



The Physiologist

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Peer Review at NIH: A Conversation with CSR Director Toni Scarpa

The stated objective of NIH's efforts to enhance peer review is to "Fund the best science, by the best scientists, with the least amount of administrative burden." In 2007 NIH began a formal review of its peer review system. This led to the development of a number of new policies and procedures, including the introduction in January 2010 of a shortened and restructured grant application.

The APS Public Affairs Committee asked Center for Scientific Review Director Toni Scarpa to provide the readers of The Physiologist with his insight into several key aspects of these peer review changes.



Toni Scarpa

[APS]: An underlying theme behind these changes in peer review is to increase impact and significance. How will this be measured and evaluated?

[Scarpa]: Reviewers need to consider two key questions when they assess NIH grant applications: First, is the research worth doing? In other words, if the investigators succeed, will the research have a big impact and advance the field significantly? The second question is equally important: can they do it? The answer to this second question is based on the capacity of the investigators and their track record as well as their approaches. In the past, too many reviewers focused too much on the approach and neglected the fundamental issues of significance and impact.

Now, for the first time both the application and review are in sync.

Applicants must write how well the application meets each review criterion. In so doing, they spell out the significance if the research is successful and describe in a few pages whether or not their approach could realize the impact envisioned.

Reviewers have a more focused critique template and scoring system to evaluate applications. Using a new 1-9 scoring system-with 1 as the best-reviewers now give an application not only an overall impact/priority score but scores for each core criterion. Reviewers also list the strengths and weaknesses for each core criterion. Starting with "significance" as the first criterion and addressing the others, reviewers now deliver focused assessments on the possible impact and potential for the research to advance the field.

The revised peer review system seems to offer many obvious

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advantages for reviewers. How will the revised peer review system benefit applicants?

Applicants have been asking for more useful information from their reviews—particularly when their applications were not discussed. This plea prompted NIH to make two of the largest changes briefly mentioned above: We now spell out for applicants the strengths and weaknesses the reviewers saw when they considered each core review criterion, and we also provide reviewer scores for each core review criterion. In the old system, applicants received wordy critiques and one priority score that together did not always indicate clearly what considerations drove the review.

The new criterion scores and critiques provide valuable information applicants can use in planning their next steps. For instance, if an application has a very good score for “significance” but very poor scores for “investigator” and “approach,” it means it’s a great idea but the investigators are not likely the right people to do it. The applicant might want to consider adding a collaborator or gaining specific expertise and documenting it. Or if the “approach” and “investigator” scores are very good but the scores for overall impact and “significance” are poor, it means the research may not be worth doing and the applicant should consider going back to the drawing board.

Researchers pursuing innovative, significant research for the first time will probably be favored because these criteria are being expressly evaluated and emphasized now.

Early stage investigators also will be encouraged by recent changes. In the past, the “New Investigator” designation was so broad it included well established investigators who never had an NIH grant because NIH just recently started funding research in their areas or they recently moved to this country. NIH created a new “Early Stage Investigator” (ESI) designation to protect truly “new” investigators, defined as those within 10 years of their last degree or residency program. NIH institutes and centers are now committed to fund the same percentage

of new R01 grant applications from ESIs and established investigators. Hence, most NIH institutes and centers have more favorable paylines for new and ESI investigators. (Note this only applies to R01 grant applications.) In addition, New Investigator and ESI applications are now clustered to ensure balanced reviews, and reviewers are still asked to consider the career stage of these applicants when looking at their publications and preliminary data.

Survey data from the NIH has shown that alternative review formats such as the editorial board style and Asynchronous Electronic Discussions now called Internet Assisted Meetings have been very successful. Are there plans to completely eliminate face-to-face review meetings?

For the foreseeable future, we have no plans or even a desire to eliminate face-to-face meetings. They remain a very dynamic and invaluable way to review NIH grant applications. We developed alternative review platforms to be responsive to the scientific community, and we use them when they are the best way to engage the best reviewers for a given group of applications.

