and you will be offered second interviews.

Remember, the interview process is not over until you have signed an offer letter, so stay on your toes. But at a second interview, you can be fairly certain that they are interested in making you an offer for the position. The second interview should give you the opportunity to really determine if the position is right for you. This is a big decision and your career success depends a lot on where you decide to do your work so you need to find answers to several important questions:

*Is it the right balance of teaching and research for me?* Being a course director of an introductory undergraduate course will not allow much time for research. Conversely, an expectation of maintaining two NIH grants will demand a lot of time and not allow as much time to devote to students and teaching.

*How does the department/university support the career development of young faculty?* Some departments have a well-defined mentorship program for young faculty (pairing you with a senior faculty member), provide administrative support for faculty, and have large numbers of pilot programs you can apply to. Some give you nothing. Find out what is available and determine what support you need.

*Do the resources available support my research interests?* The department may tout that they have the best transgenic animal core facility in the country. If you work on mice, great! If you work on *C. elegans*, does it really matter? The department may also have shared equipment available. Ask to see it and verify that it seems to be in working order and will meet your research needs.

*Are there colleagues here that I can interact with?* It is difficult to be successful as a scientist working in a vacuum. You are new to running a laboratory and your laboratory is new. You will need people that you can seek out for support in terms of advice, reagents, techniques and equipment. If the department seems to be a closed door society, make sure you are okay with that.

*Is the start up package competitive and sufficient to support my research for three years and can I keep what I don't spend?* The current funding levels at NIH (and all funding associations) are low. Many grants will have to be revised

and resubmitted to obtain funding, and it takes time between each submission cycle. Some universities will let you keep your unspent startup money as a "rainy day" fund and this is an added bonus to be considered when making your decision.

*What are the expectations for salary recovery?* As a PhD in a clinical department, the expectation could be as high as 100% of your salary needs to come from your grants (a "soft money" position). This means you will likely need two and probably three NIH grants. In a teaching university, you may only have to cover your summer salary on grants (a "hard money" position). Most universities are somewhere between the two. They will have a policy about what happens to the extra money if you exceed the expectation, and in some cases you can receive bonus salary.

How do you go about finding the answers to these questions during the second interview? First you need to establish a dialogue with the department chair. If you can't now, will you ever be able to? Most chairs will be more than happy to answer any of your questions. After all, they are interested in hiring you. Your chair will also be your advocate in future tenure decisions so they should be open about talking about expectations for your position. Second, I would recommend requesting to speak with assistant professors in the second interview. The department will ask you who you want to meet with. Ask assistant professors directly how they like their job and how they feel their careers are supported by the department. Third, do your research and come with questions. Almost all universities and departments publicize their core facilities and shared resources on the web. If they do not have prices listed, you need to know how much things will cost like animal per diems and core facility recharge rates, for the resources that you will commonly be using. You may make a decision that having your own equipment will be more cost effective. Fourth, ask your current mentor or chair what start-up packages are reasonable. There is some information about average start-up packages on the web (2), but it can quickly become outdated. Finally, I would highly recommend drafting a fairly detailed budget. In my

case, I went through the Fisher catalogue and priced out nearly everything I needed for my laboratory. This will give you confidence that your start-up package request is both reasonable and sufficient. It also will show your future boss that you are serious about your job and you know what you really need. If you have a final budget that exceeds what you think you can minimally survive on by 20-30% and doesn't exceed the reasonable range of equivalent positions elsewhere, that should give room for some negotiation. Of course, if you have more than one offer you are considering, there can be some back and forth negotiations. But ultimately, the person you are negotiating with could be your future boss, and the department may be supplying some of the funding for your recruitment, so you don't want to be overaggressive. I think if you are honest about what you need and you draw up a detailed budget, then the chair has to defend why you do not need those particular things to be successful, or ways you might be able to reduce your startup costs.

Before you head off to your first interview here are a few last words of advice. Remember, it doesn't hurt to be friendly. After the interview, send the chair and each person you met with an email thanking them for their time and reminding them of any potential collaborations you discussed. During the interview, don't talk about things you don't like. Try to put a positive spin on everything. Ultimately as you make your decision, remember there really is no such thing as an ideal job. You will always be balancing pluses and minuses. Finally, your scientific life is only one part of the equation. You have to also live and enjoy where you work. Remember, the academic interview is a two-way conversation. If you convinced them you are a right for the job, and convinced yourself the job is right for you, then you have successfully navigated the academic interview. ❖

#### References:

1. Web address: <http://www.theaps.org/careers/careers1/Postdoc/tac-sympostdoc2006.htm>
2. Web address: [http://www.hhmi.org/grants/office/graduate/lab\\_book.html](http://www.hhmi.org/grants/office/graduate/lab_book.html).

## Physiology InFocus

### Novel Technologies in Physiology and Medicine

Organized by: Dale J. Benos, Univ. of Alabama at Birmingham

#### Experimental Evolution as a Tool of Physiological Analysis

Michael R. Rose

#### Forensic Medicine

Gregory G. Davis

#### Novel Approaches to Structure-Function Relations in Membrane Transport Proteins

Christopher Miller

#### Novel Technologies and Approaches in Imaging

P. Darwin Bell and Peter Komlosi

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### Societal Lectures

#### Physiology in Perspective—The Walter B. Cannon Memorial Award

Frances Mary Ashcroft, *Univ. of Oxford*

#### Walter C. Randall Lecture on Biomedical Ethics

Sandra L. Titus, and David Prentice

#### Henry Pickering Bowditch Award

James D. Stockand, *UT Health Science Center, San Antonio*

#### Microcirculatory Society Landis Award Lecture

TBA

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### Section Distinguished Lectureships

#### Robert M. Berne Distinguished Lectureship of the APS Cardiovascular Section

William C. Sessa, *Yale Univ. School of Medicine*

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

Mark Donowitz, *Johns Hopkins Univ. School of Med.*

#### Hugh Davson Distinguished Lectureship of the APS Cell & Molecular Physiology Section

David Clapham, *Harvard Medical School*

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

John Andrew Armour, *Univ. of Montreal*

#### Joseph Erlanger Distinguished Lectureship of the APS Central Nervous System Section

Eric Kandel, *Columbia Univ., College of P&S*

#### Carl W. Gottschalk Distinguished Lectureship of the APS Renal Section

Chris Baylis, *Univ. of Florida*

#### August Krogh Distinguished Lectureship of the APS Comparative & Evolutionary Physiology Section

David R. Jones, *Univ. of British Columbia*

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

Brigid Hogan, *Duke Univ. Medical Center*

#### Solomon A. Berson Distinguished Lectureship of the APS Endocrinology & Metabolism Section

Roger D. Cone, *Oregon Health and Science Univ.*

#### Claude Bernard Distinguished Lectureship of the APS Teaching of Physiology Section

Hilliard Jason, *Univ. of Colorado, Boulder*

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

Jack A. Boulant, *Ohio State Univ. College of Medicine*

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

Pedro Jose, *Georgetown Univ.*

## Workshops and Special Symposia

*Alternatives to Animal Experimentation Revisited*  
**Linda A. Toth**

*Being Heard: The Microinequities that Tilt the Playing Field*  
**Susan Steinberg, Holly Brevig, and Kathleen Berecek**

*Effective Use of Course Management Systems to Enhance Student Learning*  
**Jonathan Kibble**

*From The Media: The Challenge of Presenting Basic Research in an Era of Anti-Science, Anti-Evolution and Anti-Education*  
**TBA**

*Graduate Student Highlights in Respiration Physiology (poster discussion)*  
**Susan Margulies and Judith Neubauer**

*Guide for Successful Collaboration: From the Handshake to the Collaborative Research Agreement*  
**Douglas G. Johns and Catherine F. T. Uyehara**

*Human Subject Research Ethics: Issues for Going from Bench to Bedside*  
**Michael Portman and Virginia Miller**

*Multiple Career Paths for a Physiologist: Understand Your Options and How to Get There*  
**Jennifer Pluznick and Erica Wehrwein**

*Publishing 101: Dos and Don'ts of Publishing in APS Journals*  
**Kim E. Barrett**

*Refresher Course in GI Physiology*  
**P.K. Rangachari and B. Wilson**

*Scientific Principles for Education Research (featured topic)*  
**Barbara E. Goodman**

*Teaching About Evolution in a Biomedical Context*  
**Jon Harrison**

*Workshop on Chronic Instrumentation in Conscious Small Animals*  
**J.R. Haywood**

*Workshop on Emerging Techniques for Ion Channel Studies*  
**Tzyh-Chang Hwang and Douglas Krafte**

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### Career Track

*Being Heard: The Microinequities that Tilt the Playing Field*  
**Susan Steinberg, Holly Brevig, and Kathleen Berecek**  
*Guide for Successful Collaboration: From the Handshake to the Collaborative Research Agreement*

**Douglas G. Johns and Catherine F. T. Uyehara**

*Multiple Career Paths for a Physiologist: Understand Your Options and How to Get There*

**Jennifer Pluznick and Erica Wehrwein**

*Publishing 101: Dos and Don'ts of Publishing in APS Journals*  
**Kim E. Barrett**

### Education Track

*Alternatives to Animal Experimentation Revisited*  
**Linda A. Toth**

*Effective Use of Course Management Systems to Enhance Student Learning*  
**Jonathan Kibble**

*From The Media: The Challenge of Presenting Basic Research in an Era of Anti-Science, Anti-Evolution and Anti-Education*  
**TBA**

*Human Subject Research Ethics: Issues for Going from Bench to Bedside*  
**Michael Portman and Virginia Miller**

*Refresher Course in GI Physiology*  
**P.K. Rangachari and B. Wilson**

*Scientific Principles for Education Research (featured topic)*  
**Barbara E. Goodman**

*Workshop on Chronic Instrumentation in Conscious Small Animals*  
**J.R. Haywood**

*Workshop on Emerging Techniques for Ion Channel Studies*  
**Tzyh-Chang Hwang and Douglas Krafte**

### Ion Channels Track

#### Lectures:

*Henry Pickering Bowditch Award Lecture*

**James D. Stockand, Univ. Texas Hlth. Sci. Ctr., San Antonio**  
*Hugh Dawson Distinguished Lectureship of the APS*

*Cell & Molecular Physiology Section*

**David Clapham, HHMI, Children's Hosp., Harvard**  
*Physiology in Perspective — The Walter B. Cannon Memorial Award Lecture*

**Frances Mary Ashcroft, Univ. of Oxford**

#### Workshop:

*Emerging Techniques for Ion Channel Studies*

**Tzyh-Chang (TC) Hwang and Douglas Krafte**

#### Symposia:

*Interrelations Between Transcellular Ion Transport*

*Function and Paracellular Tight Junctional Properties in Lung Epithelial and Endothelial Barriers*

**Kwang-Jin Kim and Simon Lewis**

*Physiology InFocus—Novel Technologies in Physiology and Medicine: Novel Approaches to Structure-Function*

*Relations in Membrane Transport Proteins*

**Christopher Miller**

*Two-Pore Domain Potassium Channels: Vascular Control by a Newly Discovered Channel Family*

**Robert M. Bryan, Jr. and Arthur Weston**

#### Featured Topics:

*Ion Channels*

**Peter Snyder and Estelle Cormet-Boyaka**

*Novel Ion Channels in Neuro-Cardiovascular Regulation:  
Focus on ASIC and TRP Channels*

**Francois Abboud**

## Metabolic Abnormalities Track

### Symposia:

*Insulin Resistance and the Cardiometabolic Syndrome:  
Adipose Tissue and Skeletal Muscle Factors*

**James R. Sowers and Craig S. Stump**

*Metabolomic Approaches to Study Cardiovascular Disease  
Mechanisms and Diagnosis*

**Christopher Hardin and Chris Newgard**

*Obesity and the Central Nervous System*

**Steve Mifflin and Alison Strack**

*Role of Adipose Tissue Macrophages in Obesity-Induced  
Insulin Resistance*

**Meredith Hawkins**

### Featured Topics:

*Adipocyte Hormones: Focus on Adiponectin*

**Willis K. Samson**

*The Impact of Fatty Acids and Glucose on Insulin Resistance  
Across Species*

**Karen L. Sweazea and Eldon J. Braun**

## Oxidative Stress/Hypoxia Track

### Symposia:

*Hypoxia and Cancer*

**Gregg L. Semenza**

*Neural Plasticity of the Hypoxic Reflex: Carotid Bodies, NTS  
and Pons*

**Chi-San Poon and David D. Kline**

*Respiratory Control in Insects: Integration from the Gene to  
the Organism*

**Scott Kirkton**

### Featured Topics:

*Mitochondrial Mechanisms in Cerebrovascular Function in  
Health and Disease*

**David W. Busija**

*O<sub>2</sub> Sensing by Central Nervous System*

**Irene Solomon and Judith Neubauer**

## Public Affairs Track

*Alternatives to Animal Experimentation Revisited*

**Linda A. Toth**

*Human Subject Research Ethics: Issues for Going from  
Bench to Bedside*

**Michael Portman and Virginia Miller**

*From The Media: The Challenge of Presenting Basic  
Research in an Era of Anti-Science, Anti-Evolution and  
Anti-Education*

**TBA**

*NIH at the Crossroads: How Diminished Funds Will Impact  
Biomedical Research and What Scientists Can Do About It*

**Leo Furcht**

*Teaching about Evolution in a Biomedical Context*

**Jon Harrison**

*Walter C. Randall Lecture on Biomedical Ethics*

**TBA**

## Translational Physiology Track

### Lecture:

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

**Brigid Hogan, Duke Univ.**

### Symposia:

*Biomarkers of Acute Kidney Injury—Early Diagnosis,  
Pathogenesis and Recovery*

**Chirag Parikh**

*Breakthroughs in Protection of the Ischemic Heart*

**Steven P. Jones**

*Drug Discovery Efforts for Pain Indications: Ion  
Channels and GPCRs*

**Michael Finley and William Martin**

*Pharmacogenomics of Estrogen and Cardiovascular Disease*

**Virginia M. Miller and S. Mitchell Harman**

*PPAR $\gamma$ : A Novel Molecular Target in Lung Disease*

**Mike Hart**

*Stem Cells in Physiology and Drug Discovery*

**Chahrzad Montrose-Rafizadeh and Brigid Hogan**

### Featured Topic:

*Roles of Intestinal Epithelia and Bacteria in Inflammatory Disease*

**Jerrold R. Turner**

## Transporters Track

### Symposia:

*Molecular Regulation of Renal Epithelial Transport  
Proteins in the Nephron: Lessons from Ontogeny and  
Disease*

**Young Hee Kim and Lisa M. Satlin**

*Novel Aspects of the Regulation and Physiology of NHE1*

**Diane Barber and Stine Falsig Pedersen**

*The SLC26 Transporter Family and Epithelial Function*

**Michael A. Gray**

*Transport-Metabolism Coupling through AMPK*

**Kenneth Hallows and Alicia McDonough**

### Featured Topics:

*Molecular Physiology of Cation-Coupled Bicarbonate Transporters*

**Mark O. Bevensee and Irina I. Grichtchenko**

*Renal Transporters*

**A. McDonough and Nuria Pastor-Soler**

## Additional Symposia

*Calcific Aortic Valve Disease: A Disease Process Comes of Age?*

**Kevin D. O'Brien and Emile R. Mohler III**

*Connexins and the Kidney*

**Janos Peti-Peterdi and Klaus Willecke**

*Control Mechanisms of Renin Synthesis and Release:*

*A 21st Century Perspective*

**Pontus Persson and Heimo Ehmke**

*Emerging Insights into the Purinergic Signaling in Renal,*

*Pulmonary and Microvascular Physiology and Pathophysiology*

**Bellamkonda K. Kishore and Edward W. Inscho**

*Endothelial Cell Mechanotransduction: Roles of Glycocalyx,*

*Membrane, and Cytoskeleton*

**Peter J. Butler and John Tarbell**

*Engineering Vascular Cell Function Using Nanoscale Cues*

**Brian P. Helmke and Richard J. Price**

*Epithelial Development, Disease, and Regeneration*

**Caroline R. Sussman**

*Estrogen and the Cardiovascular System*

**Mark C. Chappell**

*Exercise Hyperemia: Are there any Answers Yet?*

**Michael J. Joyner**

*Frontiers in the Cellular and Molecular Physiology of the  
Hepatic Microcirculation*

**Robert W. Brock and Alison Fox-Robichaud**

*Functional Imaging of Autonomic Circuits: New Frontiers in  
Optical Approaches and Applications*

**Jeffrey Potts and Robert Rogers**

*Heart Failure and Exercise: Autonomic and Cardiovascular  
Responses*

**Craig Crandall and Lawrence Sinoway**

*Intercellular Regulation of Smooth Muscle Contraction*

**Michael Sanderson and Susan Gunst**

*Linking Molecular Profile to Physiology*

**Mingyu Liang and Norman H. Lee**

*Mechanotransduction in Cell Migration*

**Song Li**

*Mechanotransduction Mechanisms of Muscle Hypertrophy:  
Translation from Rodent to Human Studies*

**Marcas M. Bamman**

*Microcirculatory Society President's Symposium*

**TBA**

*Microcirculatory Society Young Investigator Session*

**TBA**

*Muscle Mechanics: Molecular Properties to Contractile Function*

**Ken Campbell**

*Nanotechnology, Biology, and Medicine in SEBM's  
Second Century*

**Burton E. Sobel and Charles A. Blake**

*Neuroimmuno Interactions*

**Valeria Rettori and José Antunes-Rodrigues**

*New Horizons in Cardiovascular Aging*

**Gabor Kaley and Zoltan Ungvari**

*Physiological Genomics: From Bench to Bedside*

**Susan Old and Melinda Dwinell**

*Protein O-linked N-acetylglucosamine (O-GlcNAc): Nutrient  
Sensor and Modulator of Cardiovascular Function*

**John C. Chatham and Amy J. Davidoff**

*Suspended Animation—Fact or Fiction?*

**Lisa R. Leon and Kathy L. Ryan**

*The Power of Comparative Genomics for Understanding  
Complex Physiological Systems*

**Marcelo Nobrega**

*Ultra Fast and Ultra Active: The Strange Life of Extraocular  
Muscles*

**Francisco Andrade**

*Understanding the Role of the Pancreas in Digestion:*

*Placing Current Understanding in a Historical Perspective*

**John Williams and Joel Adelson**

*Use of Genome Variation in Understanding Complex  
Disease and Genomic Regulation*

**Anne Kwitek and Monika Stoll**

*What Have We Learned about Respiratory Control from the  
Use of Transgenic Models?*

**Judith A. Neubauer and Claude Gaultier**

## Additional Featured Topics

*Activity-Dependent Gene Expression*

**David Hood**

*Angiogenesis and Cell-Based Therapies*

**Hua (Linda) Cai and Joyce Bischoff**

*Cardiovascular Section Carl J. Wiggers Award Featured Topic*

**Charles Antzelevitch**

*Cardiovascular Section Young Investigator Awardee  
Featured Topic*

**TBA**

*Circadian Rhythms: From Animals to Humans*

**Roberto Refinetti**

*Control of Coronary Blood Flow*

**William M. Chilian**

*Current Concepts in the Control of Skin Blood Flow in Humans*

**Craig Crandall and John Johnson**

*Disorders of the Enteric Nervous System*

**Shanthi Srinivasan**

*Donald Reis Memorial Featured Topic*

**Deborah A. Scheuer**

*Emerging Properties and Concepts in Respiratory Rhythm  
Generation*

**Donald R. McCrimmon and William K. Milsom**

*Endothelial and Epithelial Signaling in Lung*

**Jahar Bhattacharya**

*Energy Balance, Exercise and Cancer*

**Thomas Nosek**

*Experimental and Computational Approaches for Integrating  
Genome, Phenome, Transcriptome, and Proteome*

**TBA**

*Gap Junctions Mediating Cell-Cell Communication in the  
Vascular Wall*

**Brant E. Isakson**

*Growth Factors, Proliferation and Differentiation in the  
Gastrointestinal System*

**Yana Zavros**

*Hypertension: Integrated Mechanisms and Sequelae*

**Gabriel Navar and Joey Granger**

*Muscle Fatigue*

**Jean-Marc Renaud**

*Neural Control and Autonomic Regulation Section Trainee  
Featured Topic*

**Chris Madden and Daniela Sartor**

*Neural-Glial-Vascular Communication in the Brain*

**Jessica Filosa and Eric A. Newman**

*New Insights on Adaptations to Environmental and  
Metabolic Stress From Genomics and Proteomic Studies*

**Severine Kirchner and Ronaldo Ferraris**

*Osmoregulatory Function in Health and Disease*

**Sean D. Stocker and Ann M. Schreihof**

*Phenotype and Functional Plasticity of Pulmonary Airway  
and Vascular Smooth Muscle Cells in Health and Disease*

**Andrew J. Halayko and Kurt Stenmark**

*Renal Section Young Investigator Award Featured Topic:*

**Volker Vallon**

*Role of ATP Receptors in Respiratory Responses*

*Point / Counter-point: ATP Receptors underlie Central CO<sub>2</sub>  
Sensitivity (or not)*

**Gregory D. Funk and Estelle Gauda**

*Role of L-Arginine Metabolism in Cardiovascular/  
Renal Disease*

**Fruzsina K. Johnson**

*Sex Steroids in Cardiovascular-Renal Physiology*

**Jane F. Reckelhoff and Carmen Hinojosa-Laborde**

*The Vascular Supply during Aging*

**Steven S. Segal**



## Animal Care and Experimentation

### APS Resource Book for the Design of Animal Exercise Protocols

The APS's *Resource Book for the Design of Animal Exercise Protocols* was published in February 2006. The *Resource Book*, which is available as a pdf file on the APS website, is intended for the use not only of

physiologists but also of any scientist conducting exercise research. This project was funded by NIH's Office of Laboratory Animal Welfare (OLAW), and OLAW purchased 1500 copies that are being distributed to individuals upon request. Additional copies are available for sale from the APS store for \$9.50. The APS announcement about publication of the *Resource Book* was carried on the OLAW listserv, on CompMed, and in the electronic newsletters of the Americans for Medical Progress and Foundation for Biomedical Research, which are disseminated widely in the research community. Announcements and sample copies of the book were sent to the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC); the USDA's Animal and Plant Health Inspection Service (APHIS); Public Responsibility in Medicine and Research (PRIM&R); the NAS Institute for Laboratory Animal Research (ILAR); Scientists Center for Animal Welfare (SCAW); the Association of American Medical Colleges (AAMC), and the Department of Veterans Affairs. Review copies were sent to *Lab Animal* and *Contemporary Topics in Laboratory Animal Medicine*.

### Advocacy based upon the APS Position Statement and Rationale on the Use of Animals in Teaching

The APS Position Statement and Rationale on the Use of Animals in Teaching Statement grew out of sentiment in both the ACE and Education Committees that the Society should take a more active stance in light of ongoing efforts by animal rights activists to curtail the use of animals in medical and veterinary education. A task force was subsequently formed under the leadership of Rob Carroll with representatives of the ACE and Education Committees. The position statement was approved by Council in November 2004. However, APS delayed a public announcement of the new position statement so that it could be released when "The Evolving Role of Animal Laboratories in Physiology Instruction," was published in *Advances in Physiology Education*. These materials were disseminated in August 2005 to the National Association of Biology Teachers, National Science Teachers Association, AAMC, Association of American Veterinary Medical Colleges, APHIS, OLAW, AAALAC, PRIM&R, and SCAW.

The value of having these resources available was highlighted in March 2006 when the *Milwaukee Journal Sentinel* published an article that was critical of the Medical College of Wisconsin's (MCW) physiology lab for medical students. The article quoted extensively from representatives of the Physicians' Committee for Responsible Medicine (PCRM). Representatives of MCW contacted the newspaper using the APS position statement and the article. The newspaper took

an editorial position in support of the MCW dog lab.

### Pain and Distress Management Issues

In January 2005, APS convened a working group to discuss regulatory issues related to pain and distress. One of the main themes that emerged was the need for our regulatory system to treat pain and distress as distinct entities. Those discussions ended up playing a role in NIH's decision to ask ILAR to update its 1992 report on recognition and alleviation of pain and distress in laboratory animals in two separate reports. The first part of the update will deal with distress and will be followed later by a report on pain. Although that was considered an important step, when the composition of the distress committee was announced, concerns were raised about the qualifications of certain members. A comment letter was drafted that outlined the scientific qualifications committee members ought to have and pointed out deficiencies with respect to certain members, who lacked the relevant background.