Though Internet Assisted Meetings cost less, we don’t hold them to save money. We use them to engage reviewers who cannot or will not travel to Washington for a face-to-face meeting. For instance, clinicians are especially hard to recruit, and sometimes Internet Assisted Meetings are the only way we can involve them because they cannot commit 2-3 days to travel and attend meetings. It’s important to note that only the final meeting phase is different—the development and posting of critiques and scores by reviewers are done in the same methodical ways.

The editorial board review platform was developed to address community concerns that more needed to be done to adequately review complex, translational and multidisciplinary applications. Sometimes several reviewers are needed just to look at the science in individual parts of these applications. Editorial reviews allow us to provide

more detailed and balanced reviews for these applications. In the first stage, specialized experts review the applications and submit detailed critiques and scores for each core review criterion. In stage two, a study section or editorial board made up of researchers with broad experience meet face to face and use the stage 1 critiques to put everything into perspective and give each application an overall impact/priority score. This kind of review is not appropriate for all applications, but it is particularly valuable when assessing complex applications.

Each of the different review platforms has advantages. But no matter what we do, the review is only as good as the reviewers. If you ask me what the best platform is, I’d say the best platform is the one that brings the best reviewers to any given group of applications. Whether we use more or less of these platforms in different situations is really up to the scientific community to decide.

We are hearing from some of our members that the structured critique templates do not provide an adequate explanation of numerical scores. Are there plans for additional training of reviewers so that this can be improved?

I’ve read thousands of the new bulleted critiques on the weekends, and most reviewers are successfully highlighting the strengths and weaknesses for each scored review criterion. But we’ve noticed a few cases where the new critiques lacked sufficient detail. In a couple of instances, we found the new format had unmasked a few reviewers who had earlier submitted critiques that were so packed with descriptive detail it was not easy to see how poor the critiques were.

I’d say less than 1 percent of the reviews are this poor. But this is not acceptable, and we have taken action. We’re increasing reviewer training, using new slides, FAQs, and sample critiques. We’re also training our Scientific Review Officers to monitor summary statements to identify poorly written critiques and seek additional detail from reviewers if necessary to ensure their scores are justified by their critiques.

Prior to implementation of the new scoring system concern was expressed that it would result in less score distribution and more grants receiving identical scores compared to the previous system. Has this been the case? Will data on score distributions be made available to the scientific community?

Yes, there was a general concern that going from 41 to 9 scoring bins would lead to score compression. The opposite occurred. We're happy to share the data here. Our dedicated reviewers mastered the new 1-9 scoring system quickly with our training. This is what we saw when we plotted the scores from large groups of applications reviewed before and after the new scoring system was implemented. You'll see that reviewers of 15,000 applications in

June 2008 compressed their scores around perceived funding levels (Figure 1). We did not see the same sigmoidal curve when we plotted the scores reviewers assigned to a similar number of applications in June 2009. There was far less compression. Will reviewers continue to spread their scores this way? We took a second look in October, and the curve was essentially the same. We'll continue to monitor scores and take action as necessary to ensure they provide the discernment NIH needs to fund the best research.

A combination of eliminating A2 applications and reduced paylines in some ICs for A1 applications may lead some investigators to resubmit unfunded applications as new rather than amended, leading to an

increase in A0 applications. How does CSR determine whether an application is new or resubmitted?

I should give some background for readers who may not understand why we changed our resubmission policy. NIH wants to fund good ideas in the early stage. By permitting only one revision NIH will fund more A0s. This practice will dramatically increase the time reviewers have to do their own research instead of reviewing applications already reviewed twice. We know from reviewer feedback that one 25-page R01 application can consume as much as 30 hours to evaluate, including about seven hours review time for each of three assigned reviewers plus travel and meeting time.

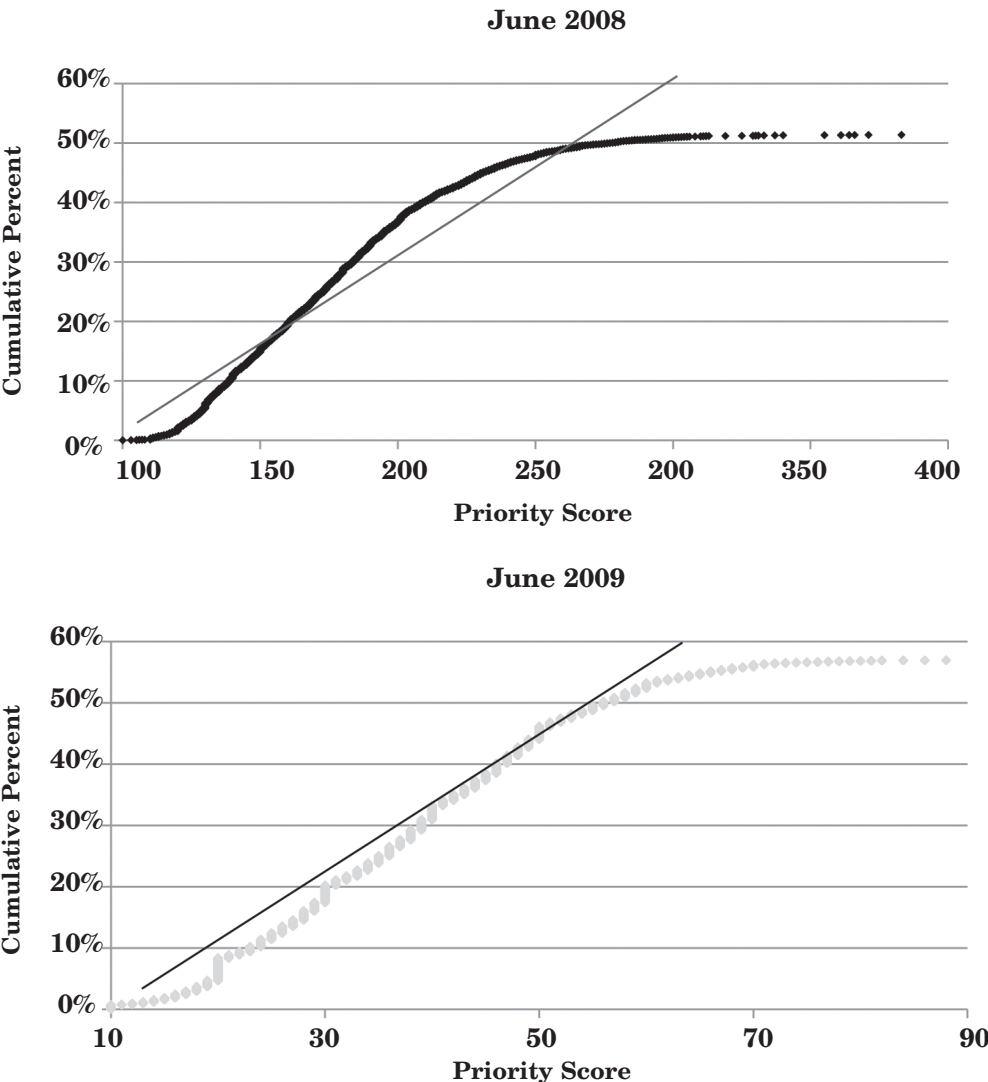
At CSR, we have staff and software to identify grant applications submitted as A0s that are not dramatically different from previous submissions-A1s or A2s. Simply changing the title, a few specific aims or the wording of the application won't work.

We're taking a lot of steps to ensure conformity and fairness in the way we scrutinize applications. There are some gray areas, and we have a three level process to address the concerns of investigators who feel their applications are different.

The first assessment is made by scientific staff in our Receipt and Referral Division. If they cannot make a clear decision or if their decision is appealed, a second assessment is made by senior CSR staff on our "A2" Committee. If the applicant appeals this committee's decision, I consult a third committee of senior scientists from across NIH and other senior officials at CSR. After they report to me, I communicate the decision to the applicant. Having these committees review all cases helps CSR ensure decisions in the gray areas are consistent and fair.