On April 10, 2006, the ILAR committee began its fact finding with a Workshop on Recognition of Distress in Laboratory Animals. Former ACE Chair J.R. Haywood was invited to make comments about the scientific challenges in developing a science-based definition of when stress becomes distress, recognizing distress in laboratory animals, and validating assessments of distress in laboratory animals. Andrew Rowan of the Humane Society of the United States (HSUS) was also invited to address the same topics. In his remarks Rowan announced that the HSUS is about to publish its own pain and distress report in furtherance of its Project 2020 to eliminate pain and distress in laboratory animals by that year.

To date, the APS has received an acknowledgement of the APS letter but no substantive response to its recommendations. However, we have heard unofficially that scientists with relevant expertise will be added to the ILAR committee roster. We may have further opportunities to make comments and recommendations concerning the substance of the report.

### Public Outreach Partnership with SUBR

APS is partnering with States United for Biomedical Research (SUBR) in a new outreach program. SUBR is a consortium of state and regional associations that promote public support for biomedical research and the use of animals in research. The APS/SUBR Partnership is a pilot program to design, test and implement a physiologist speaker/public outreach project that includes public information on the humane use of animals in research, education and testing.

The partnership is unique in its design. The model includes on-site training for physiologists and other science professionals but it also includes: a) support from SUBR for development of on-site organizational structure to generate and track outreach opportunities and b) ongoing support to speakers and those individuals involved with the organizational structure.

SUBR is now in process of developing a speaker handbook to accompany the pilot training session in Iowa later this year (date yet to be determined). We anticipate training 10-15 physiologists/other science professionals in Iowa and providing ongoing support for 12 months from the date of the training session. This project will provide a good test environment for training in public outreach on animal welfare issues and how to deal with the public.

### APS Participation in Animal Welfare Meetings

Current and former ACE Committee members regularly attend specialty meetings that deal with animal welfare over-

sight issues. For new members on the Committee, participation serves an important educational function because it introduces them to ongoing legislative and regulatory issues. Several such meetings occur each year to offer education and training for veterinarians, scientists, IACUC members, and other research facility staff. As part of our efforts to "improve the effectiveness of APS advocacy for public policy," it is a goal of the ACE Committee to take a leadership position on animal welfare issues. During the past year, committee members participated in the following meetings:

Kevin Kregel, Linda Toth, Bill Talman and Alice Ra'anan: AAALAC Board of Trustees Meeting, Bethesda, MD, September 2005.

Karie Scrogin: SCAW (Scientists Center for Animal Welfare) Meeting, San Antonio, TX, December 2005.

Kevin Kregel, Alice Ra'anan, Linda Toth, and JR Haywood: PRIM&R (Public Responsibility in Medicine and Research) Meeting, Boston, MA, March 2006.

Alice Ra'anan and Martin Frank: NABR conference, May 2006

## EB Symposium 2007

The committee has submitted a request for a symposium slot at EB 2007 entitled "Alternatives Revisited: Scientific Perspectives." The goal of the symposium is to present a reconsideration of the notion of alternatives. Several speakers have been invited to discuss issues related to study design, highlighting the notion that good science often requires an interplay rather than a substitution of animal and non-animal models.

Council accepted the report of the Animal Care and Experimentation Committee.

Council approved the necessary funding to support a second annual Committee meeting.

Council approved allowing ACE Committee members to serve two terms at the request of the Committee chair.

Council authorized the necessary members of the Committee to travel to Washington DC for the purpose of Congressional Advocacy.

## Awards Committee



**Peter A. Friedman, Chair**

### General Observations.

The APS Awards portfolio includes the six prizes listed above. Based on the number of applicants, the Postdoctoral Fellowship in Physiological Genomics is clearly the most attractive as it garners as many applicants as the remaining five awards.

The number of applications for the Postdoctoral Fellowship in Physiological Genomics continues to grow and increased by a further 20% in 2006 from 30. This represents growth on top of 19% the preceding year. Other awards attract consistent but low numbers of applicants with the absence of visible growth.

The Committee tracks the gender distribution of applicants and recipients [See Attachment: Gender Distribution of Award

Applicants and Recipients Since 1994]. Although there is some vacillation in the numbers, there are roughly 2/3 to equal numbers of female to male applicants. Given the general trend of increasing numbers of women entering careers in biomedical sciences, we do not feel action is required, but rather continue to track this information.

### Review Criteria.

Standardized review and scoring criteria are employed for all of the awards. Such standardization makes identification of outstanding applicants better grounded on objective and weighted factors, and facilitates the job of the Committee.

Briefly, grant applications are initially reviewed either by the whole committee or by 3 assigned reviewers. This is based on the number of applications. For awards where there are fewer than the Physiological Genomics Award, Scores were submitted to the National Office where they were tabulated and distributed to the Committee in advance of the conference call. At the beginning of the conference call applications that were not competitive, based on their average score and the number of awards available, were triaged. We then discussed in detail the remaining applications. After the discussion all participating Committee members scored or re-scored the application and submitted their scores. The final scores were re-tabulated, and the award recipients were identified.

### 2005-2006 Award Recipients

#### Postdoctoral Fellowship Award in Physiological Genomics

The Awards Committee received 30 applications for the Postdoctoral Fellowship Award in Physiological Genomics. Applications were generally of very high caliber. Normally, just two applications are recommended for support. However, because of the quality of the proposals and any objective measures to distinguish between the second two best ranked applications, the Committee recommended award of 3 Fellowships this year. This recommendation was supported by Council. The recipients were Qi Cai, University of Arizona, Dept. of Physiology, Tuscon; Tatjana Coric, Yale University School of Medicine, New Haven, CT; and Ho-Jin Koh, Joslin Diabetes Center, Boston, MA. Fellowships are awarded at an increased level of \$36,000 annual stipend and \$3,500 trainee allowance; \$38,000 second-year stipend with \$3,500 trainee allowance.

#### The Research Career Enhancement (RCEA) and Teaching Career Enhancement (TCEA) Awards

For the April and October 2005 deadlines five RCEA and three TCEA applications were received. This is down substantially from the previous year when a total of 33 applications were received. The Awards Committee recommended funding three RCEA awards to: Linda R. Davrath, Tel Aviv University, Israel; Markus Frederich, University of New England, Biddeford, ME; and Zoltan Istvan Ungvari, New York Medical College, Valhalla.

TCEA awards were offered to: Mauricio Javier Giuliodori, National University of La Plata, Argentina; Roy D. Russ, Mercer University School of Medicine, Macon, GA; and Nancy J. Pelaez, California State University, Fullerton..

For the April, 2006 deadline, we received nine RCEA and TCEA applications. These were reviewed during a conference call on June 13.



## 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.

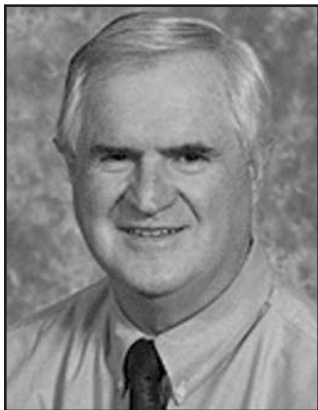
There were two applications for Arthur C. Guyton Award. The Committee selected Nikolaos Tsoukias, Assistant Professor, Florida International Univ., Miami, as the recipient.

Three applications were received for the Lazaro J. Mandel Award. The Committee recommended Pablo A. Ortiz, Senior Staff Investigator, Henry Ford Health Science Center, Dept. of Hypertension Research, Detroit, MI as the recipient.

The Shih-Chun Wang Award was not available.

Council accepted the report of the Awards Committee.

## Career Opportunities



### Career Presentations at APS Conferences

The Committee continues to work with organizers of APS conferences to include career development sessions and/or activities at those meetings. In 2006, Committee members will attend both APS Conferences ("Comparative Physiology 2006: Integrating Diversity and Physiological Genomics" and "Proteomics of Lung Disease"). They will contact the organizers to set up a career session or activity and will work with the Education and Meetings Offices

to coordinate a display of materials.

The successful APS Professional Skills Training (PST) Short Courses also will provide materials to use for career development sessions at APS meetings and chapter meetings. For example, many of the short course sessions (e.g., authorship, dealing with reviews, being a reviewer, common writing mistakes, and knowing when you are ready to write) have PowerPoint sets, speakers notes, interactive activities, and take home resources ready to use in a session. The Careers Committee will offer these sessions to conference planners, as well.

### Careers Symposium, Experimental Biology

**2006 Session:** In 2006 the Career Opportunities in Physiology, Trainee Advisory, and Women in Physiology Committees coordinated the topics of their sessions to provide a complimentary set of career advancement sessions for early career physiologists. The 2006 APS Careers Symposium was entitled, "Navigating the Interview: How to Make it Work for You." The session was designed to provide potential interviewees with information about what to expect in the interview, the etiquette of interviewing, and possible pitfalls to be aware of in the interview process. The program focused on how to prepare for an interview, the similarities and differences between industrial and academic hiring processes, and the skill sets desired by industrial and academic employers.

The symposium was well attended; approximately 140-160 attended, with the vast majority staying for the entire symposium, and some attendees staying well after the symposium ended to ask additional questions. Based on information from the exit surveys, 50% of those attending were graduate students, 28% were postdocs, and 14% were new investigators.

**2007 Session:** The proposed 2007 symposium will focus on creating successful scientific collaborations. Again, the Careers in Physiology Committee is coordinating with the Trainee Advisory and the Women in Physiology Committees to create sessions that complement each other.

### Undergraduate Summer Research Fellowship Program

The APS Undergraduate Summer Research Fellowship Program supports 12 full-time undergraduate students annually to work in the laboratories of established investigators. These Fellowships provide a \$3,000 summer stipend to the student (10 weeks support), a \$300 grant to the faculty sponsor/advisor, and a travel award/reimbursement for the students to attend and present their data at Experimental Biology or an APS Conference. The goal of the program is to excite and encourage undergraduate students worldwide to pursue a career as a basic research scientist.

The UGSRF students have also been competing in the David S. Bruce Excellence in Undergraduate Research Award program. In 2004, five of 11 UGSRFs with first-author abstracts submitted to the EB meeting applied for the award. The past two years, all the students with first-author abstracts have applied for the award (eight of eight in 2005 and nine of nine in 2006).

**2006 Program:** For the seventh year of the program, 45 applications were received, an increase of seven percent from last year and an increase of 61% since the Council raised the student stipend in 2005. Over the seven-year history of the program, we have received 310 applications for the 84 awards granted, with the typical funding rate ranging between 20% and 30%.

### Explorations in Biomedicine Undergraduate Physiology Retreat

The APS Explorations in Biomedicine project has worked with elementary, middle, and high school and Tribal College educators who work with Native American students since 1997 to promote interest in biomedical research careers and excellence in science education. The project is supported by the NIGMS Minority Opportunities in Research Program, with funding to end in summer 2006. The project has developed many outreach models and resources, including summer research fellowships for teachers, faculty, and undergraduate students, travel fellowships, professional development retreats and workshops, and curricular materials development (print, online, and multimedia).

### Careers Poster

The current APS Careers poster was designed in 2002. Each fall it is distributed to all US and Canadian undergraduate colleges and life sciences departments. The poster prominently displays the URL for the APS Web site, which is how most undergraduates seek information. These posters are usually re-distributed every year, because most undergraduate departments clean off their bulletin boards each autumn. This is the fourth year of the current poster distribution. The

Committee began a redesign process for a new poster for 2007. The Committee will finalize the redesign at their fall 2006 meeting for printing for fall 2007.

### Career Outreach PowerPoint Presentation Package

The APS Careers PowerPoint Presentations, when completed, will provide downloadable PowerPoint files for use at the elementary, middle, and high school levels, as well as lower and upper undergraduate levels. Two PowerPoint presentations for use with undergraduate students (lower and upper level versions) have posted at the APS main website, the APS Career Web, and in the APS Archive of Teaching Resources.

### APS Careers Web Site

The APS Careers Web Site was developed by the Careers Committee in 2002 and launched in March 2003. It provides extensive resources for two major purposes: 1) to assist students and new and experienced physiologists in the development of their careers; and 2) to help the general public gain a better understanding of the work that physiologists do. The site includes separate sections and resources for elementary, middle/high school, undergraduate, graduate/professional, postdoctoral fellows, new investigators, established investigators, and the general public. Within each section, the user finds resource categories customized to their needs. The specific resources (such as biographies, hands-on experiments, career resources, etc.) are written at the appropriate educational level.

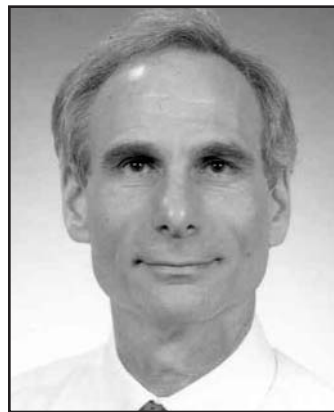
**Updates and Improvements:** In the past year, more than 50 new resources (or links to new resources) have been added to the Careers web site. These include new information at all the levels, but primarily undergraduate, graduate/professional, postdoctoral, and new investigator levels. In addition, the Careers Committee audio-recorded the Careers Symposium at EB 2006 and will, for the first time, be preparing the slide/audio presentations for inclusion on the Career Web Site. In the past, only the slide presentations from this session were available.

The Career Opportunities in Physiology Committee, along with the Trainee Advisory and Women in Physiology Committees, recognizes the need to provide career development resources and training at all career stages. The needs of graduate students differ from those of postdocs. New investigators and educators have different needs as well. The Committee hopes to address both career development and advancement issues in its future activities.

The Committee also plans to develop activities and resources to promote Society membership to clinical scientists. This may require a brief survey of the current clinical scientist members to assess what benefits they gain/would like to gain from their membership and suggestions that they have for increasing interest in the APS among clinical scientists.

Council accepted the report of the Career Opportunities in Physiology Committee.  
Council authorized the necessary funding to increase the annual number of Undergraduate Summer Research Fellowships from 12 to 24 fellowships for the program years 2007-2011.

## Committee on Committees



**Thomas E. Lohmeier, Chair**

### Members Present

Thomas Lohmeier, Chair; Sue Barman, Council Representative and Chair-Elect; H. Glenn Bohlen, Cardiovascular; Scott O'Grady, Cell & Molecular Physiology; Charles Lang, Endocrinology & Metabolism; Scott Powers, Environmental & Exercise Physiology; Linda Samuelson, Gastrointestinal & Liver Physiology; Bill Yates, Steve Mifflin (incoming), Central Nervous System; David Pollock, Renal; Margaret Anderson, Teaching of Physiology; Jane Reckelhoff, Water and Electrolyte Homeostasis

The Committee on Committees is composed of representatives elected by the Steering Committees of each of the 12 APS sections, as well as two Councillors. Its primary duty is to nominate individuals to serve on other APS standing committees, as well as to outside bodies where the APS is represented.

**Proces:** The Committee on Committees (COC) continued with the new nomination process that was instituted in 2003. The Committee members remain dedicated to the concept that their role is twofold - to identify and promote members of their section who might serve on committees, but then to set aside section affiliations to work with the committee as a whole 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. Two sources of information are available to the Committee in fulfilling this responsibility. First, the two-page Candidate Information form, which those interested in committee service can complete as a self-nomination, includes information about prior activities relevant to the committee on which the individual wishes to serve, a statement of interest, information about prior APS service, and citations to two recent publications as well as a statement of academic interests. This is then supplemented by the one-page Endorsement Form, which is used by someone who knows the candidate, to comment on the ability of that individual to carry out committee responsibilities. Only

**Table 1: Committee Nominations by Section.**

Section	Year - 2005	Year - 2006
Cardiovascular	30	12
Cell	8	2
Central Nervous System	4	5
Comparative	0	1
Endocrine	4	0
Environmental	7	0
GI	1	3
NCAR	2	2
Renal	5	6
Respiration	1	0
Teaching	2	0
Water and Electrolyte	7	7
No Affiliation		1
<b>TOTAL</b>	<b>71</b>	<b>39</b>

**Table 2: Current Committee Composition by Section.**

Section	Year - 2006
Cardiovascular	21
Cell	16
Central Nervous System	6
Comparative	3
Endocrine	8
Environmental	19
GI	5
NCAR	8
Renal	10
Respiration	4
Teaching	4
Water and Electrolyte	9

one Endorsement form is accepted per nominee. Candidates can secure their own endorser, or submit their information without an endorsement. In this latter case, the primary section with which the interested party is affiliated is asked to provide an endorsement from among their leadership or member-

ships, it is unfortunate that there was about a 45% decrease in nominations overall in 2006 from 2005 (See Attached Table 1). Of greater concern, three sections (Comparative, Neural Control and Respiration) did not have representatives at the COC meeting, and more than 75% of the nominations came from four (Cardiovascular, Central Nervous System, Renal, and Water and Electrolyte) of the twelve sections.

Based on the process described above and the Committee's deliberations at the Experimental Biology meeting, the Committee on Committees recommended individuals to fill vacancies on the following APS standing committees:

Committee	Number of Positions
Animal Care and Experimentation	2 + chair
Awards	2
Career Opportunities in Physiology	3, + chair
Communications	1 journal rep. position, + chair
Ray G. Daggs	1
Education	3, + chair
Finance	2
International Physiology	1
Long Range Planning	0
Membership	1
Perkins Memorial Fellowship	1
Porter Physiology Development	3
Public Affairs	1
Publications	1
Senior Physiologist	2, + chair
Women in Physiology	1
AAAS	0
AAMC	1
FASEB Research Conference Advisory	0

ship. This task falls primarily to the sectional representative to the COC, who is an excellent resource to those interested in serving the Society and/or seeking information as to the charge of a given committee. Forms and submission is electronic, thus facilitating the application process. Both Candidate Information and Endorsement forms are available on the APS website under "committees," as well as a listing of committee vacancies for the upcoming year and links to the "job descriptions" for each of the society's standing committees. The website also provides information about the timeline for committee nominations. It should also be mentioned that each Section Chair and Section Representative to the COC is contacted to assure that the nomination process is understood and to encourage nomination of worthy individuals.

**Results:** While the COC was pleased with the slate of nom-

**Table 3: Section Representation by Committee - 2006.**

Section	APS Committee															
	Animal Care & Experimentation	Award	Careers	Communications	Daggs	Education	Finance	International	Long-Range Planning	Membership	Perkins	Porter	Public Affairs	Publications	Senior Physiologists	Women
Cardiovascular	2	5	4	1	2	4		1		1		2	3			3
Cell		2			1		1		2	1	1	1	1		1	1
Central Nervous System	1	2				1	1	1	1	1				1	1	
Comparative												1				1
Endocrine		1						1	1	1		3			1	
Environmental	2			1	1	1	1			1	3	1	1	1	1	1
GI				1					1	1				2		
NCAR	1			1			1		1			2	2	1		
Renal	1		1			1		1		1					1	
Respiration							1								1	
Teaching			2	2		3										1
Water and Electrolyte	1	1	1	1	1	2		2	1	1			1		1	1

FASEB Publications/Communications	1
US National Com. Biomechanics	1
TOTAL	28, + 5 chairs

The COC charge, as discussed above, is to identify the best individuals to fill committee vacancies, regardless of sectional affiliation. However, all other things being equal, the committee seeks to instill diversity in the committee structure on the basis of section of membership, geography, gender and seniority. Thus, based on the candidate information forms submitted, the APS members selected by the COC to fill the above vacancies had the following sectional affiliations:

Cardiovascular Section	12
Cell & Molecular Physiology Section	1
Central Nervous System Section	5
Comparative Physiology Section	1
Endocrinology & Metabolism Section	0
Environmental & Exercise Physiology Section	0
Gastrointestinal & Liver Physiology Section	2
Neural Control & Autonomic Regulation Section	2
Renal Section	5
Respiration Section	0
Teaching of Physiology Section	0
Water & Electrolyte Homeostasis Section	6
No section selected	1
Total	35
Total self nominations under 45 years of age:	13
Nominated for committee positions by CoC under age of 45:	10
(excluding alternate positions)	
Number of Women who self-nominated:	15
Number of women nominated for a committee position by the CoC:	11
(excluding alternate positions)	

We hope that many 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 (with or without an accompanying endorsement form) by January 15, 2007, although earlier submissions are welcome. Applications received without an endorsement will be forwarded to the section of primary affiliation for support. Nominations are then reviewed by chairs of committees on which there are vacancies, and by the Committee on Committees as a whole. At its meeting at Experimental Biology, the Committee on Committees develops its recommendation for each committee vacancy, along with alternates, and submits this for approval by Council at their summer meeting. Approved nominees begin their term of appointment the following January.

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 report of the Committee on Committees.

Council approved the slate of nominees for committee vacancies with Council recommended changes.

## Communications



Hannah Carey, Chair **Journal Release Program.**

The overall objective of the Communications effort of the APS is to promote the physiological sciences in general and The American Physiological Society in particular, by highlighting Society programs, the research and educational accomplishments of individual APS members and the science published in APS journals and presented at APS meetings and conferences.

Over the past year, the Communications Office has produced 30 press releases based on scientific papers appearing in nine journals. That was an increase of 50% over last year and included releases based on articles published in two additional journals. Several releases were particularly well-received by the media this past year, including "fMRI looks at early romantic love" (*JN*), "the physiology of Lance Armstrong" (*JAP*), "obesity-causing viruses" (*AJP-Regu*), "tomato juice halts emphysema development" (*AJP-Lung*) and "the secret of Ritalin's 1-2 punch" (*JN*).

### Conference Releases.

Over the past year the Committee and Communications Department have endeavored to highlight conference activities beyond just poster presentations. This expansion resulted in a total of 30 press releases being written based on lectures, programs, and symposia.

### Society Releases.

APS makes a special effort to publicize its award programs, the individual award winners and their institutions. This past year also included several releases about the APS effort to aid Hurricane Katrina victims involved in physiology.

Besides the full range of awards, other special projects included distributing releases announcing the APS position paper on use of animals in laboratory teaching, and the publication of the *Resource Book for the Design of Animal Exercise Protocols*. Special efforts are being made to follow up with local media outlets on Education's "Frontiers in Physiology" program, which brings middle and high school teachers to university research settings and then encourages curriculum development and local teacher team involvement.

Over the past year, the Committee, in conjunction with the Communications Staff, began development of a "Calendar of Physiology" that will highlight the physiological connections to recurring holidays, events, traditions, seasons, etc. that can be used in a variety of ways for public communication. One of the first implementations of the Calendar idea occurred in earlier this year when a program was initiated aimed at making "Groundhog Day" a date that is linked to physiology, with APS being the primary media source.

Using some innovative marketing tools, major stories were written in *USA TODAY*, *Associated Press*, *Pittsburgh-Post Gazette* and the *Dallas Morning News*. In addition, several broadcast outlets used audio and video, including a live ABC-TV network feed featuring APS Porter Committee Chair Greg Florant that was sent to all ABC affiliates. One unexpected benefit of this effort was to prompt media interest in the upcoming APS Intersociety conference on “Comparative Physiology 2006: Integrating Diversity” that will be held in October in Virginia Beach.

An article on romance that was published in the May 2005 issue the *Journal of Neurophysiology* reappeared close to Valentine’s Day 2006 in many forms—most notably on television segments on CNN, CBS and the syndicated ScienCentral service—which prompted inclusion of Valentine’s Day on the physiology calendar. In addition to articles that link this tradition to behavioral physiology, Valentine’s Day can also serve to bring articles on cardiovascular physiology to the media’s attention.

The Office also developed a press release on physiological horse research for the “Triple Crown” season.

The public information site, <http://www.phyiologyINFO.org>, was officially launched in late 2005, and is meant to make information on physiology and the Society more enticing and accessible to the public.

This Communications Office regularly updates the Press Room section, which contains published articles, as well as radio and television audio and video clips that can be accessed easily, [http://www.the-aps.org/press/physiology\\_news.htm](http://www.the-aps.org/press/physiology_news.htm).

## Communications EB 2006 Workshop

The Committee held its fourth workshop at EB 2006 in conjunction with the Public Affairs Committee, entitled “Ground-Floor Communications: Creating a Buzz about Science through Community and Constituency Outreach.” Communications Committee Chair Hannah Carey introduced the workshop this year by noting that physiologists have to become more active at getting the word out about the good things physiology has done for society, why physiology is important, and why physiologists love their work. “We need to be advocates for our own good work,” Carey said. Physiologists need to talk to friends, relatives, neighbors and eventually to members of the media and public to explain the value of science and to speak out on some of the hot topics, including evolution, stem cell research and the use of animals in research, she said. All the PowerPoint presentations from the EB06 Workshop are available online at <http://www.the-aps.org/press/news/EB06Comms-PAsymp>.

There was a lively question and answer session at the end of the session with audience members asking questions such as: how scientists have handled the issue of animals in research; whether scientists at UC–Davis are using blogs; how scientists can do this work without seeming like shameless self-promoters; and is it a good idea to invite legislators to the laboratory?

The Committee will sponsor a workshop at EB07. The Committee has proposed bringing two nationally recognized journalism “headliners” to the workshop—Joe Palca of National Public Radio and Rick Weiss of the Washington Post. Both are award-winning journalists who took very different paths to their present jobs, where they’ve each been

for almost 15 years. A senior science reporter at NPR (and backup host to NPR’s “Talk of the Nation Science Friday” program), Palca was a TV health producer at CBS, an editor at *Nature* and a senior correspondent for *Science* magazine. Weiss, who covers genetics, molecular biology and other life science topics, has spent his entire journalism career in print journalism, starting at *Health* and *Science News* magazines. Previously, he was a licensed hospital medical technologist.

The Committee has developed hot-linked research modules on obesity, comparative physiology, and laboratory animals’ contributions to medicine. This year it added “The Environment and Physiology.” Other modules in preparation and under consideration are: hypoxia, cardiovascular disease, aging, exercise, and the physiology of food.

The *APS Timeline of Physiology* is in its second printing, having been updated just prior to Experimental Biology 2006. One of the most popular items at the APS booth at EB, as well as other societies’ conferences, the Timeline has proved to be a wonderful printed ambassador for physiology.

The Communications Committee suggested that the APS Sections develop their own timelines. The Endocrinology and Metabolism Section completed the first sectional timeline which is posted on the APS website: <http://www.the-aps.org/press/endotime/index.htm>. Other sections have been encouraged to develop Section Timelines for their specific disciplines. In order to add incentives for more Section Timeline submissions, the Committee is developing ideas how to distribute them.

The “Communications Resources for Members” is available on the APS Website, Press Room link. These resources will be expanded to include tools such as PowerPoint presentations that can be used by members to convey to the public what physiology is and how physiology affects their lives and those of all organisms including their pets, food, animals, etc.

The Committee oversees selection of an APS-sponsored AAAS Mass Media fellow each year, which encourages an informed exchange between science and journalism. The 2005 Fellow, Kirsten Sanford, wrote two articles for *The Physiologist*, the second of which was offered to AAAS as a reprint. Sanford, a PhD candidate at UC-Davis in Molecular, Cellular & Integrative Physiology, spent seven weeks at WNBC-TV in New York. Sanford and the science podcast she developed with a colleague were recently mentioned in the June 2006 issue of *The Scientist* as an example of some of the science podcasts currently available for download.

This year’s APS-sponsored AAAS Fellow is Erin Cline, who has completed her dissertation defense at Stanford in the area of Cellular and Molecular Physiology. She is spending eight weeks at the *Los Angeles Times*.

Council accepted the report of the Communications Committee.

Council approved the addition of a trainee member to the Communications Committee.

Council authorized the necessary funding to develop a graphic template for section timelines.

## Education



**Robert G. Carroll, Chair**

The activities of the Education Committee are coordinated and closely intertwined with the activities of the APS Education Office. This report provides summaries of Education Committee activities.

### Web-based Professional Skills Courses

With support from the NIGMS Minority Opportunities in Research (MORE) division, the APS is developing live, web, and CD-ROM short courses that focus on critical

professional skills areas. Each course will include a strong focus on the interaction of racial/ethnic background and culture with the development of these skills. Students who complete the course(s) will:

- improve their performance in specific professional skills areas;

- increase their understanding of how these skills can impact career opportunities and advancement in biomedicine;

- increase their understanding of how diversity issues, especially cultural influences and background experiences, can interact with the development of professional skills targeted by the course; and

- increase their knowledge of resources and materials that can further assist in their development of these key professional skills.

Although direct oversight of the project resides with the Education Committee, the Careers in Physiology, Porter Physiology Development, Trainee Advisory, and Women in Physiology Committees are actively involved in the project, particularly through the project's Advisory Board.

In 2006, the Education Office developed materials for a live short course focused on writing and reviewing for journals. The materials' development was facilitated by contributions from previous Women in Physiology Committee EB workshops and from individual members. Two live short courses were held in 2006 to field test the materials. Numerous APS members volunteered to be speakers and small group leaders and to provide feedback on the draft materials. Several of the small group leaders asked to serve at the second course and in future courses. The short courses also included participants and group leaders from other biomedical research societies (American Society for Microbiology, Society for Neuroscience, and Society for Developmental Biology). Initial feedback from participants and group leaders at both live short courses indicate that they were highly successful.

In 2006-2007 this project will:

- develop the live short course materials into an interactive, online course, as well as prepare the live short course materials for easy download and course replication;

- work to develop the APS' IT capability to allow APS to house these interactive courses in-house rather than at a third party site; and

- prepare materials for the second live short course (January 2007), focused on presentation skills.

### EB Refresher Course

The 2006 Refresher Course, "Gender Differences in Physiology," was organized by Education Committee member Martha Blair. The session was well attended with more than 260 attendees. Participant ratings were very positive, especially for Dr. Wierman's overview of sex steroid effects on target tissues. In 2007, the EB Refresher Course will restart the cycle of major topics, with gastrointestinal physiology as the focus. This topic was the subject of the 1996 Refresher Course. P.K. Rangachari has volunteered to coordinate the session.

### Resource Web Site for Medical Physiology Course Directors

This joint project of the APS and ACDP has created an online resource site for medical physiology course directors. Resources include information on faculty evaluation, course evaluation, curriculum issues and instructional options. The second annual meeting of interested course directors was held at EB 2006. The purpose of the meeting was to update course directors on the resources already available at the website and to request materials to further populate the site. Fifteen course directors were in attendance at the meeting. The Committee will continue to gather additional resources for the website in the coming year and, at the request of the course directors, will continue to schedule informal meetings at EB.

### APS Archive of Teaching Resources

The Archive continues to grow in both size and diversity of resources. In 2005, the APS—along with its BioSciEd Net (BEN) partners—received a four-year grant from the National Science Foundation to establish the BEN Collaborative as the official Pathways to Biological Sciences Resources online portal. This distinguishes the BEN portal from other biology-related digital libraries and provides a much higher profile for the APS Archive. The funding will allow the BEN partners, over the next four years, to increase both the number of cataloged resources (from 3,700 to 27,000) and number of collaborating organizations from 13 to 22. This includes the addition of notable partners such as the American Society for Cell Biology, the Dolan DNA Learning Center, and American Institute for Biological Sciences. The APS Archive will gain two new partners who will contribute materials to our digital library: Society for Developmental Biology and National Association of Health & Science Education Partnerships (NAHSEP). NAHSEP members primarily represent NIH Science Education Partnership Awardees (SEPA) and develop extensive materials for K-12 science education related to biomedicine. Finally, the NSF Pathways funding will allow us to establish a cadre of trained faculty representatives at numerous undergraduate campuses around the country; these representatives will conduct professional development for regional colleagues on the use of digital resources to enhance teaching and learning.

### Medical Physiology Learning Objectives Project

The Medical Physiology Learning Objectives were published in 2000 with a planned periodic review by each APS section to update the objectives on a regular basis. The ACDP will continue to periodically revise sections to insure that they remain current.

### David Bruce Awards

The Education Committee completed its third round of David S. Bruce Awards for Excellence in Undergraduate

Research. A total of 29 applications were received for the 2006 awards. The Committee selected 12 finalists based on the abstract and a one-page letter submitted by the undergraduate students. The 12 finalists each made oral presentations with their posters to the judging team during the EB 2006 meeting. From that group, four awardees were selected. Robert Carroll, Chair of the Education Committee, and APS President Doug Eaton presented certificates to the eight finalists and certificates and \$500 checks to the four awardees during an award presentation held during the APS Undergraduate Research Poster session.

## EB 2006 Undergraduate Poster Session

All undergraduate students who were presenting posters as first authors were contacted and invited to present their posters at a special APS Undergraduate Poster Session held on Sunday afternoon. This time slot was selected because many of the undergraduates are not able to stay for the entire EB meeting and often have to leave Sunday evening to return to classes. Of the 114 undergraduates invited to present at this special session, 97 (85%) responded positively. Almost 125 students put their posters up at the session held in the Convention Center. Each student was given one of the new APS pins for student researchers. Approximately 200 APS members came to see the posters and talk with the students. For the first time, physiology departments were invited to pay a fee for table space to promote their graduate programs to the undergraduate students at the session. Three departments took advantage of this opportunity, paying \$250 each. Many departments requested to participate next year.

## Collaboration with HAPS

The Committee members and APS Education staff continue their collaborative efforts with the Human Anatomy and Physiology Society (HAPS), an association of physiology educators, primarily from community and four-year colleges. The APS exhibits and conducts workshops at the HAPS annual meeting, as well as sponsoring a keynote research update speaker. At the May 2006 HAPS meeting in Austin, TX, Robert Carroll, of East Carolina University School of Medicine, gave an Update Seminar, "The Hot and Cold of Temperature Regulation."

HAPS also is a partner in the APS Archive of Teaching Resources, cataloguing past issues of their journal, *HAPS Educator*, for free access in the digital library.

## APS Summer Research Program for Teachers

The program, now in its 16th year, has funding from two NIH institutes (NCR and NIDDK), in addition to the support provided by the APS. The core program funding is provided by the NCR Science Education Partnership Awards (SEPA) program. NIDDK funding provides support for additional fellowships for minority teachers or teachers of minority students. APS funding provides partial stipend support and travel to Experimental Biology for the NCR-supported teachers. This diversity of funding sources both serves as an indicator of the success of the program and contributes to its longevity. In 2006, the program is supporting 20 teachers from 13 states in an intensive, yearlong professional development program.

Member support for this program continues to be strong, with many members volunteering to host teachers in their laboratories, providing the needed lab materials and supplies for each teacher's research and, frequently, providing part of

the stipend and travel costs for the teacher.

Horizon Research, Inc. continues to serve as the external evaluator for the Summer Research program. The program has been extensively evaluated over its long history. It consistently has strong positive effects on the teaching methods used by teachers (that is, selecting more student-centered methods that build research and investigative skills) and the networks built between and among teachers and researchers, and teacher perceptions of the value of biomedical research and how animals are used in research.

## Local Site Team Development

A significant focus of the Frontiers in Physiology program is the development and support of active Local Site Teams (LSTs). LSTs combine the expertise and enthusiasm of physiologists and science teachers to provide effective training workshops for middle and high school science educators in their region. In 2005-2006, new LSTs at Louisville, KY and Birmingham, AL were established and received training and planning support from the Education Office.

## EB Workshop for Teachers and Students

Education Committee member Peter Farrell of East Carolina University coordinated the 2006 APS Workshop for High School Teachers and Students. More than 160 San Francisco-area teachers and their students attended the workshop along with APS members, 2005 Frontiers and Explorations Research Teachers (RTs), graduate students and other awardees. The keynote talk, "What Price a Martian? Human Limits to Exploring the Red Planet," was given by APS member and former astronaut Jim Pawelczyk of Penn State University. His talk was followed by a Careers Panel that included APS members Ken Baldwin of Univ. of California, Irvine, Rudy Ortiz of Univ. of California, Merced, Jim Pawelczyk of Penn State, and Todd Trappe of Ball State University. Twenty APS members served as tour guides during lunch where they took teachers and students through the exhibits and posters and shared a box lunch while discussing physiology careers.

The afternoon student session was led by Barb Goodman of Univ. of North Dakota with assistance from Peter Farrell, Jeff Osborn of Univ. of Kentucky, Robin Looft-Wilson of College of William & Mary, Rayna Gonzales of Univ. of California, Irvine. Students used the "Elvis Experiments" from the APS "Physiology of Fitness" unit to learn about factors affecting flow of liquids through tubing (radius, length, viscosity). While students were conducting their experiments, their teachers (as well as the 2005 Research Teachers) participated in workshop activities on proprioception and the respiratory system. As in the past, feedback from both teachers and students was very positive and students were especially excited to meet physiologists one-on-one. The committee is planning to continue the program in 2007 in Washington.

## My Health, My World:

Baylor College of Medicine and APS received funding from NIAID and NCR to develop and field test two middle school units that focus on the microbiology and the science of alcohol. Each unit is designed to increase understanding by middle school students, their teachers and their families of infectious diseases, the effects of alcohol on human physiology, biomedical research, healthy lifestyle choices, risk factors for disease and the relevance of science to everyday life; stimulate middle

school students' interest and awareness of science and health careers; and promote the teaching and learning of science and health concepts through guided inquiry. The APS will recruit middle school teachers from our past Research Teachers to participate in a field test of the materials, coordinate online training of these teachers, and summarize the field test results for our group.

## International Science and Engineering Fair (ISEF)

### Awards

The 57th Annual International Science and Engineering Fair (ISEF) was held in Indianapolis, IN May 8-12, 2006. Nearly 1,500 students from 47 countries, regions and territories competed in the world's largest pre-college science competition awards. For the 11th year, the APS presented four awards in the form of cash prizes, certificates, and student subscriptions for the best projects in the physiological sciences. Receiving \$1,000 and first place was Jonathan Blake Sellon, 18, of Staples High School, Westport, CT for his project titled "Modeling Auditory Attention by Implementing IHC Movement into Frequency Selectivity of the Inner Ear: A Novel Approach to Stimuli Separation." Winning an APS award for the second year, Sarah S. Mousa, 18, of Columbia High School, in East Greenbush, NY presented her updated research on "Cellular and Molecular Mechanisms of Nicotine's Pro-angiogenesis Activity: Potential Impact on Different Disease Processes." Last year, Ms. Mousa presented her research using a chick egg angiogenesis model and cultured epithelial cells to examine growth-promoting effects of nicotine. After receiving a patent for her work from last year, Ms. Mousa extended her research to examine the mechanism of the angiogenic effect of nicotine including using antagonists to determine the signaling pathway of nicotine in cultured endothelial and epithelial cells.

One of the two third place awards was given to Sabrina Lakshmi Prabakaran, 15, from Canterbury School in Fort Myers, FL. Her project was entitled, "Treatment of Age-related Macular Degeneration, Year Two: Effect of Intraocular Steroid on Choroidal Neovasculature and Vitreal Vascular Endothelial Growth Factor Level." The second third place project was presented to Sheel Tyle, 14, of Pittsford Mendon High School in Pittsford, NY. His project was titled, "The Impact of Muller Cell Reactivity during Retinal Degeneration" and also addressed macular degeneration. His project demonstrated a unique interaction between Muller cells and photoreceptor cells.

## Physiology Understanding Week

The primary 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. For 2006, the Council approved a moderate expansion of the pilot program with particular emphasis on building and testing the web tools needed to accommodate a significant (and cost effective) expansion of the program. In addition, possible external funding options will be explored. In 2007, the Committee anticipates a major launch of the program, with an open invitation to all APS members to participate in the program.

Each November, APS members will be encouraged to visit their local school(s), explain what physiology is and what a physiologist does, and lead students in interactive learning activities. This outreach technique is modeled after other scientific societies' highly successful outreach efforts (Society for

Neuroscience's Brain Awareness Week and American Chemical Society's Chemistry Week). In 2006-2007, the APS Education Office will identify potential sources of external funds to help support the program.

## Use of Animals in Medical Education

Members of the Education and Animal Care and Experimentation Committees developed a policy statement and rationale that describes how the use of laboratories, specifically including animal laboratories, provides a unique and effective educational experience for physiology education at all levels. These materials proved useful as a basis for responding to a Physicians Committee for Responsible Medicine (PCRM) challenge of animal use in education in Milwaukee in March, and in responding to a PCRM letter to the Animal and Plant Health Inspection Service (APHIS) in May.

Council accepted the report of the Education Committee. Council authorized the necessary funding for summer research fellowships for high school and middle school science teachers.

## Finance Committee



Peter D. Wagner, Chair

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

### 2005 Budget

The Society employs a consolidated operating budget to manage overall operations. The consolidated budget is comprised of the individual budgets for the various cost centers; these include Publications, Membership and Meetings, Education, Public Affairs, Communications, Marketing, and the Executive, Information Technology, and Business Offices. For 2005, the year ended with income of \$17.5 million (including \$1.2 million allocated from the Society's reserves\*) and direct expenses of \$14.5 million, plus general and administrative (G&A) costs of \$2.0 million, for total expenses of \$16.5 million. G&A costs (the sum of Executive, Information Technology, and Business Office expenses) are allocated to other Society offices based on each office's share of total salary expenses. The Committee reported to Council that the Society ended the 2005 year with a net surplus of \$995,000 (that is, \$17.5 income - \$16.5 expenses), which was \$611,000 over the \$384,000 budgeted surplus. Recall that this surplus reflects revenue of \$1.2 million added from reserves, such that the surplus can be interpreted as needing only \$200,000 from reserves to balance the budget. The surplus was accomplished mostly through lower than budgeted expenses associated with maintaining journal editor offices. In part this was caused by tardy submis-



sion of editor expense reports that failed to materialize by December 31, 2005, and it is possible that some of these tardy expenses that should have been paid in 2005 will now come due in 2006 and will have to be charged against the 2006 budget. The Publications office has taken steps to have editors submit their expenses in a timelier manner going forward.

The Finance Committee reported that, barring any significant changes, expenses are projected to grow slightly faster than revenue over the next three years. Using a linear extrapolation model, surpluses of \$298,000 and \$142,000 are projected for 2007 and 2008 respectively. According to the analysis, expenses will exceed revenue in 2009, when a small \$37,000 deficit is projected. However, it is expected that the Society will make adjustments to its revenue and expenses in the next three years in order to avoid the 2008 projected deficit, just as it has when similar predictions were made in recent years. In essence, these projections suggest that the budget process is properly in touch with recent history of the revenue and expense streams of the society.

The Journals Program, by a 1995 Council mandate, is structured to generate a return of 10% annually. In 2005 the return was 18% (\$2,252,000 net revenue/\$12,373,368 total expenses). The Journals Program was able to exceed a 10% return in 2005 by not exceeding its expense budget while generating more revenue than budgeted. This was mostly from page charges, color figure fees, royalties and reprints.

## 2006 Budget

The Council earlier approved a 2006 budget of \$18,265,100 in expenses. With revenue budgeted at \$18,411,423 (including the 4% investment allocation of \$1,273,323 and projected net revenue from Publications of \$1,227,500), the budget shows a surplus of \$146,323. This 2006 budget is very similar overall to that of 2005. The publications component again comprises around 80% of total income. The Journals Program is budgeted to generate a return of 9%.

Through the first four months of 2006, both revenue and expenses are slightly under budget and the result is a net deficit of approximately \$200,000. This is in essence a timing or seasonal imbalance between actual and budgeted revenue and expenses, and the Society is expected to meet budget by year end.

## Journal Subscription Pricing

The Journals Program, which generates about 80% of the Society's revenues, is asked each year to budget for a margin of 10%. In order to meet this mandate, 2007 subscription prices would have to be increased by 8.7%. The Publications Committee recommended, and the Finance Committee and Council both agreed, that 2007 subscription prices should be raised by only 8% so as to minimally discourage loss of subscriptions. And that as a result, the Society would accept less than a 10% margin in 2007 for the journals program. Limiting the increase in pricing to 8% is calculated to provide a 9% margin. Note that there will be an exception for *Physiology*, and *Physiological Genomics*, whose 2007 rates will be increased by 10% to help offset the higher costs incurred by those journals. A comparison of 2007 and 2006 domestic institutional prices is shown in the table below, reflecting the above percentage changes:

## Long Term Investments

In the early 1990s, the reserves, on which the Society depends for approximately 7% of its operating revenue, almost doubled due to favorable market conditions. However, the down market of 2000-2002 caused the Society's reserves to decrease from \$30 million at December 31, 1999, to \$26 million at December 31, 2002. Beginning with the 2003 market turnaround, the Society's reserves balance has grown from \$26 million at December 31, 2002, to \$33 million at December 31, 2005. As directed by Council, the Society uses up to 4% of the value of its investments annually as operating income. Only that amount required to offset the cash needed to support the Society's programs is withdrawn and the remainder continues in actively managed investment accounts.

At its spring meeting, the Finance Committee reviewed the performance of the Society's investment managers. The Society's long-term investments are administered by four managers under the direction of our investment consultant, Smith Barney. As of December 31, 2005, the accounts had the following market values: APS Reserves \$32,977,349, APS Endowment Fund \$3,299,634, Giles F. Filley Memorial Fund \$810,316, Rife/Guyton Fund \$622,447, Caroline tum

Journal	2007			2006		
	Print + Online	Print Only	Online Only	Print + Online	Print Only	Online Only
<i>AJP Consolidated</i>	\$3,880	\$3,710	\$3,180	\$3,595	\$3,435	\$2,945
<i>AJP-Cell Physiology</i>	730	690	590	675	640	545
<i>AJP-Endocrinology &amp; Metabolism</i>	500	480	415	465	445	385
<i>AJP -Gastrointestinal &amp; Liver Physiology</i>	550	520	450	510	480	415
<i>AJP-Lung Cellular &amp; Molecular Physiology</i>	490	470	395	455	435	365
<i>AJP-Heart &amp; Circulatory Physiology</i>	1,010	955	820	935	885	760
<i>AJP-Regulatory, Integrative &amp; Comparative Physiology</i>	690	670	570	640	620	530
<i>AJP-Renal Physiology</i>	500	480	415	465	445	385
<i>AJP-Renal Physiology</i>	1,230	1,180	1,010	1,140	1,090	935
<i>Journal of Applied Physiology</i>	460	445	380	425	410	350
<i>Physiological Reviews</i>	1,405	1,335	1,145	1,300	1,235	1,060
<i>Journal of Neurophysiology</i>	325	315	275	295	285	250
<i>Physiological Genomics</i>	275	255	220	250	230	200
<i>Physiology</i>	N/A	60	N/A	N/A	55	N/A
<i>Advances in Physiological Education</i>	N/A	110	N/A	N/A	100	N/A
<i>The Physiologist</i>						

Suden Fund \$573,350, IUPS Fund \$367,064, Perkins Memorial Fund \$337,333, Shih-Chun Wang Fund \$153,901, and the Lazaro Mandel Fund \$141,778. The return on the managed accounts was 4.56% for the year ended December 31, 2005. The market value of the managed accounts at December 31, 2005 was \$39,283,172. At May 31, 2006, the managed accounts had a negative year-to-date return of 1.06%. We urge Council to be patient with these new data as these monies are in long term investments and should not be reallocated on a frequent basis in response to short term trends. We have done exceptionally well compared to standards over the past 10 years, and have confidence in our management system that our long term strategies are sound.

## 2005 Audit

The Finance Committee received the annual audit from Grant Thornton, LLP. Grant Thornton audited the Society's financial statements in accordance with general accepted auditing standards. Grant Thornton rendered an unqualified opinion that the Society's statements presented fairly, in all material respects, the financial position of the Society at December 31, 2005 and 2004. In addition, due to the amount of Federal support received (in excess of \$100,000) an audit of the Society is required in accordance with Office of Management and Budget (OMB) Circular A-133 *Audits of States, Local Governments, and Non-Profit Organizations*. The A-133 audit includes certain tests in accordance with *Government Auditing Standards*. Grant Thornton's tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*, and the audit report noted no material internal control weaknesses. Thus, the audit revealed no accounting concerns.

## Society Revenue Diversification

While current and projected financial conditions remain strong, there is a need for the Society to diversify its sources of revenue. As mentioned above, 80% of total revenue is provided by the Publications program. As part of its strategic plan, the Society has adopted a strategy to "Explore ways to diversify APS revenue sources..." and accordingly the

Finance Committee was asked to develop a revenue diversification plan. During the spring Council meeting, the Finance Committee recommended that Council be the central body coordinating revenue generation ideas from the committees and units, and also be the prioritizing body for implementing these ideas when developed. Council agreed with the Committee's recommendation and also agreed to call for revenue generating ideas from all APS committees and units.

The finance committee has discussed ideas that Council may wish to explore further for revenue diversification. Following is a list of possibilities. None have been fleshed out, not all have been discussed with all members of the committee.

More aggressively pursue corporate support for (components of) APS meetings. Offering integrated programs with clinical material may be one attractive direction, workshops on modern techniques and postgraduate courses with fees attached are others

Use the internet to broadcast educational programs for a fee.

Develop a comprehensive equipment and reagents catalog for members sponsored by industry.

Consider hiring a development officer.