If you are not sure your "new" application is significantly different from your earlier applications, go to the NIH Web site to

Figure 1. Priority Scores of R01 and R21 Reviewed by CSR.



learn more about the policy: http://grants.nih.gov/grants/policy/resubmission_q&a.htm.

Are there any more planned changes to the peer review system that have yet to be implemented? Are there plans to revise any of the already implemented initiatives? How will the results of the current survey be used to improve upon the new system?

Both the internal and external advisory groups guiding the peer review enhancements recommended that NIH develop a robust mechanism for continued evaluation. NIH is conducting an overall evaluation with input from applicants, reviewers, and NIH advisory councils, as well as NIH and CSR staff. This feedback will help us see if we are meeting expectations and if tweaks are needed.

At CSR, we seek stakeholder input on almost every change we make and we post the results online: <http://www.csr.nih.gov/evaluationreports>. Two years ago, we invited 700 leaders from the scientific community to advise us. We continue to consult with all our study section chairs and develop working groups to improve and better align our study sections. Looking forward, there is a possibility that an external body will be formed to systematically review CSR.

Feedback from the scientific community is critical to ensuring the vitality of NIH peer review. I'm blessed with input from the scientific community-30-40 e-mails a day. If you want to send formal comments, I'd recommend you send them to the Enhancing Peer Review at NIH team: EnhancingPeerReview@mail.nih.gov. To stay informed on current and future changes, bookmark their Web site: <http://enhancing-peer-review.nih.gov/>.

Over the long term, what are NIH's plans to measure the success of the enhancing peer review process, specifically with respect to evaluating the resulting quality of the science?

There are really two evaluation questions: How well did we do in enhancing

the peer review process? And what will be the long-term impact of these enhancements in improving the identification and advancement of great research?

As mentioned earlier, NIH is just now assessing the enhancements to determine, for instance, whether or not the changes make it easier to write and review grant applications with less effort while maintaining or enhancing the core values of peer review. NIH reviewers have bore heavy burdens, and it's important to see we use their time more efficiently. Ongoing assessments also will examine whether the enhancements have improved NIH's ability to identify promising applications.

Determining the success of NIH research programs is more difficult. There are readily available metrics such as the number of publications, their impact and patents associated with grants. Some countries rely heavily on these metrics in recruiting and retaining investigators. The problem is that it can take 10-15 years or longer for a major breakthrough to come from a line of research, and the advance often comes in unexpected areas of research. While NIH looks for better ways to quantify its success, we can point to compelling data:

Advancements by NIH-funded researchers were used to develop over seventy percent of the most important drugs introduced since 1965 (3). NIH-funded researchers also won or shared 80 percent of the Nobel prizes in physiology or medicine since 1964 (2).

NIH peer review has thus worked well, and we trust with recent enhancements it will enhance the efficiency and success of NIH-funded research.

Is there anything else you think our readers should know about your efforts?

Yes, we should never forget the big picture. Millions of people in this country and beyond are blessed by something few know exists: the peer review system NIH uses to identify the most promising research for funding. It's incredibly fair, competent and transparent. And as a result, it's incredibly efficient.

NIH-funded scientists exceed all others: the data cited earlier show that

NIH research is associated with 70 to 80 percent of major drugs and Nobel Prizes in physiology and medicine.

It's not all the money NIH spends but the way it spends it. Most other industrialized countries spend as much or more for biomedical and behavioral research on a per capita basis. They fall short because the bulk of their federal research funds are given as entitlements to institutions and investigators. NIH is dramatically more effective in identifying and fostering advances because 85% of its budget is awarded through its competitive peer review system. And it is not just efficiency and success of research. By one estimate, NIH research has prevented up to 1.35 million deaths per year from cardiovascular disease, stroke, cancer and diabetes (1).

Since peer review is so fundamental to these successes, it has to adapt to ever more rapid changes in science and the very way science is conducted. It's easy to get worked up over bumps in the road that will be smoothed out. We need to keep the bigger picture in mind and keep asking the important questions: Where do we need to go to identify the most promising science? How are we going to get there?