Determine with professional advice what fraction of our reserves could be used for investments that might produce a better rate of return, possibly including real estate options.

Explore whether industry has a need for physiological instructional programs we could offer for a fee.

Develop a public popular physiological science magazine to sell. This would also raise awareness of the discipline.

## Summary

Current and projected financial conditions are strong and the Society continues to enjoy a large pool of reserves. While future projections remain positive, it continues to be important for the APS to diversify its sources of revenue so as not to be so dependent on one program—publications—for its operations.

Council accepted the report of the Finance Committee.

## APS Statement of Financial Position as of December 31, 2005

### ASSETS

Cash and cash equivalents	\$	739,859
Investments		44,564,190
Accounts receivable		1,030,706
Pledges receivable		20,000
Accrued interest receivable		188,699
Advances to section editors		566,532
Prepaid expenses		201,196
Furniture, fixtures, and equipment		<u>280,125</u>
<b>Total assets</b>		<b><u>\$47,591,307</u></b>

### LIABILITIES AND NET ASSETS

Accounts payable and accrued expenses	\$	998,850
Unearned revenue		
Subscriptions		6,238,598
Dues and other		<u>665,049</u>
Total liabilities		<u>7,892,497</u>
Net Assets:		
Unrestricted		38,982,409
Temporarily restricted		703,901
Permanently restricted		<u>12,500</u>
Total net assets		<u>39,698,810</u>
<b>Total liabilities and net assets</b>	<b>\$</b>	<b><u>47,591,307</u></b>

## APS Statement of Activities for the year ended December 31, 2005

	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
<b>Operating revenue:</b>		-		
Subscriptions	\$ 9,697,932	-	\$ -	\$ 9,697,932
Author charges	3,887,541	-	-	3,887,541
Membership dues	766,283	-	-	766,283
Grants	837,786	-	-	837,786
Conferences and meetings	840,464	-	-	840,464
Contributions	78,1925	216,878	-	295,803
Advertising	184,808	-	-	184,808
Back issues	44,195	-	-	44,195
Other income	303,934	-	-	303,934
Net assets released from restrictions	<u>208,956</u>	<u>(208,956)</u>	-	-
Total Operating Revenue	<u>16,850,824</u>	<u>7,922</u>	-	<u>16,858,746</u>
<b>Operating expenses:</b>				
Publications	12,373,365	-	-	12,373,365
Society general	1,856,425	-	-	1,856,425
Society programs	2,344,805	-	-	2,344,805
Education	706,500	-	-	706,500
Marketing	<u>281,102</u>	-	-	<u>281,102</u>
Total Operating Expenses	<u>17,562,197</u>	-	-	<u>17,562,197</u>
Operating change in net assets	(711,373)	7,922	-	(703,451)
Net realized loss on investments	915,799	-	-	915,799
Net unrealized loss on investments	(340,761)	-	-	(340,761)
Interest and dividends	1,173,345	-	-	1,173,345
Investment management fees	<u>(412,593)</u>	-	-	<u>(412,593)</u>
Total Investment Income	1,335,790	-	-	1,335,790
	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
Change in net assets	624,471	7,922	-	632,339
Net assets, beginning of year	<u>38,357,992</u>	<u>695,979</u>	<u>12,500</u>	<u>39,066,471</u>
Net assets, end of year	<u>\$ 38,982,409</u>	<u>\$ 703,901</u>	<u>\$ 12,500</u>	<u>\$ 39,698,810</u>

## International Physiology



Patricia E. Molina, Chair

The International Physiology committee met during Experimental Biology to discuss strategies relevant to the proposed Strategic Plan developed by the leadership of APS during the fall on 2005. It was considered by the committee that active development of programs was required to implement some of the goals established pertaining to growth and diversification of APS. Among initiatives that are proposed is an increase in membership of the International Committee by

two active members to target representation from Latin America. In addition, representation from the leadership of both the Latin American Physiological Society and the Federation of European Physiological Societies in the committee is envisioned as a positive strategy to strengthen communication and foster International participation in APS activities. Additional initiatives that are proposed to engage and retain active international participation in APS activities are the inclusion of their participation in section-sponsored symposia. Ultimately, the goal of the committee is to implement an International Committee sponsored symposium at EB. This would create a forum in which scientific presentations from outstanding international scientists would be an integral part of the program at EB. We think this would encourage more active participation of our international members in our scientific meetings. This initiative is being proposed in parallel to establishing representation of the International Committee on the Joint Program Committee to facilitate and increase active participation of APS international members at meeting.

In addition to ensuring that scientific programming increases international APS representation in future meetings, it has become evident that we, as US-based APS, need to become ambassadors for our visiting international members. We all can reach out to make the experience of visiting international members and their integration during the EB meeting a memorable experience. The goal of our committee is to develop a mechanism that would allow pairing in a buddy system visiting international members with US scientists based on common section affiliation. This would maximize the experience and would provide the international member an opportunity of experiencing the meeting from the US perspective. While some of these initiatives need to be spearheaded by the APS leadership, some will require the active participation of the membership at large.

A successful program developed by the International Committee is that of the Latin American Initiative. This program provides funds in total of \$5,000 to help defray costs for up to four scientific symposium or workshops to enhance the growth and development of physiology in Latin American countries. This year, seven outstanding proposals were received for consideration. Of these, four were selected and recommended for funding. These include: 1) Centro de Estudios Científicos de Chile; Summer School of Molecular Physiology and Biophysics Electrophysiology & fluorescence imaging in physiology. This course was organized by Ramon Rogelio Latorre, and Felipe

Barros. 2) International symposium of neuroendocrinology: "Neuroendocrine control of body fluid homeostasis: past, present and future" This course was organized by Jose Antunes-Rodrigues, Faculty of Medicine Ribeirao Preto, Department of Physiology, Ribeirao Preto, Brazil. 3) "Molecular tools for the study of integrative physiology" organized by Willis K. Sampson, St. Louis Univ. School of Med. Pharmacological & Physiological Sciences, MO and Carmen Clapp, UNAM, Juriquilla, Mexico. 4) VII International Conference on Comparative Physiology and Biochemistry ICCPB. "Integrative Physiology meets Biodiversity", organized by Jose E. Bicudo, Instituto De Biociencias Rao Do Matao, Sao Paulo, Brazil.

Council accepted the report of the International Physiology Committee.

Council approved increasing the membership of the Committee by one member to include a member under age 45.

Council unanimously approved a request to build a listserv of international members.

## Joint Program



Curt D. Sigmund, Chair

### Experimental Biology 2006

The 2006 EB meeting was held in San Francisco, April 1-5 under the meeting-wide theme of "Advancing the Biomedical Frontier." All scientific and poster sessions were well-attended and overall enthusiasm for the meeting remains high.

The APS portion of EB 2006 featured two unopposed Techniques and Technology in Physiology Workshops on Saturday entitled "Atomic Force Microscopy for Physiological Studies at the Nano Scale" and "Advanced Technologies in Imaging: From Cell to Animal." Each tutorial had approximately 250-300 attendees. New this year was a change in the format of one of the large rooms with capacity for 1,000 attendees. One of these rooms was setup conference style with tables and chairs. Both tutorials were held in this room and a number of attendees commented enthusiastically on the change.

APS also sponsored four "Cross-Sectional" Symposia entitled "Lipid Mediated Regulation of Membrane Transport," "Development and Maintenance of Epithelial Polarity," "Spinal Interneurons: Underappreciated Players in Autonomic and Respiratory Regulation?," and "Could Hyperosmotic Stress on Cells Promote Obesity and Chronic Disease? A Multidisciplinary Look at the Effects of Hypertonicity."

As in past meetings, APS hosted six 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 Association of Latin American Physiological Societies (ALACF).

Meeting attendance was excellent. Out of a total of 6,494 volunteered abstracts submitted by the deadline of November 2, 2005, 2,474 (38%) were programmed by APS. The total meeting attendance was 13,289. This is a 27% increase over EB05/IUPS 2005 in San Diego, where seven societies met in conjunction with the IUPS Congress; and a 8% increase over EB 2003 in San Diego, the last six-society meeting held without AAI. This figure includes 10,456 registered scientists, 1,827 exhibitors (and their guests), 193 high school students and teachers, 699 undergraduates and 114 guest and press registrants. APS programmed 292 sessions in total: 176 poster sessions, 53 symposia, 42 featured topics, 17 lectures, two workshops, and one refresher course and one poster discussion.

EB 2006 marked the return to the "Physiology InFocus" program placed on hiatus because of IUPS2005. Organized by then APS President Doug Eaton, the program topic "*From Molecules to Organisms: Approaches to Systems and Integrative Physiology*" included four symposia scheduled throughout the meeting. These were entitled "*Investigating Cellular Signaling with Atomic Force Microscopy Methods*," "*Integrating Cellular Functions: The Role of the Primary Cilium in Cell Proliferation and Kidney Disease*," "*The Lipid in Lipid Rafts: Lipids as Signaling Molecules*," and "*Acute Lung Injury and Regulation of Alveolar Fluid Clearance*." As in previous years, one of the tutorials listed above was designed to complement the InFocus program.

The lectures included the traditional APS Society-sponsored named lectures Physiology in Perspective—The Walter B. Cannon Memorial Award Lecture, presented by Jo Rae Wright; The Henry Pickering Bowditch Award Lecture, presented by Ulrich H. Von Andrian; and The Walter C. Randall Lecture in Biomedical Ethics, presented by Randall S. Prather.

## Experimental Biology 2007

The JPC met at EB 2006 on Saturday, April 1 to begin organizing EB 2007 that will be held Saturday April 28 through Wednesday May 2 in Washington, DC. The meeting will use the slogan: "*Today's Research: Tomorrow's Health*." The JPC met on June 14 in Bethesda to finalize and schedule by day and time the platform sessions. The Call for Abstracts and online abstract submission site will be available by September 2006. The abstract deadline will be November 8, 2006. EB 2007 will again provide for a late breaking abstract deadline, anticipated sometime in February 2007.

The JPC received ten Cross-Sectional symposium proposals, of which four were approved: "*Linking Molecular Profile to Physiology*," "*Protein O-linked N-acetylglucosamine (O-GlcNAc): Nutrient Sensor and Modulator of Cardiovascular Function*," "*The SLC26 Transporter Family and Epithelial Function*," and "*Heart Failure and Exercise: Autonomic and Cardiovascular Responses*." Representatives of the JPC were assigned to each symposia and they were instructed to contact the organizers of the cross sectional symposia to ensure that gender equity is strongly considered in finalizing their programs.

In addition, two *Techniques and Technology* workshops will be scheduled on the first day of EB 2007: "*Ion Channels: New Techniques, High Throughput Technology, Biosensor Chips*" and "*Chronic in vivo Models: Instrumentation, Brain Cannulation, Local Tissue Microinjection, Arterial/Venous Lines, EMG*" (the titles are not final at this time). These tuto-

rials are designed to provide the latest development in methods or studying ion channels and to provide new information on procedures to study physiological processes in vivo, in particular using genetically manipulated mice.

The Physiology InFocus program, organized by APS President Dale Benos, is entitled "*Novel Technologies in Physiology and Medicine*" and will feature a series of four symposia focusing on: "*Novel Approaches to Structure-Function Relations in Membrane Transport Proteins*," "*Experimental Evolution as a Tool of Physiological Analysis*," "*Forensic Medicine*," and "*Novel Technologies and Approaches in Imaging*." The JPC felt that the program was very strong and in particular was intrigued by the *Forensic Medicine* symposia.

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

## APS Conferences

The 2005 APS Conference on "Neurohypophyseal Hormones: From Genomics and Physiology to Disease", organized by Celia Sladek, was held July 16-20 in Steamboat Springs, CO. Eighty abstracts were received and the total meeting attendance was 149, including 50 invited speakers.

The 2006 APS Intersociety Meeting entitled "Comparative Physiology 2006: Integrating Diversity," organized by David Goldstein, Chair, will be held October 8-11 in Virginia Beach, VA.

The 2006 APS Physiological Genomics Conference entitled "Physiological Genomics and Proteomics of Lung Disease," organized by Usha Raj, will be held November 2-5 in Fort Lauderdale, FL.

The 2007 APS Conference entitled "Sex Steroids in Physiology and Pathophysiology of the Cardiovascular-Renal System," organized by Jane F. Reckelhoff, will be held in October 2007 in either Austin, TX or Williamsburg, VA.

There are no conference proposals currently pending review or anticipated.

## Collaborations With International Physiological Societies

APS and The Physiological Society (TPS) cosponsored a symposium at EB 2006 entitled "*Spinal Interneurons: Underappreciated Players in Autonomic and Respiratory Regulation?*" chaired by Ida Llewellyn-Smith and Lawrence Schramm. TPS will host the next cosponsored symposium at their July 2006 Main Meeting. The symposium is entitled "*Phosphatidylinositols and Physiology: Transfer, Transport and Traffic*," chaired by Ora Weisz and James Stockand.

The *Journal of Physiology* (the journal of The Physiological Society) will sponsor a symposia at EB 2007 entitled "*Exercise Hyperemia: Are There Any Answers Yet?*" In addition, the APS will sponsor a symposia entitled "Mechanisms and Modulators of Respiratory Rhythmogenesis," organized by Jeffrey Potts and Judy Neubauer at the Life Science 2007. Life Sciences 2007 is a multi-society EB-like meeting organized in part by The Physiological Society. It will be held in Glasgow, Scotland Sunday, July 8, 2007 to Thursday, July 12, 2007. This is our contribution to the 2007 TPS program. We may also receive one late submission from the TPS for sponsorship at EB 2007 (in addition to the sponsorship by the *Journal of Physiology*).

As committee chair, I have had a number of Email exchanges with Nick Boross-Toby, my contact at the TPS to better organize the annual submission to each other's meetings. Thus far, it has been haphazard and this year we were unable to distinguish between a submission from the *Journal of Physiology* and the TPS because of a breakdown in communications. The TPS is now aware of our annual time table and I have emphasized to them the importance of adhering to the schedule. We have not received any specific time table for submission of our ideas for their meetings.

Discussions are also underway regarding an exchange program with the Australian Physiological Society (AuPS). APS has recommended a speaker exchange program where an AuPS member would present in a session at an EB meeting and also visit institutions prior to or immediately after the meeting. A reciprocal arrangement would be made for an APS member to attend an AuPS meeting and visit local institutions in Australia.

### June JPC Meeting

The JPC met on June 14, 2006 in Bethesda. During this meeting we finalized the time and room assignments for each symposia and featured topic. We also, as in past years, organized the program according to tracks and special programs so that an attendee interested in one of the tracks will not have to worry about conflicting sessions presented at the same time. Although this is always a bit of a logistic challenge, we felt the time spent in scheduling the session strategically is worth the effort.

### Planned Improvements to JPC Programming

One of the problems we have had in the past with evaluating cross sectional symposia proposals is that it has become clear that some organizers do not really understand the concept or know what is expected of the proposal. Starting with programming for EB 2008, we will assign a member of the JPC to each proposal as it arrives (or as organizers contact Linda Allen for symposia forms). This will occur far enough in advance so they can contact the organizer to suggest changes prior to review by the JPC at its April meeting. We hope this will provide early advice on gender equity and appropriate cross sectional balance and, thus, improve the quality of the proposals. The JPC member will also be responsible for presentation of the proposal to the JPC at its April meetings. Although this may make selection more difficult, it may provide a better crop of proposals that could be picked up by sections even if not selected as cross sectionals.

Council accepted the report of the Joint Program Committee.

Council authorized funding for an additional symposium entitled "Teaching about Evolution in a Biomedical Context" at EB07.

## Liaison With Industry Committee



**Chahrzad Montrose-Rafizadeh,  
Chair**

The Liaison With Industry Committee (LWIC) met at the EB 2006 meeting in San Francisco, CA. The committee is chaired by Chahrzad Montrose and is composed of representatives from most of the active Society Sections, nominated to serve by their sections. The current committee membership is composed of Alison M. Strack, Neural Control and Autonomic Regulation; Joe M. Szewczak,

Comparative and Evolutionary Physiology; Jeffrey J. Zachwieja, Environmental and Exercise Physiology; Craig F. Plato, Renal; Christine G. Schnackenburg, Water and Electrolyte Homeostasis; Michael F.A. Finley, Central Nervous System; Joshua C. Anthony, Endocrinology and Metabolism; Pamela I. Hornby, Gastrointestinal and Liver Physiology; Arrie L. Golden, Teaching of Physiology; Adrienne S. Zion, Cardiovascular; Chahrzad Montrose-Rafizadeh, Cell and Molecular Physiology; and Doug Eaton, APS Councillor.

### Symposium 2006

At EB 2006, the committee sponsored a symposium titled: "Advances in Ion Channel Physiology," chaired by William Martin, held on the afternoon of April 2, 2006. Speakers were Doug Krafte, Bernard Fermini, Fred VanGoor and Eric Nisenbaum; topics included ion channels in pain pathways in cardiac arrhythmias, therapeutic agent to rescue the mutant cystic fibrosis transmembrane conductance regulator (CFTR) function, as well as therapeutic potential of positive allosteric modulators of glutamate AMPA receptors. This is the sixth symposium, sponsored by the Committee since its reorganization and it was very well-attended.

### Physiologists in Industry Mixer

The Sixth Annual Physiologists in Industry Mixer was held April 2. The attendance was very good due to careful scheduling, as well as proactive advertisements by APS office via "all APS News" and via the Industry ListServ. The participants had great interactions and the discussions were mutually beneficial. Some of the Industry scientists who attended the mixer showed the desire to become APS members. The LWIC Committee is considering distributing handouts at the next year's mixer to include information on the APS Website, APS benefits, education and career programs, as well as APS committees' nomination forms.

### Novel Disease Model Award

This award typically recognizes one graduate student (\$500) and one postdoctoral fellow (\$800) submitting the best abstract describing a novel disease model. Nine students and nine postdoctoral fellows applied (a total of 18 abstracts were

received, an increase by eight from last year). The top two abstracts included both a student and a postdoctoral fellow and awards in both categories were given.

## Symposium 2007

Since the LWIC wishes to continue its annual tradition of sponsoring high quality workshops/symposia relevant to industry and academic scientists, the committee has proposed a symposium on "Stem Cells in Physiology and Drug Discovery" for EB 2007. The symposium is organized by Chahrazad Montrose-Rafizadeh and has commitments from four scientists.

## Translational Symposium 2007

LWIC has also taken the opportunity given by Council and has put forward a proposal for Translational Symposium for EB 2007. The symposium on "Drug Discovery Efforts for Pain Indications: Ion Channels and GPCRs" is organized by Michael Finley and has commitments from four scientists.

## LWIC Goals and Objectives:

LWIC would like to continue raising the profile and participation of Industry scientists in APS and programming

Participation of LWIC members in the sectional steering committee and programming committee.

LWIC members would like to have the opportunity to propose speakers from industry when symposium topics are a good match to research conducted in industry. Timely communication within the section's programming committee and the LWIC representative would be a key element for success

LWIC members would like to be involved in Editorial Boards of *AJP* Journals

LWIC is committed to bring further understanding of innovation in science from industry.

LWIC will continue to sponsor a symposium at EB 2008

LWIC would like to hold an annual mixer at EB 2008 to enhance interactions between scientists in industry and academia

Another major goal for LWIC is to bring better understanding of science in industry and career opportunities to students and trainees.

LWIC would work closely with Education and Career committees to incorporate relevant information on science in industry and career in industry on the mutual web sites.

Council accepted the report of the Liaison with Industry Committee.

Council approved the necessary funding for an LWIC mixer at EB 2007.

## Long Range Planning Committee



John Williams Chair

Over the last year the major activities of the Long Range Planning Committee (LRPC) were related to APS Strategic Planning. Members of the Committee were invited and participated in the Strategic Planning Retreat held in October 2005 in Houston, TX. In January 2006 John Williams began serving as Chair of the LRPC, replacing L. Gabriel Navar. Other new committee members are Jay Gargus, John Schild and David Wasserman.

Continuing members include Heather Drummond, Bruce Lindsey and Paul Welling. The committee was provided the draft Strategic Plan before meeting at the EB Meeting in San Francisco. Helen Raybould, Council Liaison to the LRPC, shared discussion by Council and their plans for implementing the Strategic Plan. Raybould presented the five planned task forces and indicated that Council would like the LRPC to form the core of a task force to review APS governance.

At its meeting, the Committee discussed a number of ideas to improve APS, both within and outside of the strategic plan. We support the previous recommendations of the committee regarding the importance of having an international component to APS and to develop a plan to encourage undergraduate programs. We felt that a pressing need is for APS to take specific steps to ensure our participation in the field of Systems Biology as it continues to develop. This is mentioned in the Strategic Plan but may be addressed only in part by the five task forces envisioned by Council. We believe that efforts need to be made to educate our membership on how systems biology can impact their research and to bring together physiologists and systems biologists. This could be done by planning to have an annual APS Conference on Systems Biology, possibly jointly sponsored with a high profile partner. There could also be an annual symposium or lecture at EB. To ensure overall coverage of this issue, however, we may need a Systems Biology Steering or Advisory Committee to include both Physiologists and non-Physiologists.

We also discussed the possibility of APS creating a database for functional data on animal models, particularly mice. This might include original data or be primarily a portal with a user friendly interface. APS should strive to be viewed as an authoritative source for information on how to conduct and validate functional measurements in animals. This effort could end up as an electronic handbook or just be viewed as information accessible from our website. It was suggested that we could ask our editors to help select authors to write position pieces on techniques. This could also relate to the need to teach systems physiology techniques.

The committee also discussed how the expansion of APS chapters might help the society better deal with K-12 education, animal rights, and other "grass roots" issues. Chapter meetings also can be a vehicle to promote undergraduate

involvement. APS has encouraged chapters but could do more to assist through financial support and identification of best practices. Our perception is that chapters once established are seen as valuable but there is an energy barrier to overcome in setting them up.

Council accepted the report of the Long Range Planning Committee.

## Membership Committee



**Lisa M. Harrison-Bernard,**  
Chair

In Attendance: Lisa M. Harrison-Bernard (Chair), Jeff M. Sands (Council Liaison), Robert B. Robey, Kirk L. Hamilton, John B. Buckwalter, Sue Sabur, Linda Allen.

### New Student Dues Structure

The Chair reviewed the current student dues structure: Students members now pay \$10 for the first year and \$20 for each additional year up to five years. Their first year of regular membership is free if they transition from student

membership.

### Membership Statistics

The Chair reviewed the membership statistics. Total number of members is currently 10,216. There were 325 new Regular members and 161 new Student members, however, there were 441 dropped Regular members and 358 dropped Student members. Thirty percent of the dropped Regular members were members for less than five years. Seventy-six percent of new Student members are age 20-30, while 75% of dropped Student members are age 30-39. Interesting, only 1% of dropped Student members are age 25-29. The membership committee will closely monitor the student membership. Eighteen percent of all members and 22% of Regular members are not affiliated with a section. The fact that the majority of members dropped are not affiliated with sections was addressed. Thirty-three percent of dropped Regular members and 73% of dropped Student members had no sectional affiliation. It was noted that new members are now required to select a primary section affiliation. Therefore, there is no component of the new regular and student members that are not affiliated with a section. The dues renewal forms ask members to select section affiliation, but it is not mandatory. The membership committee hopes that affiliation and active participation with a section will aid in retention of members. Questions arose regarding the ability to police renewals without affiliation. Linda Allen stated that it is possible; however, policing would require additional staff time currently not allocated or budgeted.

### Tracking Postdoctoral Members

The committee discussed a need to track our postdoctoral members. Do they pay dues after the first year of free membership dues? An IT task force may need to be created to handle this issue. The committee suggested that new trainees be automatically channeled through the Trainee Advisory Committee.

### Strategic Plan

The Chair queried if we are addressing the needs of the diversity of the membership. This was a major point of discussion at the strategic planning meeting. A list of issues that are most related to the charge of the Membership Committee was pulled from the approved strategic planning document. One important question was how to make the web or future technologies more interactive to meet the goals of membership.

Discussion arose regarding APS's global impact, how to partner with other national societies not only western countries but eastern (Asian) countries. Exhibiting at international meetings and having members attending international meetings bring membership materials for distribution were discussed.

### Member Retention

The committee will continue to monitor the trends in dropped members by sectional affiliation. It is anticipated that the numbers of student and regular members in the non-sectional affiliated group will decrease now that selection of sectional affiliation is mandatory for new regular and student members. Hopefully engaging the sections will help with member retention. Sue Sabur stated that she is identifying new sources for marketing membership to potential members.