NIH can't answer these questions itself. We continue to seek input from the scientific community-particularly scientists engaged in peer review. If you're an experienced investigator and not engaged, I encourage you to say yes the next time you're asked to serve on a review group. ♦

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Introducing Charles H. Lang



Charles H. Lang

As of July 1, 2010, Charles H. Lang is the new Editor-in-Chief for *AJP-Endocrinology and Metabolism*. Lang is currently a Distinguished University Professor and Vice Chairman of the Department of Cellular and Molecular Physiology, and Professor of Surgery, at the Pennsylvania State University (PSU) College of Medicine. Lang received his graduate training at Hahnemann Medical College, where he earned both an MS and a PhD degree (1978 and 1981, respectively). He was an NRSA-funded postdoctoral fellow under the supervision of John Spitzer, MD, in the Department of Physiology at the LSU Medical Center in New Orleans, LA. In 1985, he was appointed Assistant Professor and then, in 1989, promoted to tenured Associate Professor at the same institution. Thereafter, he moved to the Department of Surgery at SUNY Stony Brook as Professor of Surgery and Director of Surgical Research, where he coordinated the translational research efforts. For the past 12 years, he has been in his current position at the Penn State College of Medicine, in Hershey, PA. For 30 years his research has focused on changes in whole body and tissue metabolism produced by sepsis and other catabolic insults, such as diabetes, alcoholism, burn, and HIV infection. Specifically, his early work elucidated various cellular and molecular mechanisms by which sepsis and inflammatory cytokines, such as TNF,

alter glucose homeostasis and produce hepatic and muscle insulin resistance. He has also provided extensive insights into the mechanisms altering the IGF-GH axis in infection and stress and the metabolic consequences of such changes. In recent years, he has worked extensively on the regulation of translational control of protein synthesis in skeletal and cardiac muscle by growth factors, particularly IGF-I, and nutrients during various catabolic states. Dr. Lang has published more than 250 original peer-reviewed articles in addition to numerous review articles and book chapters related to the metabolic dysregulation accompanying infection and catabolic stress. He has also presented more than 50 invited lectures throughout the world. His research has been continuously supported by multiple grants from NIGMS, NIAAA, and NIDDK related to these areas for the past 25 years.

In addition to his research activities, Dr. Lang has been active in various types of educational activities. At the Penn State College of Medicine, he is currently the Program Director for the T32 post-doctoral training grant entitled "Training Program in Trauma and Organ Injury," housed in the Department of Surgery, which is intended to train surgical residents as independent physician-scientists. In addition, he is Director of the Molecular Medicine Intercollege Graduate Program at PSU. He has trained more than 30 junior faculty, post-doctoral fellows, surgical residents, and medical and graduate students. In addition, for the past decade he has been a mentor to eight underrepresented minority undergraduate summer students who have performed research in his laboratory.

In addition to his service activities at the Penn State College of Medicine, Dr. Lang has been a permanent member of the Alcohol and Toxicology (ALTX) IV study section at NIH, and he is currently a member of the Surgery, Anesthesiology and Trauma (SAT) study section. He has served multiple times as an ad hoc member on the NIH Special Emphasis Panels (SEPs) for the review of training programs in Trauma and Burn, Systems and Integrative Biology, and Pharmacological Sciences. He has also chaired various SEPs related to alcohol, trauma, or muscle metabolism. Finally, he also currently reviews research and fellowship applications submitted to the Shriners Hospitals for Children. Dr. Lang was a long-standing member of the Editorial Board for the *American Journal of Physiology - Endocrinology and Metabolism* and in 2006 was appointed an Associate Editor. During the past three years he also served the Journal as its Reviews Editor. He currently serves on the editorial boards of numerous other journals, including *Shock*, *Journal of Nutrition*, *International Journal of Clinical & Experimental Medicine*, and others. He is a member of more than ten professional societies. He has served in leadership roles in national scientific organizations, as exemplified by his tenure as the Chairman of the Endocrinology and Metabolism Section Program Committee and Steering Committee for APS as well as his participation on the Membership Committee and the Committee-on-Committees of APS. Lang is a member of the Publication Management Committee of the American Society of Nutrition and the Publication Committee for the Shock Society. ♦

OPINION: The Advice of Polonius

"I am 100 years and 5 months old and have dedicated a large part of my life to medical sciences. This should be enough justification to give advice to a younger generation in their drive for scientific success. To give advice is easy, to follow it, difficult. Younger people do not thirst for the wisdom of their elders and are not willing to accept it. The brain may be hostile to advice, especially when this is dispensed in an unctuous and authoritative way.

"Many times older people have a dull way of communicating their experiences.

Polonius in Shakespeare's *Hamlet* is an example. The old man had a great message, "This above all, to thine own self be true, and it must follow, as the night the day, thou canst not then be false to any man." But for all his profound wisdom, old Polonius was a bore, a nuisance who was stabbed to death by young Hamlet. It is useless to suggest to someone that she publish her research, when she already writes papers and sends them to the publisher. For some great minds, finding the truth is often enough and publication is

redundant. Charles Darwin was hesitant to publish his *Origin of the Species* for several years. He had found the truth and that was sufficient.

"Financial matters are hard to discuss for an academician. It seems undignified and out of place. But without funds there is no research and without money there is no peace of mind. Instead there is a gnawing fear of the future which interferes with the planning and execution of research. It seems that each scientist has to handle this problem according to his

local circumstances. When the problems of finances and promotion cause depression, slowing the drive to work, then it is time for a change. Without moral and financial support, there grows in the young scientists a feeling of neglect, of frustration, even of rage, which saps his energy and the pleasure of discovery. Treating people in a just and honest way can avoid such a disaster.

"Do not sell your soul, your conscience to the devil. The devil wears different disguises: as a dollar sign, as promotion to a powerful political position, or the urge to become a wheeler

and dealer in an academic setting avoiding hands on work at the bench. A scientifically impotent faker, who fabricates his lab results or who sits in endless committee meetings playing politics has no role to play as scientist.

"These facts darken the image of science. Science alone by itself grants happiness, joys and satisfaction. I have in my life received immense joy when working to explore the nature of cures and the mechanism of diseases. From the first year of medical school until my 100th birthday, I felt blessed to study the secrets of the body and the cure of dis-

eases. Treating the sick has added to this blessing. But, although a medical degree widens the field, it is not essential to make contributions to the science of medicine. Compassion is not limited to the physician. The search for truth and the will to heal can have equal shares. I cannot report greater happiness than that accompanying discovery. All the misery of fund raising, political shenanigans and financial difficulties, all those are little as compared to the joys of discovery. We should again listen to the garrulous old Polonius, 'To thine own self be true.'" ♦

Richard J. Bing, March 23, 2010

Membership

New Regular Members

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Daniel Patschan
Univ. of Gottingen, Germany

Nathalie Perreault
Univ. De Sherbrooke, QC, Canada

Robert J. Peterka
Oregon Health & Science Univ.

Jan Alexander Plock
Univ. of Bern, Switzerland

Aaron J. Polichnowski*
Loyola Univ. Med. Ctr., Maywood, IL

Nadezhda Povyseva
Univ. of Pittsburgh, PA

Terri Lee Provost
Utica College, NY

Victor Manuel Pulgar
Wake Forest Univ., NC

Rohit Ramchandra
Howard Florey Inst., Australia

Luis Carlos Reis
Fed. Rural Univ., Brazil

Anne Riquier-Brison*
Univ. of Southern California, Pasadena

Armando Rosales-Velderrain*
Univ. of California, San Diego

David Alan Rubenstein
Oklahoma State Univ., Stillwater

Andrew H.J. Salmon
Univ. of Bristol, UK

Vandana Sarin*
Texas A&M Univ., College Station

Kelli Margot Sas
Med. Univ. of South Carolina

Patrick A Singleton
Pritzker Sch. of Med., Chicago, IL

Fabiana Silvia Scornik
Univ. of Girona, Spain

A K M Shamsuddin
Univ. of California San Diego, La Jolla

Neeru Sharma
Univ. of Nebraska Med. Ctr., Omaha

Leah C. Solberg Woods
Med. Coll. of Wisconsin, Milwaukee

William C. Stanley
Univ. of Maryland, Baltimore

Rebecca Jean Steagall
East Tennessee State Univ.