APS staff has placed APS logo stickers around the EB meeting and many members are wearing them on the badge. This is an outcome of a request from the Membership Committee last year. Members have been quite enthusiastic about wearing their APS logo stickers.

### Meeting with APS Section Chairs

The Chair was invited to present at the Friday, March 31 APS Section Advisory Committee (SAC) meeting. The Chair provided statistical information on section affiliation of current, dropped and new members. The SAC was very interested in the dropped regular members by section and their role in welcoming and retaining members to their sections.

### Section Listservs and APS Global Emails

The Chair would like new members to be added into the listserv of the primary affiliation automatically. Linda Allen explained that this is under discussion also with the Section Advisory Committee. There are some technical issues and past bad experiences when APS has automatically added names to listservs. Discussion arose regarding the use of listservs and Martin Frank's APS Update emails. Are they read? Are they serving their intended purpose? It was agreed that at the very least members need to be educated about how to join listservs and what the benefits are of being on listservs. Sue Sabur suggested mailing a postcard with the information. It was suggested that Martin Frank's APS Update emails include a link directly to the section listservs. It was suggested that the URL for joining the listserv be printed on the APS member calendar.



## Testimonials

Each member of the Membership Committee is charged with providing a testimonial—either their own or a colleague's—that states how being a member of APS is important. Committee members should email their testimonials with picture, if possible, to Linda Allen: [lallen@the-aps.org](mailto:lallen@the-aps.org).

## Emeritus Membership

It was noted that the retirement requirement for emeritus is not policed, but is an honor system. The guidelines state the following: Emeritus membership is open to individuals who have reached the age of 65 and are retired from regular employment or have retired due to illness or disability. Members in this category receive all privileges and benefits of membership, except they may not vote or hold elected office. Emeritus members pay no membership fees.

## Membership Dues Block Grants

Jeff Sands stated that the American Society of Nephrology solicits block grants from pharmaceutical companies to cover membership dues for students and postdoctoral fellows. Discussion arose regarding the probability of APS being able to secure similar funds.

## Publications and Membership Benefits

It was suggested that APS increase the manuscript submission fee for non APS members and keep the APS member submission fee the current amount (\$50). Membership ID number would be required at the time of manuscript submission. This would increase member benefits and membership plus increase revenue for the Publications Department. It was noted that 50% of the submission to APS journals are from outside of the US.

Council accepted the report of the Membership Committee.

## Perkins Committee



**Norma C. Adragna, Chair**

The John F. Perkins Jr. Memorial Fund was established in 1967 to provide supplementary aid to families of foreign scientists working in US laboratories. The fund aims at keeping the family together during the scientist's visit and to introduce spouse and children to the country and culture of the United States. Families may request up to \$5,000 per year/application. Next to scientific merit, award criteria include financial need, the duration of the scientific visit (preference

given to visits over three months), and the opportunity for children to attend school, kindergarten, or other institutions.

Three fellowship awards were made in Fall 2005: 1) Fatima Kuniyoshi (Sao Paulo, Brazil), hosted in the laboratory of Virend Somers (Mayo Clinic, Rochester, MN), 2) Takeshi Hashimoto (Kyoto, Japan), hosted in the laboratory of George

Brooks (University of California at Berkeley) and 3) Harinath Kasiganesan (Delhi, India), hosted in the laboratory of Gary Wright (Medical University of South Carolina, Charleston, SC). Two fellowship awards were made in Spring 2006: 1) Mona Mostafa Mohamed (Cairo, Egypt), hosted in the laboratory of Bonnie F. Sloane (Wayne State University, Detroit, MI) and 2) Mark Wareing (Manchester, UK), hosted in the laboratory of Lorna Grindlay Moore (University of Colorado at Denver and Health Sciences Center).

APS members are encouraged to make donations to the John F. Perkins Jr Memorial Award. Donations can be targeted to Perkins Memorial Fund on the annual APS membership renewal form. Your donation will open doors to the scientific and cultural horizons of the United States.

Council accepted the report of the Perkins Memorial Fund Committee.

Council approved a request to send program announcements to the Job Advertisement Center and email at least one announcement to APS members prior to the fall and spring application deadline.

## Porter Physiology Development



**Gregory L. Florant, Chair**

were received from eight of the nine 2005-2006 Porter Fellows.

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. Progress reports

## New and Renewal Applications

This was the first year that only one deadline was in effect for the Porter Fellowships. The number of new applications received for Porter Fellowships continues to increase. A total of 14 new, one deferred, and five renewal applications were received for the January 15 deadline. The Committee voted earlier to increase the stipend paid to the Porter Fellows beginning with the 2006-2007 year to \$20,772, consistent with the NIH scale. This meant the Porter Fund would allow for a total of eight awards for the 2006-2007 Fellowship period.

## Review of Porter Fellowship Applications:

Again this year the Committee used a set of specific criteria to assist in the review of applications. These were put into use last year for the first time for the 2005-2006 Porter Fellowships. The Porter Development Committee decided to renew all five of the renewal applications, as well as the one deferred application from last year, which allowed for only two applications to be

funded out of the 13 new applications (one applicant withdrew her application because of acceptance into medical school).

## Minority Travel Fellows Program

In December 2005, the Committee served as the review panel for the APS Minority Travel Fellowship Awards. Fifty-two travel fellows were funded to attend EB 2006 in San Francisco, CA. One additional travel fellowship received funding to attend the summer 2004 APS conference. Applications for the two fall APS conferences are currently being accepted. Again this year, the Committee was pleased that former Porter Fellows and past Travel Fellows volunteered to be mentors for the younger Travel Fellows. Committee members noted the increase in minority physiologists as a direct result of the APS programs.

## Porter Reception

For the past few years, the Committee has held a reception for Travel Fellows, their meeting mentors, and past and current Porter and Travel Fellows. This was initiated with the goal of building stronger connections between minority students and the larger community of APS scientists, especially other minority scientists. The Porter reception again this year was extremely successful with an increase in attendance; more than 100 physiologists, overall, attended the event. A number of Council members, including the APS President, Doug Eaton, were on hand to meet the students and welcome them to the meeting. Importantly, the reception continued for more than two hours as participants interacted and networked with one another. In addition there was an increase in the number of former Porter Fellows who attended, including those in more senior positions.

## APS Awards for Undergraduates at the Annual Biomedical Research Conference for Minority Students (ABRCMS)

This meeting attracts more than 1,900 minority undergraduate (87%) and graduate students (13%) across the country and provides an opportunity to recruit students into the physiological sciences and the APS. The APS, along with more than 280 graduate institutions and professional associations, exhibited at the 2005 meeting in Atlanta, GA, promoting graduate study in physiology and the APS programs for minority students. The Committee requested and received \$2,000 for eight \$250 cash awards for the most outstanding undergraduate presentations in physiology research. Twenty judges, including APS members, Mike Brands, Medical College of Georgia, Margaret Colden-Stanfield, Morehouse School of Medicine and Barbara Horwitz, University of California-Davis, selected the winners for their presentations:

ABRCMS has requested continued APS support of \$2,000 for eight cash awards of \$250. The awards provide an excellent opportunity to encourage and support both minority undergraduate student research in physiology and their transition to graduate work in the field. This will be the fifth year of APS support for this very important event.

Council accepted the report of the Porter Physiology Development Committee.

Council approved the necessary funding for a Past Porter Fellows reception at EB 2007.

Council authorized the necessary funding for the Committee to have an additional meeting in spring 2007 for Strategic Planning for the Committee.

## Public Affairs Committee



Michael Portman, Chair

The Public Affairs (PA) committee has undergone a number of changes in the past year. With Bill Talman's term as chair ending at the end of 2005, I assumed the chair at the beginning of 2006. The committee continues to hold monthly conference calls, which have lately focused on implementation of the strategic plan. Bill Talman continues to serve as the APS representative to the FASEB Science Policy Committee. In addition to Bill's Talman's representation, I have also begun

participating in the Clinical Research Issues Subcommittee, with activities including preparing a powerpoint presentation to educate others about issues in clinical research, and encouraging the NIH to collect data on K awards.

## Public Affairs and Animal Care and Experimentation Committee Chairs visit Capitol Hill

Last August, Bill Talman and Kevin Kregel traveled to Washington, D.C. to meet with members of Congress. As Iowa constituents, they met with Rep. Jim Leach, and staff for Senators Grassley and Harkin to discuss federal funding for research and possible animal research legislation.

## Collaboration with the Cardiovascular Section's NIH Liaison Subcommittee

PA committee member David Gutterman recommended that the committee initiate collaboration with the NIH liaison subcommittee of the cardiovascular section. Since then, Bill Talman and APS Science Policy Analyst Rebecca Osthus have been participating in the NIH liaison subcommittee's conference calls, and Virginia Miller (head of the subcommittee) has participated in this committee's meetings and calls. Collaboration between the two committees allows for coordination of activities and being able to avoid duplication of effort, as both committees deal with issues related to peer review at the NIH.

## Comments submitted on behalf of the Society 2005-2006

Comments were submitted to the NIH on the agency's proposed policy to allow multiple principle investigators on grants. PA committee members Clark Blatteis and Bridget Brosnihan worked together with APS public affairs staff to draft and submit comments. Comments were also submitted to the NIH on proposed changes to tuition policies for NRSA fellows. Commenting on NIH policies that are relevant to APS members is in keeping with the objectives of the strategic plan and will continue to be an area of focus for the committee.

In addition to the comments on specific policies at NIH, APS also submitted testimony on the proposed FY 2007 biomedical research budgets for the NIH, NSF, VA and NASA. Testimony was drafted by public affairs staff, and then edited and approved by the PA committee.

## Coalition activities 2005-2006

Earlier this year, the APS joined a new coalition of scientific societies to support a research and polling initiative that will investigate the public's views on the teaching of evolution in public schools. The goal of this coalition is to better understand how societies can be advocates for the teaching of evolution, which serves as a foundation for understanding biological principles. The coalition includes a diverse group of organizations such as FASEB (and several of its constituent societies), the American Chemical Society, the National Academies of Science, and the American Physical Society. Preliminary polling results should be available by this July.

## Experimental Biology 2007 – Opportunities in Washington, D.C.

In addition to the Capitol Hill Day activities outlined above, the PA committee is planning a symposium entitled, “*Human Subject Research Ethics: Issues for going from bench to bedside.*” The symposium will be chaired by Virginia Miller and I, and we are collaborating with the APS Liaison with Industry Committee to identify appropriate speakers. Planning is also underway for a joint public affairs symposium involving all the societies participating in EB 2007. The symposium will feature NIH director Dr. Elias Zerhouni and former Congressman John Porter. The discussion will focus on the FY 2008 NIH budget and how scientists can become advocates for research.

Council accepted the report of the Public Affairs Committee.

Council approved a request to sponsor a Capitol Hill Day at Experimental Biology 2007.

## Publications Committee



Kim E. Barrett, Chair

The APS Strategic Plan for 2006-2010 was developed during a retreat in October 2005 and approved by Council in early 2006. This Report to Council will report on Publication's activities in 2005 and then will concentrate on the Directions and Strategies from the new Strategic Plan that have already begun to direct the department's activities.

### 2005 Activities APS Journals the Best in Their Field

**Impact Factors.** The Journal Impact Factors made a strong showing again in 2005. A dialogue with Thomson Scientific is continuing, in an effort to get them to promote and develop other measures of impact besides the two-year Impact Factor. In fact, in 2005 the online version of the Journal Citation Report was redesigned to give much more information about a journal's citations for those who are willing to work with the data.

**Manuscripts Received.** Submissions were up 5% across all journals in 2005. Submissions of Reports were down 12% and submissions of Translational Physiology papers were up 165%.

## Publication Efficiency

**Time to first decision.** Use of APSCentral has allowed Editors to decrease their time to first decision, which averaged 30 days in 2005 across all the monthly original research journals. Implementation of APSCentral has also helped the Editors of *PRV* and *Advances* manage the review process of these journals more efficiently.

**Production module.** A web-based tracking system (Rapid Production Module, or RPM) was implemented in May 2005. This system allows all articles to move through the production process—internally and with Cadmus, our printer—completely online.

## Financial Stability and Increased Accessibility

**Subscription Sales.** Journal prices for 2006 were once again set using a cost-based model. As in 2004, subscription sales were at pre-online percent decreases, an improvement over past years. Units were down only 2.8% (compared to 6% in 2003), and revenue increased 1%, allowing us to set 2006 price increases at a low 3%.

**Consortia.** APS continues to respond to requests from consortia of libraries or institutions, giving them a 5-15% graduated discount for 6-31+ online subscriptions, if we are not losing subscription dollars by doing so. Sales were made to 25 consortia in 2005, instead of 38 in 2004.

**Asian sales agent.** APS contracted late in 2004 with an Asian sales agent, iGroup, to sell institutional subscriptions in Asia, which is a less established and more complicated market. Activity seemed to be picking up toward the end of 2005. Martin Frank participated in a conference organized by the iGroup in November 2005, and Margaret Reich attended their sales conference for the first time in February 2006.

**Legacy Content.** The Legacy Content is sold as a product with a one-time price of \$2,000. Unit sales were 49 in 2005, with overall unit sales at 363.

**Open Access.** Efforts continued in 2005 by the Executive, Public Affairs, and Publications staff to respond to the open access movement. As a response to the NIH policy requesting that authors submit their accepted manuscripts to the NIH database for archiving and public dissemination, the Committee decided to add language to the Manuscript Submission Form, along with an explanatory memo to authors, granting authors permission to voluntarily submit their accepted manuscript to the NIH's PubMedCentral (PMC), with public release 12 months after final publication in the Journal. The rationale behind this decision was to help authors meet the perceived requirement of the NIH while preserving APS's free-access policy (all content of APS journals is free on the journal web site 12 months after publication). In the fall of 2005, the Committee was shown a list of articles posted on the PMC site in violation of APS's amended copyright or the NIH's own policy. The Committee was provided template letters that are sent to authors and to the NIH if 1) the article was published before the May 2, 2005, which is the beginning of the policy; 2) the article was released before 12 months after publication; 3) the article is a review article, and, therefore, not under the NIH policy. These letters are sent to the authors and the NIH when a violation is found. After insisting that the authors had to request removal from the system, the NIH agreed in November 2005 to remove the articles upon request of the publisher, or copyright holder.

Other activities in 2005 regarding open access included meeting with newspaper Editorial Boards, resulting in a number of Op Ed pieces; creation of a patient access link on each journal home page, making it easier for patients to request a copy of an article; and meeting with congressional representatives and their staff, especially in regard to copyright issues and the Linking Proposal, which would bring the reader to the official journal website, rather than to a copy of the article on the PubMedCentral web site, thereby saving the NIH the trouble of creating their own public database. This proposal had been presented to the NIH by the DC Principles and other publishers but was rejected by the NIH.

### Reducing Member Costs

APS Council reinstated the free color benefit for student members, starting in 2006.

### Electronic Handbook of Physiology

A Request for Proposal was sent to eight book publishers in 2004 in an effort to find a publisher interested in publishing our books—especially the Handbooks—online as well as in print. As a result, the APS has terminated its contract for publishing books with Oxford University Press (OUP), and has purchased all the stock and electronic rights of published books from OUP. APS will continue to sell the books via advertising on APS's web site and in its catalogue. APS has also published a Call for Nominations for Chair of the Book Committee, with a deadline of September 15, 2006.

### Innovative Use of Electronic Publications

**Supplemental Material.** A total of 202 data supplements were published in 2005; 36 of them were video clips. Approximately 43% of the supplemental large data sets were published in *Physiological Genomics*. All supplemental data is free—in other words, a reader can view supplemental data without a subscription to the journal, even if they cannot view the entire article.

**Toll-free links instead of free reprints:** The Publications Committee decided to offer authors of all review articles (including those in *Physiology*) and editorials a choice of a toll-free link or 50 free reprints.

**Post other kinds of articles as AiPS:** The Committee decided to give the authors of all articles, including Review and Editorial papers, the choice to be published as AiPS. This is effective January 2006 for all journals except *PRV*, *Physiology*, and *Advances*.

**Post P-CP article responses online:** Comments on *JAP*'s Point-Counter Point series will be posted online as e-letters to the journal. E-letters are submitted directly to the HW site, are approved by an Editor, and then immediately go online. This will save pages and production time.

**Classic Articles Collection.** As an outgrowth of the Legacy Content project, the Classic Articles Collection was rolled out on the APS web site in August 2004. Each commissioned essay is linked to its classic article, which is made free online in the Legacy Content. In 2005, more essays were added to the collection, and we will continue to accept appropriate suggestions.

### Translational Research

**Call for Papers.** A Call for Papers on Translational Physiology has run since the June 2001 issues of all the APS research journals. The papers are being published as they are accepted under a special heading in the journal of submission. Across all the journals, 143 papers were submitted and 87 papers were published under the Translational Research heading in 2005. At the Fall 2005 Publications Committee meeting, the Committee decided to disband the Call, but keep Translational Physiology as an article type.

**Physiology in Medicine.** An agreement was made in 2001 to publish the "Physiology in Medicine" (PIM) series in *Annals of Internal Medicine*, with Ausiello as the Editor of the series, and Benos serving as Deputy Editor. In 2005, Benos became Editor of the series. Four PIM articles were published in *Annals* in 2005.

### 2006-2010 Strategic Plan

While the broadness of the Publications program makes it relevant to the entire Strategic Plan, Directions 1 and 5 and their Strategies and Outcomes relate most directly to Publications.

Direction 1. APS will be the leader in advancing the life sciences that investigate biological function.

**Strategy 1.** Build on the strength of APS journals and leverage them to have the greatest impact in the scientific community. Make APS journals the first choice journals by increasing the selectivity of content. Broaden the scope of APS journals by increasing the proportion of interdisciplinary articles. Engage the editorial boards to be advocates for the journals. Promote the idea that APS journals are the best journals for members, striving to increase the journals' impact factors and citations for our authors.

The Publications Committee believes that the impact of the journals could be enhanced by even a modest increase in selectivity. With the support of Journal editors, plans are already underway to make changes to the review forms of all APS journals to influence reviewers to be more selective when reviewing submissions.

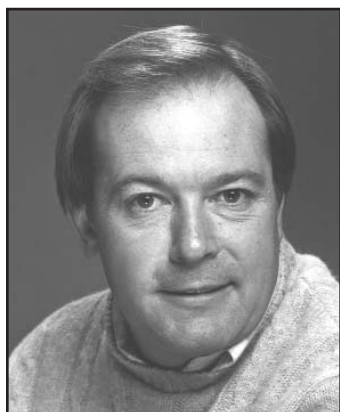
Direction 5. APS will be a mission-directed, adaptable, and fiscally sound organization.

**Strategy 1.** Explore ways to diversify APS revenue sources, including adapting the publications model to respond to changes in the publishing and research environments.

APS Publications staff has developed a plan to move to a total author-pays (as opposed to a subscription plus author-fee income) model if subscription income diminishes due to activities of open access advocates. We have been experimenting since 2003 with open-access/author-pays models on a voluntary basis with our journal *Physiological Genomics*. APS also has sent a response to the Wellcome Trust, which is mandating open access six months after publication for their funded articles. APS will require that Wellcome cover an open access fee for the authors that they support, which they have stated publicly that they are willing to fund. APS is also negotiating with the NIH to allow us to post NIH-funded articles to PubMed Central so that authors will not have to.

Council accepted the report of the Publications Committee.

## Sectional Advisory Committee



Ken Baldwin, Chair

### December 2005 Meeting:

The first SAC meeting took place in early December 2005 as a dinner meeting prior to the annual meeting to select the candidate slate for the council- and president –elect offices. Traditionally, the primary function of the December meeting is to select time-slots for the sectional distinguished lecturers to be held at the subsequent Experimental Biology Meeting, e.g., in San Francisco. Also, residual items for the upcoming EB

meeting and updates from the Strategic Retreat were covered.

One of the shortcomings of the annual December meeting is that, most of the time, there are considerable Section Chairs not in attendance since many of these individuals are nominated as candidates for the APS Council. As such, most of the “pinch hitters” are not well informed of what is actually going on within their respective sectional activities.

### Outcomes of the December Meeting

The council should evaluate the utility of having such a meeting at that time of year in the current format as little headway is accomplished beyond selection of the distinguished lectureship time-frames at the EB meeting.

### April SAC Meeting

The SAC meeting was held prior to the 2006 EB/Council meeting and it was very interactive and productive with a full agenda being covered. Only one SAC member (Respiratory) was not in attendance. The following items comprised the agenda: 1) discussion of relevant issue with the Chairs of other APS committees (Communications, Public Affairs, Animal Care and Experimentation, and Membership); 2) Section Reports; 3) Sectional Awards (processes and mechanisms to recognize honor-award winners); 4) APS Strategic Plan: Implementation Strategies Impacting the SAC; 5) New and Dropped Member Communications; and 6) Other Business.

### Outcomes of the April Meeting

SAC Chairs gained considerable insight from the interaction with Chairs of other APS Committees. It was agreed that such interactions should be held routinely, because the deliberations will bolster Sectional activities on several fronts, especially in membership retention and recruitment of new members, and in the utilization of the public affairs office as a valuable resource.

The SAC unanimously passed a proposal to have the final Sectional Reports received by May 15 each year. This time-frame will enable each section to include a variety of actions that occur during their steering committee deliberations, which normally take place after the SAC meeting is held at the EB meeting. This action was presented to and accepted by the Council at the Spring Meeting held at EB.

The SAC strongly endorsed the APS strategic plan imple-

mentation process and its use of task forces to address key issues in The Plan. The SAC expressed enthusiasm for playing a role in The Plan implementation process, especially in the categories of Direction 1, Strategy 2 and in Direction 2, Strategy 1&2. Specifically the members were interested in focusing on enhancing regional chapters and alternative venues for APS sponsored meetings. Further, the SAC was enthusiastic in supporting enhancement of the international membership base and becoming more aggressive in the recruitment and retention of membership within the sections, especially at the level of student membership.

The SAC agreed in principle to: a) participate in the “Living Scholars Program” by having each section provide a list of candidates suitable for the program as presently conceived for implementation (It seems appropriate for the Council to provide a set of guidelines for implementing the program if it is to become viable); and b) support the concept of a grass-roots section(s)-driven type of regional meeting format, which will be submitted for review by the Task Force to be assembled on chapters and regional meetings, which will be a key task-force for implementing the Strategic Plan.

### Synopsis of Relevant Items/Issues Redacted From the Sectional Reports

All sections submitted final reports with the exception of the Respiration Section.

With the exception of the GI& Liver, NCAR, and Teaching Sections all the other sections reported financial stability in meeting its primary goals of operation.

All sections reported a robust student award program operating at the pre-doctoral, postdoctoral and beginning investigator level.

All sections have active social interactions at the EB meeting ranging from formal banquets to business meeting reception socials. These venues are generally used to recognize the award winners. The CV section raised \$20,000.00 to fund its banquet.

CV Section has utilized novel approach of seeking active discussions with SRAs of NIH study sections impacting its membership. This is an item that more sections should be looking into given the nature of the funding situation at NIH.

Some sections are utilizing the Sectional Distinguished Lectures for generating Review Articles for its primary APS Journal. This is an un-tapped area for keeping the various disciplines up to date and better utilizing the various journal entities.

Many sections report strong participation of its memberships now serving on APS committees. CVS reports 60 members being involved.

Most sections report active interaction with one or more other sections in forming programmatic interactions.

It appears that all sections are publishing two newsletters a year in communicating with its membership. Some are more informative than others.

All sections report active participation of its Trainee and Industry appointments on the steering committees.

All sections are making concerted efforts to energize their steering committees by either appointing more members or seeking involvement of younger, recognized awardees for involvement.

Most sections acknowledged satisfaction with the quality of recent meeting in terms of program content and the quality of the subject matter, including the number and quality of the abstract award applications.

Most sections expressed an interest in enhancing the visibility of new investigators and graduate students within the EB program format. This is an area that needs to be better flushed out.

In general, the sections are very much satisfied with resources and assistance being provided by the APS.

## Areas Needing Fine Tuning

Tweaking of the Web Server for Sectional use to communicate with their constituency and for submitting award applications on-line.

The Hand Book For Sections and the SOPs need to be updated and this should be an action item delivered to the sections to get them in synch with the new strategic plan and its implementation.

Council accepted the report of the Section Advisory Committee.

## Senior Physiologists Committee



Donald J. Marsh, Chair

The primary responsibility of the Senior Physiologists Committee is to contact members who reach their 70th, 80th, 90th, or 100th birthdays during the year. The letter of greeting includes an invitation to inform the membership of the APS about the whereabouts and activities of the senior physiologist. The invitation is usually open ended, and is meant to encourage the senior physiologist to include historical and philosophical commentary. In 2005 a total of 176 individuals

reached these milestones and were contacted by members of the Committee; 32 response letters were printed in *The Physiologist*. The response rate was greater in 2005 than in earlier years, an observation for which no plausible causality can be inferred.

Anecdotal evidence, insufficient for peer review in the Society's journals, attests to the popularity of the publication of these responses. The members of the Committee were asked a few years ago to survey the nonsenior membership at their institutions about the popularity of the feature. Graduate students, fellows, and younger faculty reported that they read the letters regularly, and more senior faculty also report their delight at the many interesting stories the letters contain.

The Senior Physiologists Committee also reviews applications for the Senior Physiologists Award, a \$500 grant named for G. Edgar Folk, Jr., which is designed to support the activities of a senior member. One application was received and an award was made in response.

Council accepted the report of the Senior Physiologists Committee.

## Trainee Advisory Committee



Angela Jean Grippo, Chair

This report provides summaries of Trainee Advisory Committee activities for the past year.

### National Postdoctoral Association

Several members of the TAC have memberships and are active in the National Postdoctoral Association (NPA). In addition, APS continues to be a Sponsoring Society member of the NPA. In March 2006, the NPA asked APS for comments on a proposed document entitled "Recommended Postdoctoral Practices and Policies for Professional and Disciplinary Societies." A draft response was written and sent to members of the TAC for comment. Based on those comments, APS was able to send a response along with a letter from President Doug Eaton on short notice.

### TAC Trainee Survey

In 2004, the TAC conducted a Trainee Survey to determine what each segment of APS trainees (graduate students, postdoctoral fellows, new investigators) saw as important issues that the Society could begin to address. The results of that survey have been directing many of the Committee's activities these past two years. They have been shared with the APS Council, provided valuable input at the Strategic Planning Meeting, and have been shared with the Education, Careers in Physiology, Women in Physiology, and Porter Physiology Development Committees, as well as with the APS Membership and Marketing Departments. The TAC feels it is important to re-survey trainees every three to four years to ensure Committee efforts are on target for trainees at the various stages of their careers. The report on the first survey results will be published this year in *The Physiologist*.

### Trainee Advisory Committee Symposium, Experimental Biology 2006

The first Trainee Symposium was co-organized by Rudy Ortiz and Ryan Bavis and held at EB 2006. TAC member Sean Stocker was one of the speakers at the session entitled "Transition from Postdoc to Jr. Faculty: Surviving the Initial Years." The session was very well attended and the presentations received very high ratings from the participants, as indicated by the feedback results below.

The 2007 Trainee Symposium will be titled "Multiple Career Paths for a Physiologist: Understand Your Options and How to Get There." It is being organized by Erica Wehrwein, Jennifer Pluznick, and Sean Stocker. The TAC will coordinate with the Women in Physiology and Career Opportunities in Physiology Committees, as both of those Committees would like to plan complimentary sessions in coming years.

### Trainee Email Newsletter

The TAC sends out a trainee email newsletter to keep all interested trainees advised of relevant APS and other news, notice of award opportunities, postdoctoral position openings,

articles of special interest to trainees, etc. Milton Hamblin and Sean Stocker work with APS staff to develop the content, ensure the newsletter comes out on a monthly basis, and provide content relevant to the Committee charge. Originally the newsletter was issued every two months, but the subcommittee decided that the general-style newsletter was too long to be effective. They proposed using topic newsletters to make them easier to read and prepare. The Committee agreed, and the new topical newsletters were launched in 2006. For the past two years, Hamblin and Stocker also have developed a special e-newsletter issue containing a list of all relevant career sessions for trainees at the EB meeting. Each Committee member distributed the special list via their section listservs as well as the trainee listserv. The list was very well received as indicated by comments and emails from trainees as well as regular APS members.

## Trainee Web Page

The Committee developed a trainee web site that includes links to relevant materials on the APS web site, as well as elsewhere. The site was finalized this fall and went live in January 2006. The TAC asked for and was granted a main navigation button link from the APS Home Page to the trainee page (<http://www.the-aps.org/trainees>); this means the link is available from any page on the APS website. The TAC plans to revise and update the website as needed to keep Trainees informed about Society programs and trainee-relevant issues.

## Web-based Professional Skills Courses

With support from the NIGMS Minority Opportunities in Research (MORE) division the APS is developing live, web, and CD-ROM short courses that focus on critical professional skills areas. Each course will include a strong focus on the interaction of racial/ethnic background and culture with the development of these skills. Students who complete the course(s) will: improve their performance in specific professional skills areas; increase their understanding of how these skills can impact career opportunities and advancement in biomedicine; increase their understanding of how diversity issues, especially cultural influences and background experiences, can interact with the development of professional skills targeted by the course; and increase their knowledge of resources and materials that can further assist in their development of these key professional skills.

Although direct oversight of the project resides with the Education Committee, the Trainee Advisory, Career Opportunities in Physiology, Porter Physiology Development, and Women in Physiology Committees are actively involved in the project, particularly through the project's Advisory Board.

## New Member Packets

The TAC is concerned about the lack of publicity on the many trainee programs APS has for its trainee members. Toward that end, APS staff is developing a trainee brochure outlining APS programs and initiatives for trainees that can be used at the APS booth and as a mailing to new or prospective members. In addition, the Committee recommended that information about APS trainee programs and resources be sent to all new trainee members (especially the TAC and Career Opportunities in Physiology web sites and trainee listserv) and be made available to all prospective trainee members.

## Award for Best First-Author Publication by a Graduate Student in APS Journals

At its fall meeting this year, the TAC plans to begin work on

a proposal for an award to recognize the best first-authored paper in an APS journal by a graduate student.

## Sections and Trainees

The TAC wants to encourage all the APS sections to develop or expand their trainee activities. At the fall meeting, the Committee will develop a plan to allow sections a means for sharing information on new or existing programs, activities, and awards. Items could be included such as the Cardiovascular Section's Trainee Day, the Renal Section's best APS paper award, and the Neural Control and Autonomic Regulation Section's trainee session at EB. The TAC plans to initiate this discourse by adding relevant information to the TAC website.

## Trainee Representation on Committees, Sections, Chapters

APS has made trainees a valuable part of its organization with the establishment of the TAC and its support of this Committee's efforts to help trainees through programs and resources. The TAC would like to see trainees included in more levels of Society governance to continue that precedent. APS Sections already include their TAC representative on the Section Steering Committees, and the Cardiovascular Section has even initiated its own Cardiovascular Trainee Committee. The TAC would like to see more of the committees add a trainee member to its membership. Many of the committees have already made efforts to add a trainee and the TAC looks forward to seeing other committees doing so as well, if appropriate.

Council accepted the report of the Trainee Advisory Committee.  
Council authorized the necessary funding to provide support for the Trainee Symposium at Experimental Biology Meetings, 2008-2011.

## Women in Physiology



**Sirbhinya Benyajati, Chair**

The activities of the Women in Physiology Committee are coordinated and closely intertwined with the activities of the APS Education Office. This report provides summaries of Women in Physiology Committee activities.

## Bodil Schmidt-Nielsen Distinguished Mentor and Scientist Award

Eleven nominations for the third Bodil Schmidt-Nielsen Distinguished Mentor and Scientist award were received by APS office and reviewed by the Women in Physiology Committee. L. Gabriel Navar of Tulane University School of Medicine was selected as the 2006 awardee. The awardee receives an honorarium of \$1,000, a plaque, and reimbursement of expenses to attend the EB 2006 meeting. The awardee gave a 30-minute lecture on mentoring entitled "From Mentee to Mentor: Lessons Learned Along the Way," and an article

based on the lecture will be published in *The Physiologist*. The lecture was followed by a buffet luncheon to which were invited Dr. Bodil Schmidt-Nielsen, the former Schmidt-Nielsen Awardees: Drs. R. Clinton Webb and Christin Carter-Su, Dr. Navar's nominators and mentees, awardees of the various APS award programs (tum Suden, Minority Travel, Porter Fellows, etc.), APS Council members, other trainees, and guests specified by the awardee.

## Trainee Symposium

The Women in Physiology Committee was pleased to see the initiation of a Trainee Symposium at Experimental Biology 2006. The Committee consulted with the Trainee Advisory Committee concerning the Trainee Survey results and the professional development topics that are of most interest to trainees. The two Committees discussed developing complementary EB symposium topics to avoid overlap. This discussion will continue in future years to best meet the needs of APS trainees.

## Other activities

For the other tactics proposed by the Women in Physiology Committee, the Committee will be developing proposals in future years to bring to the Council for consideration.

## Collaborative Career Mentoring Workshops

The Committee will investigate the possibility of joint workshops with the Women's Committee (or relevant similar committee) of other IUPS-member societies at IUPS meetings. The Committee saw a great potential for collaborative sessions that are of interest to women scientists world-wide based on professional skills issues.

## Program Models and Resources

Many of the programs and resources developed by the Women in Physiology Committee are of great interest to other organizations and societies as model programs or resources. As appropriate, the Committee has allowed other groups to use APS programs as templates to develop similar programs and APS resources to assist women scientists in developing countries. As future opportunities occur, the Committee will look at each request individually for appropriateness.

## Caroline tum Suden/Frances Hellebrandt Professional Opportunity Awards

The Women in Physiology Committee received 134 applications for the 2006 Caroline tum Suden/Frances Hellebrandt Professional Opportunity Awards. The number of applications has been steadily increasing over the past few years (101 in 2003, 113 in 2004, 115 in 2005, 134 in 2006—an 18% increase from previous year with more graduate student applicants). These awards provide monetary (\$500) prizes and complimentary registration for graduate students and postdoctoral fellows of either gender who give presentations at the EB 2006 meeting. The applications include an abstract submitted for presentation at EB and a supporting letter from the applicant indicating the goals of his/her research project, his/her specific role in the project described in the abstract, and the reasons why he/she is deserving of the award. This is one of a few trainee awards that allow international applicants.

Each Committee member critically reviewed and rated 36-37 applications. From that pool of candidates, 36 were selected to be recipients of the tum Suden Award. Three alternates were also determined. In accordance with new procedures on selec-

tion of awardees, the selection process was coordinated with other APS awards and the tum Suden Awards were selected before other awards, including section awards, to reduce the chances of a student winning multiple awards in the same year. The Awardees were invited to attend the APS Business Meeting where they each received a certificate and a check for \$500.

## Career Mentoring Program

An APS Mentoring Program directed toward young physiologists-in-training and to junior faculty has been in existence since 1993. Over the years the Committee and staff have tried many different formats and program components in an attempt to increase the utilization of the mentoring program by trainees. During the past year the Committee effort has been put into refining the mentoring website to make it even more useful and interactive, since it has already been cited for excellence by a national publication and receives a considerable number of hits each month. The APS Career Mentoring Website is a valuable resource for both women and men trainees who are looking for information and assistance in developing and maintaining a good mentoring relationship with more senior and junior scientists.

## Mentoring Discussion Board

A new feature for the APS Career Mentoring website that will be introduced this year is a Mentoring Discussion Board. The "Mentoring Advice & Discussion Forum" page will provide timely and practical career information to young physiologists. This page will feature a new topic every other month. A member of the Women in Physiology or an invited guest will write a short essay on a topic relevant to the career development of a young scientist. That issue will then be the focus of the interactive discussion for two months. Mentees will be able to anonymously ask topic-specific questions of Committee members and other mentors and of other mentees. A list of potential topics has been developed, including how to find a mentor, what different careers are like, career training, preparing a job talk, sharing childcare in a marriage with two professionals, starting a laboratory, teaching that first course, career transitions, and other similar topics.

## Proposed Participation in the MentorNet Program

The Committee received a proposal through FASEB from MentorNet.org. 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 those in engineering, science, and mathematics. It especially, but not exclusively, focuses on women and other underrepresented groups. Founded in 1997, MentorNet provides highly motivated protégés (students, postdocs and untenured faculty) from many of the world's top colleges and universities with positive, one-on-one, email-based mentoring relationships with mentors from industry and academia. MentorNet pairs protégés and mentors from all 50 US states and 55 countries on six continents. The MentorNet Network also offers an E-Forum (web-based discussion group), resources on mentoring and careers, and a resume database. MentorNet has recently begun promoting its services to professional societies. Currently, there are nine professional societies participating in the MentorNet Network and APS will be the first FASEB society to do so.

MentorNet's director approached FASEB-member societies with the opportunity for member trainees (graduate students



and postdoctoral fellows) to participate in its mentoring program. The MentorNet program would contact APS trainees directly with program information. Trainees wanting to participate would be matched with APS and other mentors registered with MentorNet. They would then have access to dynamic, online mentoring components and personalized follow-up to ensure the match was successful. APS currently has about 1,200-1,500 trainee members. The Women in Physiology Committee sees this program as a much more effective mentoring tool than the former APS Career Mentoring Program. The benefits of MentorNet are the larger number of students and mentors involved, creating a more dynamic and informative online environment, and the increased monitoring and resources available. The Committee supports APS involvement in this service.

### **Mentoring Resources for International Members**

The Women in Physiology Committee will focus over the next year on identifying mentoring resources that are specifically targeted to issues of interest to international members. Links to these resources will be added to the Career Mentoring website.

### **EB Mentoring Workshop**

One of the roles of the APS Women in Physiology Committee is to coordinate activities with other such committees within FASEB. For EB 2006, the Women in Physiology Committee co-sponsored a workshop with the ASPET Committee on Women in Pharmacology on "Mastering the Juggling Act: Laboratory, Life, and Leadership Roles." This year APS was the primary lead on the workshop. Two representatives from the Women in Physiology Committee and a representative for the Committee on Women in Pharmacology served as co-organizers. The workshop was designed to inform young physiologists of how to deal with many of the issues they will face balancing research, teaching, service activities, job and family, and dual careers. The session was very well attended. Approximately 220 young (85%) and senior scientists attended the session, with many remaining for discussions during a breakout session of six groups. Each group was well represented by members of the APS Women in Physiology Committee and ASPET Committee on Women in Pharmacology. Each workshop attendee received a handout of resource material for the topics discussed by the speakers. This session was the first time that an audio recording was simultaneously made with the PowerPoint presentations and both will be made available as a resource on the APS website. The presentations received very high ratings from the participants, as indicated by the evaluation results.

APS Women in Physiology and ASPET Women in Pharmacology Committees will once again partner to organize a mentoring workshop for EB 2007 in Washington, DC. ASPET will serve as the lead organization on this session. The focus of the workshop will be "Being Heard: The Microinequities That Tilt the Playing Field," with specific topics that include being heard as students and postdocs, being heard as junior faculty, and being recognized as senior faculty. The target audience is young scientists of both genders interested in learning skills for their future/current careers. The workshop also offers a venue for networking between junior and senior scientists. This session fulfills one of the aims of the APS Strategic Plan to support trainees and early career physiologists in career development and transitions to help them become successful and competitive.

### **Web-based Professional Skills Courses**

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

Although direct oversight of the project resides with the Education Committee, the Careers in Physiology, Porter Physiology Development, Trainee Advisory, and Women in Physiology Committees are actively involved in the project, particularly through the project's Advisory Board.

The Chair of the Women in Physiology Committee serves on the Advisory Board and has been instrumental in helping to plan the topics for the courses. Her role is key in that the Women in Physiology Committee Mentoring Workshop topics provided the basis for the original grant proposal. Both the first and second topics are taken directly from two of the APS-ASPET workshops, in addition to many of the resources used for the courses.

### **Women Serving on Committees/Sections**

The Women in Physiology Committee actively encourages women to be active members of the APS by serving on APS Committees and being in leadership positions. The Women in Physiology Committee annually reviews the number of women serving on APS Committees and Section Steering Committees. The Committee was pleased to see that there are 74 women serving in 203 committee slots (36%). This is the same percentage as last year. In addition, eight of the 22 (36%) Committee chairs and four of the 12 members (33%) of the elected Council are women (including the third female President-elect). There are 40 women serving in 122 (33%) steering committee member slots. The Committee will continue to monitor these numbers and encourage the Committee on Committees, the sections, and general membership to continue to include women in governance roles.

### **FASEB Excellence in Science Award**

The Women in Physiology Committee Chair serves as the APS representative to the FASEB selection committee for the prestigious FASEB Excellence in Science Award, which carries a \$10,000 cash prize (supported by Eli Lilly and Company) and the opportunity to present a plenary talk at a FASEB-sponsored meeting. Competition is very rigorous for this award. Most nominees have extensive dossiers documenting their numerous contributions to research, education, service, and mentoring. The FASEB selection committee received a total of 101 nominations for the 2007 award, of which 82 complete nominations were reviewed. The Chair of the Women in Physiology Committee is precluded from coordinating a nomination because of the conflict of interest that this represents. However, members of the Committee assisted three APS members in enhancing their nomination packets for the 2007 competition. The Committee plans to nominate a qualified APS member for the 2008 award and will continue to work with APS members to enhance their application packets.

### **Women and APS Awards**

The Committee again noted that the number of women among the top Society awardees (Cannon, Bowditch, and Distinguished Lectureships) has not been high. There have only been five female Bowditch awardees (1957, 1993, 1995,

## Postdoctoral Positions

### Postdoctoral Fellow Research Position:

An NIH-funded position is immediately available to study the regulation of voltage gated K<sup>+</sup> channels in vascular smooth muscle. A variety of experimental approaches are employed in these studies including patch clamp electrophysiology of K<sup>v</sup> channels in native smooth muscle myocytes and heterologously expressed in mammalian cells; analysis of gene and protein expression; analysis of promoter function; and immunolocalization of K<sup>v</sup> proteins. Salary is competitive and based upon experience. Applicants must have a MS degree or higher and experience in patch clamp methods. Interested applicants should send a cover letter, curriculum vitae, and names of three references to: Robert H. Cox, PhD, Ion Channel Laboratory, Lankeanu Institute for Medical Research, 100 E. Lancaster Avenue, Wynnewood, PA 19096; Email: [coxr@mlhs.org](mailto:coxr@mlhs.org); Home Page: <http://www.limr.org>.

**Postdoctoral Position:** We are seeking a postdoctoral Fellow to assist with NIH-funded studies investigating cardio-pulmonary interactions during exercise in an animal model of heart failure. The position will be available in Fall 2006. The candidate must have a PhD, MD, or equivalent terminal degree and an appropriate background in physiology. Candidates need not be American citizens but fluency in both spoken and written English is mandatory. Please send inquiries (Email is preferable) to: Dr. Jerry Dempsey ([jdempsey@wisc.edu](mailto:jdempsey@wisc.edu)), The John Rankin Laboratory of Pulmonary Medicine, University of Wisconsin-Madison, Room 4245 MSC, 1300 University Avenue, Madison, WI 53706. [AA/EOE] We promote excellence through diversity and encourage all qualified individuals to apply. NOTE: Unless confidentiality is requested in writing, information regarding the names of applicants must be released upon request. Finalists cannot be guaranteed confidentiality.

**Postdoctoral Position:** A postdoctoral position is available in the laboratory of Greg Cartee, PhD at the University of Michigan to study the

effect of exercise and/or calorie restriction on insulin signaling and action (including regulation of glucose transport) in rodent skeletal muscle. The candidate must have a PhD or equivalent with a high level of motivation and technical skill in biochemistry, molecular biology and/or animal physiology. Proficiency in western blotting, immunoprecipitation, genotyping mice, working with radioisotopes, and rodent tissue dissection are preferred. Fluency in written and spoken English and the ability to work as part of research team are essential. Please email applications (including CV, summary of research experience and career goals, and names and email addresses for 3 references) to: Dr. Greg Cartee, [gcartee@umich.edu](mailto:gcartee@umich.edu), Muscle Biology Laboratory, Division of Kinesiology, University of Michigan, 401 Washtenaw Avenue, Ann Arbor, MI 48109-2214.

**Postdoctoral Positions:** Two Postdoctoral Positions are immediately available on the Division of Nephrology Training Grant "Kidney Disease and Inflammation" (NIH T32) at the University of Virginia and two positions are available next year: August 1, 2007. Research mentors are from the Departments and Centers including: Medicine, Pediatrics, Pharmacology, Biochemistry and Molecular Genetics, Biomedical Engineering, Molecular Physiology and Biophysics, the Cardiovascular Research Center, Center for Cell Signaling, Carter Immunology Center and Specialized Center for SLE. This program represents an interdisciplinary research program that includes basic translational research and patient oriented clinical research. The program provides training and didactic instruction in fundamental and state of the art disciplines, including molecular, cellular, transgenic technologies, immunology, functional genomics and novel imaging technologies. Trainees with MD or equivalent degrees and PhD's who are US citizens or permanent US residents are invited to apply. Please submit CV, summary of research experience and names and contact information for three references to: Elisabeth Laws, MPA, Grants and Contracts Manager, Division of Nephrology and Nephrology Clinical Research Center, University of Virginia Health Systems, PO Box

800133 Charlottesville, VA 22908; Tel.: 434-924-0023; Fax: 434-924-1979; Email: [rel6e@virginia.edu](mailto:rel6e@virginia.edu).

### Postdoctoral Research Fellowship:

A postdoctoral fellowship is available in a Department of Veterans Affairs-funded research project on Purinergic-Prostanoid Interactions in Acquired Nephrogenic Diabetes Insipidus (NDI) in the laboratory of Bellamkonda K. Kishore, MD, PhD, FASN at the University of Utah Health Sciences and VA Medical Centers, Salt Lake City, UT. The research work involves induction of acquired NDI in rats and transgenic mice, and performing molecular, cell signaling and functional analysis on renal tissue and/or isolated medullary collecting ducts. Prospective candidates having MD and/or PhD must possess basic knowledge in renal physiology and/or pathophysiology. Experience in rodent handling, surgical procedures, isolation, detection and quantification of mRNA and protein using techniques such as Western blotting, RT-PCR, EIA and ELISA is minimum required qualification. Aptitude to learn real-time RT-PCR, immunohistochemistry and in situ hybridization is an asset, and training will be imparted in these approaches. Practical training in microdissection of renal tubules and in vitro microperfusion will be provided to enthusiastic candidates. Collaborations with experts in collecting duct gene regulation, cell-specific gene knockout technology and confocal and electron microscopy are available as part of this project work. Thus, this position offers an excellent opportunity to pursue a career in renal physiology and/or pathophysiology. For MD candidates, opportunity exists to pursue PhD program in Renal Physiology. We are looking for a highly motivated early to mid-level postdoctoral fellow who is seriously committed for a career in renal physiology and/or pathophysiology. The position is available October 1, 2006. Candidates should email their CV, a statement of career goals, and names and addresses (including email IDs) of three references (please do not solicit letters) to [BK.Kishore@hsc.utah.edu](mailto:BK.Kishore@hsc.utah.edu), from whom further information can be sought. [AA/EOE]

## Research Positions

**Skeletal Muscle Biologist:** Imagine a career that touches the lives of people everywhere. Imagine an opportunity to reach beyond your area of expertise to make an impact on something greater than the bottom line. Imagine playing a key role in some of the most critical issues facing healthcare today. This is your career at Pfizer—a career unlike any other. Our Groton, CT, facility currently has an opportunity for: a highly motivated Scientist to engage in research aimed at developing, validating and applying in vivo models and in vitro techniques to identify novel drug targets. We will look to you to evaluate agents for treatment and prevention of the muscle wasting and weakness of aging and disease. To qualify, you must have a BS or MS or equivalent degree in Physiology, Pharmacology, Animal Science or related fields of biological sciences; and three to five years of post-BS or two to three years of post-MS degree hands-on experience with in vivo (animal) procedures, including muscle electro-physiology, sterile surgical techniques, animal handling, dosing and tissue dissection and analysis. You must be a creative, team-spirited and independent self-starter with strong communication and interpersonal skills. Pharmaceutical research experience in a drug discovery laboratory and experience in research on in vivo muscle performance in health and disease preferred. Experience with in vitro assays, cell culture, histology, histomorphometry and/or molecular biology techniques desirable. We offer competitive compensation, full benefits and talented professional colleagues...some of the best and brightest in the industry. To find out more about this position and submit your resume, visit our website at <http://www.pfizer.com/careers> and search by Req # 055691. [EOE/AA]

**Scientist I- In Vivo Pharmacology: Myogen**, located in Westminster, CO, is engaged in the discovery, development and commercialization of small molecule therapeutics for the treatment of cardiovascular disorders. We currently have a great opportunity for an experienced professional to serve as a bench scientist and to plan, execute, participate, and interpret research of an in vivo pharmacology group dedicated to running bio-

chemical/mechanistic screening models; proof-of-concept models for target validation; and efficacy models to evaluate discovery lead compounds. The successful applicant will contribute to and author top quality, peer-reviewed manuscripts. Specifically, he/she will perform cardiac centric and renal centric rodent survival surgery and other germane procedures; conduct independent investigations and performance measurements of hemodynamic and cardiac function in small animals; handle and dose rodents; and assist with viral animal transfection and data management & reduction. Requires a PhD in a biological, physiological or pharmacological discipline; at least two years of postdoctoral or equivalent experience in academic research or industry; three+ years of rodent surgical expertise and recent in vivo cardiovascular pharmacology experience; thorough knowledge of in vivo imaging modalities, histological techniques, and the evaluation of tissue for molecular and/or biochemical endpoints; expertise with data management and reduction; a demonstrated track record of scientific productivity based on publication record, patents and funded grants; a solid understanding of cardiovascular physiology, pathophysiology, and pharmacology; familiarity with chronic rodent models of cardiovascular disease, as well as compound solubilization; and working knowledge of multiple techniques for dosing rodents and transfecting animals with viruses. Myogen provides a competitive compensation & benefits package. [EOE] Reference Job Code: **PATH0714-SCI** and apply online at: <http://www.myogen.com>.