Hui Sun
Johns Hopkins Univ., Baltimore, MD

Masatoshi Suzuki
Univ. of Wisconsin, Madison

Jil C. Tardiff
Albert Einstein Coll. of Med., NY

Michael Anton Tevald*
Univ. of Massachusetts, Amherst

Theodore A. Uyeno
Northern Arizona Univ., Flagstaff

Jose Manuel Valdivielso
IRBLLEIDA, Lleida, Spain

Wamberto Antonio Varanda
Univ. of Sao Paulo, Brazil

Rafael Antonio Vargas
Reykjavik Univ., Bogota, Colombia

Lauro C. Vianna*
Univ. of Missouri, Columbia

Lalitbhushan S. Waghmare
Datta Meghe Inst. Med. Sci., India

Dillon Walker
Univ. of Texas Med. Branch, Galveston

Kedra La T'Sha Wallace
Univ. of Mississippi Med. Ctr., Jackson

Dianne M. Walters
East Carolina Univ., Greenville

Vabren L. Watts
Johns Hopkins Univ., Baltimore, MD

Brent W. Winston
Univ. of Calgary, Alberta, Canada

Qi Xi
Univ. of Tennessee, Memphis

Minheui Yoo
Emory Med. Coll., Atlanta, GA

Xiyu Zhou
Univ. of North Carolina, Chapel Hill

Mark T. Ziolo*
Ohio State Univ., Columbus, OH

New Affiliate Members

Jennifer W. Bea
Univ. of Arizona

Jan M. Foster
North Greenville Univ., SC

Emily R. Martini
Univ. of Oregon

Brian Russell
Zephyr Technology Corp.

Janelle C. Sticker
West Virginia Univ.

New Graduate Student Members

Sherry Lee Adams

Univ. of Florida

Sam Adhikari

Temple Univ., PA

Nitin Mukundrao Ambade

Indian Inst. of Tech. (IIT), India

Giselle Barreto

Univ. of Puerto Rico

Monica M. Baze

Univ. of Nevada, Reno

Zachary Berwick

Indiana Univ.

Rachel Renee Boyle

Texas A&M Univ.

Stina Kerin Carlsson

Univ. of Kalmar, Sweden

Timothy Carter

SUNY Downstate Coll. of Med.

Kavaljit H. Chhabra

Louisiana State Univ.

Geoffrey Dilly

Harvard Univ., MA

Mareshia D. Donald

Univ. of Brandeis, MA

John Uchenna Egbuji

Univ. of Auckland, New Zealand

Brooke E. Flammang

Harvard Univ., MA

Mark Daniel Hatcher

Howard Univ., DC

Pierre-Yves Jean-Charles

Florida Atlantic Univ.

Carmen Kiper

Univ. of Kentucky

Kevin David Kohl

Univ. of Utah

Swati Kunduri

West Virginia Univ.

Rhianna Che Laker

Univ. of Melbourne, Australia

Orlando Mani

Inst. of Biochem. & Molec. Med.,

Switzerland

Al Nyack

Univ. of Rhode Island

Stephen Ogungbemi

Univ. of Lagos

Harry Pantazopoulos

Northeastern Univ., MA

Kristi Porter

Emory Univ., GA

Aaron Lamont Randolph

Virginia Commonwealth Univ.

Dushon Riley

Univ. of Maryland, Baltimore

Kenny Roman

Ohio State Univ.