**Research Associate:** Department of Pharmacology of University of Virginia is seeking applications for a Research Associate to investigate mechanisms of synaptic plasticity and synaptic integration ([http://www.healthsystem.virginia.edu/internet/pharmacology/faculty/pharmfaculty.cfm?uva\\_id=jjz4n&hideintro=1](http://www.healthsystem.virginia.edu/internet/pharmacology/faculty/pharmfaculty.cfm?uva_id=jjz4n&hideintro=1)). Prior training in molecular biology, in vivo or in vitro electrophysiology is desired; also, relevant publications in peer reviewed journals. Applicants with recent MD or PhD will be considered; salary will depend on qualifications. Please contact Dr. Julius Zhu, Email: [jjzhu@virginia.edu](mailto:jjzhu@virginia.edu).

**Electrophysiologist:** Phylonix is a Contract Research Organization using zebrafish as a model organism for drug

screening. The Company is offering a new screening service for the biopharmaceutical industry to perform ECG in adult zebrafish using conventional methods adapted for analyzing this small model organism. **Qualifications:** Candidate should have a PhD and strong expertise in electrophysiology. Experience with microscopy, small animal handling, pharmacology and drug dosing are preferred. We expect to expand this service to include neuron assessments. In addition to strong internal research support, this service is supported by an outstanding group of collaborators at Mass General/Harvard. Good communication skills are required for interacting with internal staff as well as customers and academic collaborators. **Company Description:** Phylonix is a Contract Research Organization providing in vivo zebrafish assays for drug screening. The company has developed general and organ specific toxicity tests, as well as other bioassays such as apoptosis and angiogenesis. In addition, the company conducts custom designed studies, such as gene function analyses using gene knockdown approaches. We are located close to public transportation in Inman Square/Central Square in Cambridge. The Company is currently well funded by NIH and customer contracts. Join our team and be part of pioneering research. **Compensation and Benefits:** Salary commensurate with experience. Blue Cross Blue Shield Health Plan, 401K. Please email cover letter with salary requirements and resume to [pat@phylonix.com](mailto:pat@phylonix.com). No phone calls please. No agencies. [EOE]

## Teaching Positions

**Integrative Physiology Education Specialist:** Applications are invited for the position of Integrative Physiology Education Specialist for the Science Education Initiative in the Department of Integrative Physiology at the University of Colorado. This program focuses on the enhancement of teaching and learning in our undergraduate courses. Candidates must hold a doctoral degree in Integrative Physiology or a related field, and have excellent organizational and interpersonal communication skills. The Integrative Physiology Education Specialist will serve as the departmental liaison with the Center for

Science Education, directed by Professor Carl Wieman. Specific responsibilities include working in coordination with Integrative Physiology faculty to: develop an integrated plan of course evaluation and innovation; identify specific learning goals that represent faculty-consensus and develop valid assessments of student learning for undergraduate courses; participate in and supervise the development of techniques, materials and practices for improving student learning in the undergraduate courses; and publish assessment tools and findings in integrative physiology education journals. The salary for this one-year, renewable appointment will be competitive and commensurate with experience. Applicants should submit a vita and a statement of teaching philosophy, and have three letters of recommendation sent to: Professor Dale Mood, Department of Integrative Physiology, University of Colorado, 354 UCB, Boulder, CO 80309-0354. Review of applications will begin on July 15, 2006 and continue until the position is filled. Women and minorities are encouraged to apply.

**Assistant/Associate Professor:** The Department of Pharmaceutical Sciences at North Dakota State University invites applications for a tenure-track faculty position at the rank of Assistant/Associate Professor, with appointment beginning on or after January 1, 2007. Candidates must hold a doctoral degree in pharmacology, physiology, or closely related field, have at least two years of postdoctoral experience with a strong record of scholarship, and possess good interpersonal skills and effective written and oral communication skills. Preference will be given to applicants with training and research expertise in areas that complement existing departmental strengths in cancer, cardiovascular, and neuropharmacology. The successful candidate will be expected to establish an externally funded research program, teach and mentor graduate students, and participate in team-taught pharmacology courses offered to pharmacy students. A highly competitive salary and a start-up package commensurate with qualifications and experience are available. The Department participates in a NIH-funded (\$8.2 million) Center of Biomedical Research Excellence. Additional infor-

mation about the Department and University can be obtained at <http://www.ndsu.edu/pharmsci/>. Application deadline is September 30, 2006, or thereafter until the position is filled. Submit curriculum vitae, statement of teaching philosophy, description of research interests and future plans, and three letters of reference to: Stephen O'Rourke, PhD, email: [Stephen.Orourke@ndsu.edu](mailto:Stephen.Orourke@ndsu.edu), College of Pharmacy, North Dakota State University, Fargo, ND 58105.

**Assistant Professor or higher:** The UCLA Department of Physiological Science invites applications for two tenure-track faculty positions at the level of Assistant Professor or higher. We seek applicants from any area of physiology, although we have particular interest in systems biology and understanding emergent properties of physiological systems (see <http://www.physci.ucla.edu>). The successful candidates will be expected to participate in undergradu-

ate and graduate teaching and to establish a vigorous, externally funded research programs. Please submit applications online, before **October 1, 2006**, to <http://www.lssa.ucla.edu/jobs/jobinfo.php?id=44>. [EOE/AA]

**Assistant Professor:** The Division of Kinesiology at the University of Michigan invites applications for a tenure-track faculty position at the Assistant Professor level. Individuals with training and experience in basic, clinical or translational exercise physiology or a related discipline are encouraged to apply. Priority will be given to applicants studying innovative research questions in either humans or animal models. Applicants must hold a PhD or equivalent with postdoctoral training. A record of research publications in high quality journals and potential to attract external funding are required. Teaching experience is desirable. Responsibilities of the position include developing a strong research program with interdisci-

## MICHIGAN STATE UNIVERSITY

### Cardiovascular Scientist in Inflammation

Inflammation and the role of the immune system in cardiovascular function and disease has been identified as an area of need for the biological/medical sciences at Michigan State University. The Biomedical Departments of Michigan State University have jointly opened a search for immediate applications for a **tenure-track assistant professor position in the cardiovascular sciences**. This is one of four positions to be filled in cross-disciplinary aspects of inflammation and immunology. For the cardiovascular position, specific areas of interest include but **are not limited to:** inflammatory cell recruitment to the cardiovascular system, role of cytokines in cardiovascular function, role of the immune system in metabolic syndromes, relationship of oxidative state to immunological status, and cerebral vascular inflammation and stroke. A doctoral degree (PhD, DO, DVM or MD), and experience in a postdoctoral position are required.

The successful applicant will have the opportunity to join a biomedical department best-suited to their research, potential for collaboration, and ability to lead cardiovascular inflammation

research on the MSU campus. MSU cardiovascular research encompasses significant strength in different scientific areas and diseases that include hypertension, stroke, and obesity. Information on cardiovascular research at MSU, as well as current faculty and collaborations can be found at <http://cardiovascular.msu.edu>.

The applicant should submit a letter of application, curriculum vitae, statement of research goals, up to five relevant reprints and full contact information (address, e-mail and phone) for three personal references to: **Stephanie W. Watts, Ph.D., Cardiovascular Inflammation Committee Chairperson, Department of Pharmacology & Toxicology, B445 Life Sciences Building, Michigan State University, East Lansing, MI 48824-1317. Fax: (517) 353-8915; Tel: (517) 353-3724; E-mail: [wattss@msu.edu](mailto:wattss@msu.edu).**

All application materials should be submitted electronically to [wattss@msu.edu](mailto:wattss@msu.edu).

Applications should be received by **October 30, 2006**.

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plinary collaborations, teaching courses in exercise physiology, and mentoring graduate students. The Division of Kinesiology at the University of Michigan is one of 19 degree-granting academic units on the Ann Arbor campus. Detailed information on the Division of Kinesiology, including its faculty, laboratories and instructional programs, is available at the following website: <http://www.kines.umich.edu/>. Review of applications will begin 15 October 2006 and will continue until the position is filled. Minorities and women are especially encouraged to apply. To apply, send electronic copies (e.g. pdf files) of your letter of application, curriculum vitae, two-page research statement, and names and contact information (mailing address, phone number, and email address) for three references to: Marsha Lewis, Division of Kinesiology, The University of Michigan; Email: [mhlewis@umich.edu](mailto:mhlewis@umich.edu). For more information, please contact Greg Cartee, Ph.D. ([gcartee@umich.edu](mailto:gcartee@umich.edu)). Division of Kinesiology: <http://www.kines.umich.edu>; University of Michigan: <http://www.umich.edu>; Benefits Information: <http://www.umich.edu/~benefits/>. [EOE/AA]

**Assistant Professor:** The Department of Biology at Denison University invites applications for a tenure-track position with emphasis in Physiology to begin August 2007. Research system and specialization within physiology are open. A strong potential for excellence in teaching and a productive research program involving undergraduates as evidenced by recent peer reviewed publications and meeting presentations are essential. A PhD and demonstrated teaching experience are required; post-doctoral experience is an asset. Teaching responsibilities include junior/senior level courses in animal physiology and human physiology (taught in alternate years), majors introductory courses (BIOL 201 and 150), as well as occasional non-majors offerings. Denison offers competitive start-up funds, summer support for student and faculty research, and the new Talbot Hall of Biological Science. See our website: <http://www.denison.edu/biology> for more detailed descriptions of the evaluation criteria for the biology program, and the position. Please note that Talbot Hall does not provide facilities for the housing of mammals or birds. Candidates should send a cover letter addressing their interest in liberal arts

who will help our university adapt to the increasing diversity of the American population. Review of applications will begin October 6, 2006. [AA/EOE]

**Tenure-Track Position:** The Department of Biology at Houghton College invites applications for a tenure-track position to begin with the fall semester 2007. A PhD is required, ABD considered. Rank open, commensurate with experience. Candidate must be eligible for membership in the American Physiological Society. Principal teaching responsibility is in Comparative Animal Physiology with additional teaching in Fundamentals of Human Biology (for non-majors) and upper-division coursework in the area of specialization. Ability to teach microbiology a plus. The Department is committed to offering students collaborative research opportunities with faculty; the successful candidate is expected to establish a research program of potential interest to pre-med/pre-vet undergraduates, as well as participate in the administration of pre-health programs. Affiliated with The Wesleyan Church, Houghton is a residential liberal arts college of 1,200 students. Candidates must be committed to and supportive of the evangelical Christian basis and mission of the college. All faculty members must sign a Statement of Faith and adhere to lifestyle expectations. (See full information and a printable application at [http://campus.houghton.edu/orgs/acad\\_dean/position\\_openings.htm](http://campus.houghton.edu/orgs/acad_dean/position_openings.htm).) Women and minorities are encouraged to apply. Send letter, curriculum vitae, and three professional recommendations to: Martha Whiting, Department Secretary, [Martha.Whiting@houghton.edu](mailto:Martha.Whiting@houghton.edu). Consideration of applications will begin immediately and continue until position is filled.

**Assistant/Associate Professor:** Department of Biobehavioral Sciences. Position: The Movement Sciences and Education Program in the Department of Biobehavioral Sciences at Teachers College, Columbia University is seeking an applied exercise physiologist. Responsibilities: Teach graduate courses (e.g., exercise testing and prescription, assessment of physical activity, physical activity and health, physical activity in children and youth); supervise graduate student research; and conduct a focused

**Tenure-Track Physiology Position:** The Schools of Medicine and Nursing at the University of Missouri – Kansas City invite applications for three tenure-track positions at the rank of Assistant or Associate Professor. Two positions will be primary appointments in Medicine and one in Nursing. The Schools will give preference to candidates with research expertise preferably in cardiovascular and/or exercise physiology to complement existing programs in Women's Health and Cardiovascular Outcomes plus basic research in preeclampsia, cardiovascular imaging, inflammatory cardiovascular disease (plaque/calcification of the coronary arteries and aortic valve) and shock/trauma. Additional opportunities exist for collaboration with basic scientists in the Schools of Medicine, Nursing, Pharmacy, Dentistry and Biological Sciences. Because of our newly established life sciences initiative, additional collaborative research opportunities exist at the nearby Stowers Institute for Medical Research and the Kansas University Schools of Medicine and Nursing. Ample start-up funds are available to promote research with high potential for future extramural support. Teaching is expected in the schools' innovative programs according to the applicant's expertise in nursing, undergraduate or graduate physiology and in a newly developed Anesthesiology Assistant program. The faculty member selected for these positions will be expected to: a) teach and mentor students at all levels; b) maintain an active program of scholarship and funded research; and, c) provide service appropriate to the position. Required qualifications include: a) an earned doctorate in physiology, cell biology, nursing or related field; b) a record of scholarship, quality teaching and service appropriate to the rank; c) a history of extramural research support or demonstrated potential to develop a funded research program; and, d) excellent interpersonal and communication skills. **Contact:** Applicants should submit a personal letter of interest detailing qualifications, including *curriculum vitae*, along with names of five references including telephone numbers and email addresses to: Physiology Search Committee, University of Missouri-Kansas City, School of Medicine, 2411 Holmes Street M1-214C, K.C., MO 64108 or [gilmoreac@umkc.edu](mailto:gilmoreac@umkc.edu). **Application Deadline:** Applications will be accepted until the position is filled. The University of Missouri-Kansas City is an AA/EOE institution.

education; curriculum vitae; separate statements of teaching philosophy and experience, a statement of research interests and future plans within the context of a small liberal arts college; a statement of their ability to contribute to the mentoring of an increasingly diverse student body; copies of transcripts (graduate and undergraduate); and the names, Email addresses, and telephone numbers of three references to: Chair, Physiologist Search Committee, Biology Department, Denison University, Granville OH, 43023. We are especially interested in hiring a candidate

program of research. Qualifications: Earned doctorate in exercise physiology or a related field by starting date. Candidates are expected to demonstrate the potential for sustained scholarship and the ability to support a research program through external funding. Preferred qualifications: ACSM certification, postdoctoral research and teaching experience. Rank: Assistant/Associate Professor, Tenure Track. Send cover letter, curriculum vita, three representative publications, and the names and contact information of three references to: Professor Ronald DeMeersman, Search Committee Chair, Teachers College, Columbia University, 525 West 120th Street, Box 199, New York, NY 10027. Review of applications will begin October 1, 2006 and continue until the search is completed. Appointment begins September 2007. Teachers College as an institution is committed to a policy of equal opportunity in employment. In offering education, psychology, and health studies, the College is committed to providing expanding employment opportunities to persons of color,

women, and persons with disabilities in its own activities and in society. Candidates whose qualifications and experience are directly relevant to College priorities (e.g., urban issues, education equity, and concerns of under-represented groups) may be considered for higher rank than advertised. <http://www.tc.columbia.edu/>.

**Assistant or Associate Professor:** The Schools of Medicine and Nursing at the University of Missouri, Kansas City invite applications for three tenure-track positions at the rank of Assistant or Associate Professor. Two positions will be primary appointments in Medicine and one in Nursing. The Schools will give preference to candidates with research expertise preferably in cardiovascular and/or exercise physiology to complement existing programs in Women's Health and Cardiovascular Outcomes plus basic research in preeclampsia, cardiovascular imaging, inflammatory cardiovascular disease (plaque/calcification of the coronary arteries and aortic valve)

and shock/trauma. Additional opportunities exist for collaboration with basic scientists in the Schools of Medicine, Nursing, Pharmacy, Dentistry and Biological Sciences. Because of our newly established life sciences initiative, additional collaborative research opportunities exist at the nearby Stowers Institute for Medical Research and the Kansas University Schools of Medicine and Nursing. Ample start-up funds are available to promote research with high potential for future extramural support. Teaching is expected in the schools' innovative programs according to the applicant's expertise in nursing, undergraduate or graduate physiology and in a newly developed Anesthesiology Assistant program. The faculty member selected for these positions will be expected to: 1) teach and mentor students at all levels; 2) maintain an active program of scholarship and funded research; and, 3) provide service appropriate to the position. Required qualifications include: 1) an earned doctorate in physiology, cell biology, nursing or related field; 2) a record of scholarship, qual-



## Chair, Department of Physiology

The Virginia Commonwealth University School of Medicine seeks an investigator with a record of high-quality scholarship and extramural research funding, experience in administration and teaching, and a history of the successful training and mentoring of young scientists to assume the position of Chair of the Department of Physiology. The School of Medicine considers this position pivotal in the execution of its strategic plan to build research infrastructure, promote interdisciplinary science and bridge basic and clinical investigation. The Department of Physiology has established research programs in molecular cardiology and vascular disease, sensory neurobiology and gastrointestinal physiology. The in-coming Chair will have expertise in any area relevant to the physiological sciences, not necessarily the fields noted above. An advanced degree (PhD, MD or MD/PhD) is required. Investigators who have been involved in or who have fostered translational research are encouraged to apply. The School of Medicine will commit substantial resources to the in-coming Chair to grow the Department's research and graduate programs and advance its role in medical education. Interested candidates should send their curriculum vitae and names of three references to: Gordon L. Archer, Chair; Associate Dean for Research, School of Medicine; Virginia Commonwealth University; Box 980565; Richmond, VA 23298. [garcher@vcu.edu](mailto:garcher@vcu.edu).

*VCU is an Equal Opportunity/Affirmative Action Employer. Women, minorities, and persons with disabilities are encouraged to apply.*

ity teaching and service appropriate to the rank; 3) a history of extramural research support or demonstrated potential to develop a funded research program; and 4) excellent interpersonal and communication skills. **Contact:** Applicants should submit a personal letter of interest detailing qualifications, including curriculum vitae, along with names of five references including telephone numbers and Email addresses to: Physiology Search Committee, University of Missouri-Kansas City, School of Medicine, 2411 Holmes Street M1-214C, Kansas City, MO 64108 or gilmoreac@umkc.edu. **Application Deadline:** Applications will be accepted until the position is filled. [AA/EOE]

**Assistant/Associate Professor:** The Department of Environmental Health, Program in Molecular and Integrative Physiological Sciences at the Harvard School of Public Health invites applications for a tenure-track appointment as assistant or associate professor of Lung Biology. We seek a highly accomplished biologist to study lung disease at molecular and integrative levels. We particularly welcome candidates interested in molecular mechanisms that explain the interaction of susceptibility genes with environmental exposures. Candidates with experience in genomic or proteomic approaches to problems in lung biology are especially encouraged to apply. Applicants should hold a PhD or equivalent graduate degree in a relevant area, or an MD, and should have a record of independent, original research. This position offers outstanding scholarly and scientific resources in a collegial and collaborative atmosphere. Joint appointments with Harvard Medical School and affiliated teaching hospitals are also possible. The successful candidate will be expected to develop an independent research program, to participate in teaching graduate-level cell/molecular biology, and to mentor students and postdoctoral trainees with strong interests in lung biology. Please email a letter of application, including a statement of current and future research interests, a curriculum vitae, a sample publication, and the names of three referees to the following address: cmagoven@hsph.harvard.edu. Applicants should ask their three referees to write independently to this address or to: Chair, Search Committee for Assistant/Associate

Professor of Lung Biology, c/o Cheryl Magoveny, Molecular and Integrative Physiological Sciences, Department of Environmental Health, Harvard School of Public Health, 665 Huntington Avenue, I-1302, Boston, MA 02115. Harvard University is committed to increasing the number of women and minorities in its faculty, and encourages applications from such candidates.

**Assistant Professor:** The Department of Physiology and Pharmacology at the Ponce School of Medicine invites applications for a faculty position at the level of Assistant Professor. We are seeking individuals with a PhD, MD, or equivalent and postdoctoral experience. The successful candidate will be expected to participate in the medical and graduate student programs and to develop an independent research program. Review of candidates will begin immediately and will continue until position is filled. Send curriculum vitae, a statement of goals, and names and addresses of three references to: Dr. Leon Ferder, Chairman, Physiology and Pharmacology Department, Ponce School of Medicine, PO Box 7004, Ponce, PR 00732; Email: leferder@psm.edu. [AA/EOE]

**Assistant Professor-Exercise Biology,** Department of Biological Sciences: We seek a candidate to contribute to the department's program in Exercise Biology. Teaching duties may include courses in biomechanics, exercise physiology, and/or clinical exercise physiology for undergraduate and graduate students. The successful candidate must have a doctorate by time of appointment and sufficient research experience to establish and maintain an independent, extramurally funded research program. There are opportunities for research collaboration with faculty in the areas of organismal and cellular aspects of animal and neuromuscular physiology, both in Biological Sciences and in departments affiliated with Wright State's School of Medicine. Additional opportunities for collaboration in the Dayton area include numerous research and medical institutions and Wright Patterson Air Force Base. Graduate programs include the interdisciplinary Biomedical Sciences PhD program, Environmental Sciences PhD program, Biological Sciences MS program,

and Microbiology and Immunology MS program. Competitive start-up packages will be tailored to individual needs. For more information see <http://www.wright.edu/biology/dept/jobs.html>. Send CV with statement of research and teaching interests, and names and contact information for three references to EXB Search Committee, Department of Biological Sciences, Wright State University, Dayton OH 45435-0001. Electronic applications can be sent to [biology@wright.edu](mailto:biology@wright.edu). Review of applicants will begin November 1, 2006 and continue until the position is filled. [AA/EOE]

**Assistant Professor:** Human Nutritional Biochemistry or Metabolism. The Department of Nutritional Sciences at the University of Wisconsin-Madison invites applications for a tenure-track Assistant Professor position. The successful candidate will develop a nationally competitive, independent research program relevant to the field of nutrition and/or metabolism. Research areas may include, but are not restricted to: metabolic syndrome, genetic modifiers of disease, micronutrients and health, gastrointestinal function, metabolic disorders, or toxicology and endocrine disruptors. Preference will be given to integrative research involving human or clinical studies, animal models of human disease, or biomolecular mechanisms of nutrient-related disease. The applicant will participate in upper-level undergraduate and graduate teaching, and contribute to departmental and university service. University of Wisconsin-Madison offers competitive start-up funding and a generous benefits package. Madison is renowned for a high quality of living and attractive cultural and outdoor opportunities. Applications, including a cover letter, curriculum vitae, and statement of research accomplishments and future interests, should be sent to Prof. Susan Smith, Search Committee Chair, Department of Nutritional Sciences, University of Wisconsin-Madison, 1415 Linden Dr., Madison, WI 53706. Please arrange to have three letters of reference submitted to the above address. Respond by Nov. 30, 2006 to ensure full consideration. Unless confidentiality is requested in writing, information regarding applicants must be released upon request. Finalists cannot be guaranteed confidentiality. [AA/EOE]

## Space Physiology

J.C. Buckey, Jr.

New York: Oxford Univ. Press, Inc.,  
2006, 283 pp., illus., index, \$59.95

This book is designed to provide scientists, health care providers (e.g., flight surgeons), and engineers a practical handbook and reference to enhance effective decision support for management of health care and physiological maintenance of future astronauts, particularly for anticipation of extended interplanetary space travel. The overall focus of the book is on describing practical problems and identifying their solutions. The book consists of 12 chapters that cover the primary (known) clinical and physiological challenges associated with extended spaceflight. Specifically, the chapters address psychosocial support, radiation hazards, bone loss, muscle atrophy, cardiovascular changes, nutrition, extravehicular activity (physical work requirements in space), neurovestibular adaptations, motion sickness, gender differences, preflight preparation/postflight rehabilitation, and medical planning. Each chapter is strategically and logically laid out, beginning with an introduction that provides a systematic, yet brief review of relevant underlying physiology associated with each subject matter, followed by a summary of the physiological effects of spaceflight based on data and anecdotal observations and experiences obtained from actual space missions. Each chapter proceeds with recommendations for countermeasures based on the current knowledge of clinical treatments, followed by approaches to monitoring spaceflight and countermeasure effects. Finally, each chapter discussion concludes with a section on recommendations based on current knowledge, and an extensive and relevant reference list.

In agreement with the author's acknowledgements expressed in the Preface, I found that specific recommendations may have implied that more is known about a particular topic than is actually the case, or represented one perspective on a controversial issue where the evidence may not be completely clear. Nevertheless, the approach used by the author required that conclusions be drawn from the currently available data which served the important purpose of challenging the reader to critically evaluate and interpret the supporting evidence.

In his preface, the author states that "The aim of this book is to help surmount the physiological and medical problems so that a mission to Mars could succeed." The emphasis on extended space missions to Mars can prove to be a distraction (albeit minor) to the primary purpose of providing a comprehensive overview of the important role that gravity plays in the normal function and health of human physiology.

Although aimed at providing scientists, flight surgeons, and engineers with a guide for supporting astronauts, there are several unique features of this book that could make it an excellent reference for use as a classroom textbook for professors and students interested in the study of space physiology. The book is short and concise, yet very informative. The author writes and explains the current issues with exceptional clarity making this book an easy read. In each chapter, adequate background is presented that allows the reader to follow along and understand previous research and the author's recommendations. Throughout the book, gaps in our knowledge are presented that detail the directions for future research which are needed to maintain safe and effective human space exploration and long-duration spaceflight. The manner in which the

content of the book is laid out would provide a student with an excellent training tool for logical thinking and problem solving. The book effectively describes many physical and chemical characteristics unique to the space environment that makes space travel, and more generally the low gravity environment, uniquely challenging to the human physiology. These characteristics are not generally found in the context of studying physiology. An excellent example is the discussion (Chapter 2) of the psychological stresses (e.g., interpersonal conflict, anxiety, depression) associated with living in isolation and confinement. In these regards, I would strongly recommend this book as the textbook for use in an undergraduate or graduate course on space physiology.

This book fills a void for the need of having a comprehensive reference for the physiological and medical impacts of human spaceflight. The book covers virtually all the currently recognized impacts of extended spaceflight on human health, safety and performance. In addition to his medical training as a physician, the author is an internationally recognized space physiologist whose research is funded by the National Space Biomedical Research Institute. He present significant insight into the daily activities and responsibilities of astronauts and places all information in the appropriate context in order to properly understand the health issues and medical challenges of long duration spaceflight. The author's personal experience as a payload specialist astronaut who flew in space as part of NASA's Neurolab Space Shuttle mission (STS-90) in April, 1998 adds unique insight and credibility to this work. ♦

Victor A. Convertino  
US Army Institute of Surgical Research,  
Ft. Sam Houston, TX

## Books Received

### *Comparative Developmental Physiology*

Stephen J. Warburton,  
Warren W. Burggren, Bernd  
Pelster, Carl L. Reiber, and  
John Spicer, (Editors).

New York: Oxford Univ.  
Press, 2006, 216 pp., illus.,  
index, \$44.50.

ISBN: 0-19-516860-7.

### *101 Things Everyone Should Know About Science*

Dia L. Michels and Nathan  
Levy.

Washington, DC: Science  
Naturally!, 2006, 160 pp.,  
illus., index, \$9.95.

ISBN: 0-9678020-5-9.

### *Polyamine Cell Signaling*

Jian-Ying Wang and Robert  
A. Casero, Jr., (Editors).

Totowa, NJ: The Humana  
Press, 2006, 490 pp., illus.,  
index, \$159.00.

ISBN: 1-58829-625-3.

### *Correction for Books Received published in the August 2006 issue of The Physiologist.*

### *Nutritional and Clinical Management of Chronic Conditions and Diseases.*

Felix Bronner (Editor).

Boca Raton, FL: CRC Press/  
Taylor & Francis Group,  
LLC, 2006, 296 pp.,  
illus., index, \$139.95.

ISBN: 0-8493-27655-2.



## Delamere Head of UA Department of Physiology

Nicholas A. Delamere, has been appointed head of the Department of Physiology at The University of Arizona (UA) College of Medicine in Tucson. Delamere succeeds William H. Dantzer, a founding member of the UA College of Medicine faculty, who recently stepped down after 14 years as department head. Prior to joining the UA, Delamere was professor and distinguished university scholar at the University of Louisville where he had been a faculty member in the Department of Ophthalmology and Visual Sciences and the Department of Pharmacology and Toxicology.

## Rob Shepherd New Director of The Bionic Ear Institute

APS member Rob Shepherd has been appointed Director of The Bionic Ear Institute in East Melbourne, Australia, and Professor of Medical Bionics in the Department of Otolaryngology at the University of Melbourne. Dr. Shepherd's research has focused on the safety and efficacy of cochlear implants and the pathophysiology of deafness. His research group is currently studying what happens at the cellular level with the onset of deafness and the delivery of drugs into the inner ear for therapeutic application. The Bionic Ear Institute is a non-profit research organization affiliated with the University of Melbourne.

"I am honoured to be presented with the opportunity to lead such a prestigious organisation into new and exciting areas of medical bionics while maintaining cutting edge hearing research into improving the bionic ear," says Shepherd.

**Stephane Claude Baudet**, a Scientist, has affiliated with MDS Pharma Services, St. Germain sur l'Arbresle, France. Baudet formerly was associated with the Department of Internal Medicine 2, Intervet Pharma R&D, Beaucaouze, France.

**Patrice Boily**, an Associate Professor, recently affiliated with Western Connecticut State University, Department of Biology and Environmental

Sciences, Danbury, CT. Boily had been associated with the University of New Orleans, Department of Biological Sciences, New Orleans, LA.

**Martin Farias, III** has accepted the position of Assistant Professor, Texas A&M Health Science Center, Irma Lerma Rangel School of Pharmacy, Kingsville, TX. Prior to his new assignment, Farias was a Senior Fellow, Department of Internal Medicine, Hypertension Division, University of Texas Southwestern Medical Center, Dallas, TX.

**Lara Renee Gawenis**, an Assistant Professor, has joined the Department of Physiology, University of Utah, Salt Lake City, UT. Prior to her recent move, Gawenis was a Postdoctoral Fellow, Department of Molecular Genetics, Biochemistry and Microbiology, University of Cincinnati Medical Center, Cincinnati, OH.

**Gerald F. Gebhart**, a Professor, has joined the Department of Anesthesiology, Neurobiology, and Pharmacology, University of Pittsburgh, Pittsburgh, PA. Prior to his new assignment, Gebhart was Professor and Head, Department of Pharmacology, University of Iowa, Iowa City, IA.

**Jennifer M. Groh**, an Associate Professor, recently affiliated with the Center for Cognitive Neuroscience, the Department of Neurobiology and the Department of Psychology and Neuroscience at Duke University, Durham, NC. Groh was formerly associated with the Department of Psychological and Brain Sciences, Dartmouth College, Hanover, NH.

**Robert Alan Johnson**, an Associate Professor, moved to the Department of Surgery, Division of Trauma, University of Texas Health Science Center, San Antonio, TX. Johnson was previously affiliated with the Department of Physiology, Tulane University School of Medicine, New Orleans, LA.

**Daniel Adam Judelson**, Assistant Professor, has affiliated with the Department of Kinesiology, California State University, Fullerton, CA. Judelson previously had been a Student of the Human Performance Laboratory, University of Connecticut, Storrs, CT.

**Theodore J. Kalogeris**, Assistant Professor, recently joined the Department of Medical Pharmacology and Physiology, University of Missouri School of Medicine, Columbus, OH. Kalogeris had been affiliated with the Department of Surgery, Louisiana State University Medical Center, Shreveport, LA.

**Andor Joseph Kiss** is currently a Post-Doctoral Fellow, Department of Biological Sciences, University of Delaware, Newark, DE. Kiss was formerly a Student with the Department of Animal Biology, University of Illinois at Urbana-Champaign, Urbana, IL.

**Stephen G. Lomber**, an Associate Professor, has joined the Robarts Research Institute, University of Western Ontario, London, Ontario, Canada. Previously, Lomber was affiliated with Behavioral & Brain Sciences, University of Texas, Dallas.

**Bryce Maciver** has affiliated as an Instructor with the Department of Medicine/ Nephrology, Beth Israel Deaconess Medical Center, Cambridge, MA. Prior to his current position, Maciver was a Research Assistant Professor, Department of Medicine, Renal Electrolyte, University of Pittsburgh, Pittsburgh, PA.

**Liomar A.A. Neves** is currently an Instructor, Myogen, Inc., Westminster, CO. Formerly, Neves was affiliated with the Hypertension & Vascular Disease Center, Wake Forest University School of Medicine, Winston Salem, NC.

**Carmel Nottle**, as a Sessional Tutor, has joined the Waikato Institute of Technology, Wintec, in Hamilton, NZ. Nottle had been a Student at the School of Biomed and Sport Science, Edith Cowan University, Joondalup, Australia.

**Shuichi Sato** has affiliated with the Department of Exercise Science, School of Public Health, University of South Carolina, Columbia, SC. Sato had been associated with the Department of Human Performance and Recreation, University of Mississippi, Hattiesburg, MS.

**Robert G. Schaub** has become Vice President of Archemix Corporation, Cambridge, MA. Schaub was formerly Assistant Vice President, Department of Discovery Research, Wyeth Research, Cambridge, MA.

**Parco Ming-Fai Siu**, an Assistant Professor, has affiliated with the Department of Health Technology & Informatics, Hong Kong, China. Siu was formerly a Research Fellow with the Department of Medicine/Cardiology, Harvard Medical School, Boston, MA.

**Stephen K. Sullivan** has joined the Law Firm of Baker Botts LLP, New York, NY. Sullivan was previously a member of Darby & Darby Law Firm, New York, NY.

**Thomas Weimbs**, an Assistant Professor, has joined the Department of Molecular, Cellular, and Developmental Biology, University of California, Santa Barbara, CA. Weimbs had previously been associated with the Department of Cell Biology, Cleveland Clinic Foundation, Cleveland, OH.

**Phyllis M. Wise** has moved to the University of Washington as Provost and Vice President of Academic Affairs, Seattle, WA. Wise was formerly Dean, Division of Biological Sciences,

University of California, Davis, CA.

**Mark Thomas Worthington**, an Assistant Professor, has associated with the Division of Digestive Diseases, Johns Hopkins Biomed Central, Baltimore, MD. Formerly, Worthington was an Associate Professor of Medicine, Department of Digestive Health Center of Excellence, University of Virginia, Charlottesville, VA.

## Wine Wizard

### The Wine Wizard Peter Wagner

#### White wines:

2005 Yellowtail Southeastern Australia Chardonnay (\$5 - \$7). Don't knock this one until you have tried it, well chilled, these hot days. Available in megaquantities, this is seriously good summer wine for the price. Lovely, very clean, with forward, melon and lemon fruit. Light and spicy vanilla oak is quite apparent but not dominant. It is buttery with nice viscosity from the malo-lactic fermentation. It finishes with a very nice lemony kick that gives it crispness, good length and balance. While not complex or ageworthy, it is delightful and what a bargain.

2005 Firestone Riesling (\$7-\$9). Here is another widely available bargain standard that should be tried every year. This vintage is marked by lush ripe fruit



with a touch of sweetness. There is a very appealing element of green olive that takes the edge off the sweetness. The critical part - acidity - is excellent. This wine should be drunk quite cold - as it warms in the glass, the sweetness takes over. The wine does not see oak, and is very clean, straightforward and refreshing when chilled.



Peter Wagner

#### Red wines:

2003 J. Lohr "Seven Oaks" Cabernet (\$10-\$12). Also widely available (Costco in San Diego has it), this vintage of this bargain standard is better than most (and a tad better than the 2004). Rich dark berry and spice, a quite big wine but not too extracted and certainly not too tannic. It is devoid of the herbaceous flavors that sometimes weigh down this

wine in other years. Nice length and balance.

2004 Hahn Cabernet (\$9-11). Hahn is on a roll - I have recommended their Meritage previously. This vintage, better than their 2003 version, has lovely vanilla that integrates with very forward black cherry fruit on both the nose and palate. It is soft, ripe and rich on the palate and the combination of ripeness, vanilla and alcohol make it seem almost a touch sweet, but it does not have significant residual sugar and is therefore dry. It is very approachable right now with soft tannins and good acid balance, and will do well for perhaps 2-3 years. But why age it when it is so nice right now?

#### Special tip:

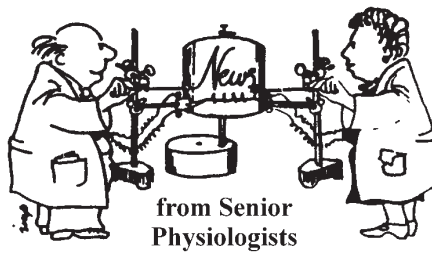
2004 Marquis Philips McLaren Vale Shiraz "9" (\$30). Available at Costco San Diego at least, who knows elsewhere, this is a blockbuster and well-worth the higher price. If you like deep, rich, in your face blackberry fruit with apparent but not intrusive American oak (dill, vanilla, anise), velvety mouthfeel, just the right acidity and soft tannins that make it hard to put the glass down, this is for you. The wine is opaque but not hard, forced or overextracted, hence the great balance and richness of fruit. A hint is the 16.5% alcohol level, meaning the grapes were *very, very* ripe when picked. This wine should age, but time will tell. ❖

## Letter to Martin Frank

**Julian B. Marsh** writes: "In the spirit of a *Scientific American* feature- 50 years ago-and as a personal memoir- I wish to tell the inside story of the discovery of the existence of the insulin receptor in the laboratory of Dr. William C. Stadie at the University of Pennsylvania in 1948.

"In the 1940's, Stadie, chairman of a small department of Research Medicine at Penn, was one of a number of distinguished scientists pursuing the holy grail of physiology and biochemistry of the time- the mechanism of hormone action, especially of insulin. William Stadie had a distinguished record of research, including the role of the liver in bile production, the mechanism of action of carbonic anhydrase in the kidney, and work on the B-oxidation of fatty acids and ketogenesis. As a young medical student at Penn in 1945, I had become interested in kidney disease. I did some research in the laboratory of Dr. David L. Drabkin, famous for his crystallization of human hemoglobin, the determination of the spectrophotometric constants of chromoproteins, and the cyanmethemoglobin method for hemoglobin estimation, still in use today. He suggested I learn the Warburg manometric method of measuring oxygen uptake of cells in Stadie's lab, which I did. After completing my internship in 1947, I became a US Public Health post-doctoral fellow in Biochemistry with Dr. Stadie.

"Every Monday morning, Dr. Stadie held a conference with his laboratory people to discuss progress in his research. In 1948, the main individuals were Niels Haugaard, about to receive his PhD, a graduate student—Ella Schwartzman (about to become Ella Haugaard)—and A. Gorman Hills, an internist interested in



research. After a few weeks, it was obvious to me that the only topic of interest was insulin. I listened. The problem was that while insulin effects were easy to demonstrate in intact tissues, once the tissue was homogenized the effects were lost. However, Nobel Laureate Carl Cori's laboratory had published work showing that in a cell-free muscle preparation, insulin relieved the inhibition of hexokinase by anterior pituitary and adrenal cortical extracts. Niels Haugaard tried to repeat some of this work and failed. Nevertheless, the hexokinase theory of insulin action received much attention, as one might expect given the fact that it came from Cori's lab. When the negative results from Stadie's lab were published, from that day forward no paper from the Cori lab ever referenced any related work from Stadie's lab, to the best of my knowledge.

"I soon realized that my kidney metabolism ideas were leading nowhere, and I too caught the insulin fever. At that time, the rat diaphragm method of Gemmill was the main research tool since addition of insulin to one of the hemidiaphragms allowed one to measure an increase in glucose uptake and glycogen synthesis over the hour or so of exposure to insulin. One could add various compounds to the incubation medium and see what they did to the effect of insulin on glycogen synthesis. One Monday morning I had a bright idea (the best I've ever had in more than 50 years of research).

"I asked everyone if they knew how long it took insulin to act, let

alone how it ever, as a protein, got inside the cell. The answer was no one knew, but the insulin effect could not be measured in less than at least 30 or 40 minutes since the increment in glycogen or the difference between starting and ending glucose levels would be too small to measure. I said I had an idea, and would it be OK if I did some experiments during the week. They said sure, go ahead, and you can have all the rats you want.

"My idea was to incubate one of the diaphragms with insulin in oxygenated medium for an hour, then wash it off, and then incubate at 37° for an hour and compare glycogen levels. I tried this, making sure the washing period had plenty of volume so that only insulin which had, I thought, penetrated the cell, could be present. The experiment worked. I next tried decreasing the time of initial incubation from one hour to 30 minutes, then to three minutes, then to 10 seconds, and it worked every time.

"You can imagine how excited I was to report these results over the next two weeks. Dr. Stadie turned to Niels and said you had better repeat these experiments. I was delighted, knowing Niels to be a superb investigator. Niels proceeded to do so, and you can imagine how I felt when he reported his results were completely negative—there was no insulin effect he could find.

"The question now was why, or indeed whether, I had succeeded. Niels immediately said it must be the insulin; maybe I used a different batch containing an impurity or maybe his batch was bad. We tested both batches in the usual way; mine was active and his was not. It turned out that his batch had been placed in a glass vessel which had been used in a glycogen assay, which involved KOH hydroly-

ysis. Even a trace of alkali would have inactivated insulin, which is what had happened. The next 5,000 experiments of my kind were fine (this number is calculated from the number of rats used over several years of work on the problem).

“Dr. Stadie, Niels Haugaard, Gorman Hills and I all pitched in and did everything one could think of to establish that there was indeed a ‘chemical combination of insulin with muscle (rat diaphragm)’ and this was the title of the paper sent to the *American Journal of Medical Sciences*. It was not sent to the *J. Biol. Chem*—we knew Cori was sure to see it there! Except for the fact that we did not use the word ‘receptor,’ every criterion of a receptor, apart from its isolation, was met. We were sure that the reason no one could find an insulin effect in a cell-free muscle preparation was that its action was at the cell surface.

“When Martha Vaughan joined Stadie’s lab, she was given the job of labeling insulin to determine the actual extent of the binding. Insulin, stable in acid, could be labeled with radioactive sulfur from sulfuric acid under conditions in which its activity was preserved. She did excellent work, but it was generally dismissed by a simple fact—binding of radioactive insulin to diaphragm occurred even when the tissue was killed by boiling. This set back the field for several years—the difference between specific and non-specific binding was not understood. It was not until the brilliant work of Cuatrecasas at the NIH that the field took off. Meanwhile, Niels and I published a 113 page monograph on insulin action in 1953 and in this work we called attention to the 1910 observation of Boehm who showed that curarine bound to frog muscle and

in this form exerted its physiological action. To quote our 1953 statement, ‘It is possible to speculate that the binding of insulin occurs at specific receptor points in the cell and that the combination of insulin and receptor groups may be a phenomenon analogous to the highly specific reactions taking place between antigens and antibodies.’

“For those of you reading this and thinking about laboratory chiefs and mentors, I wish to briefly comment about the personalities of Dr. William Stadie and Dr. David Drabkin. Dr. Stadie was a perfect gentleman of the old school. He had a cheerful mein, was extremely knowledgeable, and a pleasure to work for. However, he regarded everyone in his lab as extensions of his own hands and almost always put his name as first author on all publications. His letters of recommendation for me and for Niels, when it came time for us to leave, were models of faint praise and probably prevented Niels from achieving a desired post at the NIH. David Drabkin, on the other hand, was sometimes hard to work for, often irascible, though lovable, and frequently critical. But he went out of his way to help people who had worked in his lab. I recall one individual Dr. Drabkin disliked intensely. However, he personally went to the NIH to lobby for appointment there (he got it). He offered me an appointment in his small department in the Graduate School of Medicine, which I accepted at the rank of Instructor even though his letter of recommendation for me resulted in an offer of an Assistant Professorship at Temple University. Many years later, a similar letter helped me obtain the post of Professor and Chairman of a combined department of

Physiology and Biochemistry at the then Medical College of Pennsylvania.

“Niels Haugaard died in January 2004. My own subsequent research career was related to my interest in kidney disease. I tried to answer the question of the hyperlipidemia of the nephrotic syndrome, which led to work on the biosynthesis of the plasma lipoproteins by rat liver and in turn, to a theory of the hyperlipidemia of nephrosis. I believe this reflects the fact that studies of clinical syndromes, genetic or otherwise, still lead the way in biomedical research.”

## Letter to Julio Cruz

**Arthur H. Smith** writes: “I’ve received your letter informing me of ‘the Senior Physiologists Committee,’ and my eligibility to become associated with it on the occasion of my completion of 90 orbits of the solar system.

“When I retired, Professor Charles Fuller took over the centrifuges; but I kept an office for about five years after retirement, and competed analysis of some research. Since then I’ve become somewhat disabled physically and have to use a wheeled walker to get around. As a result, I’ve become completely inactive in physiology. I do keep myself occupied in tracing my genealogy. So far I’ve completed the Glass family, my father’s maternal antecedents, and the Woodson’s, my mother’s maternal antecedents which I find includes Jesse James, the notorious post-Civil War train and bank robber (he’s my mother’s fifth cousin). Now I’m working on the Brown’s, my mother’s paternal ancestors.”



*November 1-4, 2006*

**American Society of Matrix Biology (ASMB) Biennial National Meeting 2006, Nashville, Tennessee.** *Information:* Email: nanette.bahlinger@vanderbilt.edu; Internet: <http://www.asmb.net/>.

*December 1-2*

**The 16th Rat Genome and Models Workshop, Melbourne, Australia.** *Information:* Robert Di Nicolantonio, Chair, Department of Physiology, University of Melbourne. Email: robertdn@unimelb.edu.au; Internet: <http://www.ahmrcongress.org.au/rat%20genome%20workshop.htm>.

*December 6-10*

**Humanizing Model Organisms to Understand Pathogenesis of Human Disease, Hinxton, Cambridge, United Kingdom.** *Information:* Cold Spring Harbor Laboratory, Meetings & Course Program, PO Box 100, 1 Bugtown Road, Cold Spring Harbor, NY 11724-2213. Tel: 516-367-8346; Fax: 516-367-8845; Email: meetings@cshl.edu; Internet: <http://www.cshl.edu/meetings>.

## 2007

*March 5-9*

**10th Tamagawa-Riken Dynamic Brain Forum - DBF'07 - In search of a new paradigm for approaching the brain as a complex system, Hakuba, Nagano Prefecture, Japan.** *Information:* Internet: <http://www.tamagawa.ac.jp/sisetu/gakujutu/brain/dbf2007/index.html>.

*April 21-25*

**World Congress of Nephrology 2007, Rio de Janeiro, Brazil.** *Information:* Email: info@isn-online.org; Internet: <http://www.wcn2007.org>.

*August 23-26*

**2007 World Conference of Stress, Budapest, Hungary.** *Information:* Congress Secretariat, Diamond Congress Ltd., H-1255 Budapest, P.O. Box 48, Budapest 8, Hungary. Tel.: +36 1 214 7701; Fax: +36 1 201 2680; Email: diamond@diamond-congress.hu; Internet: <http://www.stress07.com/index.html>.

*May 9-12*

**First Annual Meeting of the Organization for the Study of Sex Differences, Washington, DC.** *Information:* E-mail: info@ossdweb.org, Internet: <http://www.ossdweb.org>.

*September 16-19*

**10th International Conference on Endothelin, Bergamo, Italy.** *Information:* Francesca Di Fronzo, Mario Negri Institute for Pharmacological Research, via Gavazzeni, 11-24125 Bergamo, Italy. Tel.: +39 035 319888; Fax: +39 035 319331; Email: difronzo@et-10.it; Internet: <http://www.et-10.it>.

## 2008

*June 28-July 3*

**33rd FEBS Congress and 11th IUBMB Conference, Biochemistry of Cell Regulation, Athens, Greece.** *Information:* Georgina Alexopoulou, Promotion and Communication. Tel.: +30 210 6889100; Fax: +30 210 6844777; Email: febs-iubmb2008@cnc.gr; Internet: <http://www.febs-iubmb-2008.org>.