Annie Romney

Univ. of Nevada, Las Vegas

Chris L. Schaich

Wake Forest Univ., NC

Anderson Luiz Bezerra Da Silveira

Fed Rural of Rio De Janeiro Univ., Brazil

Ashley Vorhees

Univ. of California, Irvine

John Whitema

Univ. of Wyoming

Cassondra L. Williams

Univ. of California, San Diego

Huan Yang

Michigan Technological Univ.

Shujun Zhang

Louisiana State Univ.

Xiaolong Zhu

Univ. of Mississippi Med. Center

New Undergraduate Student Members

General Lee

Case Western Reserve

Univ., OH

Colin J. Mitchell

Univ. of Cincinnati, OH

Natalie S. Rodrigues

Arizona State Univ.

Smitha Vishnuvardhan

North Dakota State Univ.

Recently Deceased Members

Elsworth R. Buskirk

State College, PA

Francesco Del Greco

Sarasota, FL

James G. Hilton

Austin, TX

Henry D. Janowitz

New York, NY

Susan M. Jones

Huntington Station, NY

Murray A. Katz

Tucson, AZ

Helen M. Ranney

La Jolla, CA

Paulette Rady Reimer

Cave Creek, AZ

A. Yvonne Russell

Launenburg, NC

Education

2010-2011 Porter Physiology Fellows Announced

The APS and Porter Physiology Development Committee congratulate the 2010-2011 APS Porter Physiology Fellows:

Leroy Cooper, Brown Univ.;

Mareshia Donald, Brandeis Univ.;

Anniesha Hack, Johns Hopkins Medical Institute;

Aisha Kelly-Cobbs, Medical College of Georgia;

Steven Romero, Univ. of Oregon;

Jose Viscarra, Univ. of California, Merced;

Annie Whitaker, Louisiana State Univ. Health Sciences Center; and

Tanganyika Wilder, Univ. of

Illinois at Chicago.

Leroy Cooper was named the 2010-2011 Eleanor Ison-Franklin Fellow in honor of Dr. Franklin, the past Co-Chair of the Porter Committee, indicating that he had the highest ranked application among the renewal applicants.

The Porter Physiology Fellowships for minorities are 1-year graduate fellowships that provide a stipend of \$23,500, with the opportunity for a second year of funding. The fellowships are open to underrepresented minority applicants (African Americans, Hispanics, Native Americans, Native Alaskans, or Pacific

Islanders) who are citizens or permanent residents of the United States or its territories. Applicants must have been accepted into or currently be enrolled in a graduate program pursuing an advanced degree in the physiological sciences and a member of APS. For more information, see the APS website at http://www.the-aps.org/education/minority_prog/stu_fellows/porter_phy/ov_pp.htm or contact Ms. Brooke Bruthers in the APS Education Office at education@the-aps.org or 301-634-7132. The application deadline for 2011-2012 fellowship year is January 15, 2011. ♦

APS Supports 24 Undergraduate Researchers

The American Physiological Society's Undergraduate Summer Research Fellowships (UGSRF) program is sponsored by the APS Career Opportunities in Physiology Committee and funded by the APS Council. In 2007, APS doubled the number of fellowships. In 2010, we will again be funding 24 undergraduates for the summer. The program was established in 2000, making this the 10th year of the program.

These fellowships are to support full-time undergraduate students to work in the laboratory of an established investigator. The intent of this program is to excite and encourage students to pursue a career as a basic or clinical research scientist. Faculty sponsors/advisors must be active members of the APS in good standing but do not have to be US residents. Past awardees include students from

Canada and South America.

These Fellowships provide a \$4,000 summer stipend to the student (10 weeks of support), a \$300 grant to the faculty sponsor/advisor, and up to \$1,300 to the student so that he/she may attend and present their data at the APS annual meeting, Experimental Biology 2011. ❖

Student/Student Institution	Research Host/Host Institution
Prashasti Agrawal Dartmouth College	Mark A. Knepper National Institutes of Health
Ayed M. Allawzi Purdue Univ.	Nancy J. Pelaez Purdue Univ.
Jacquelynn N. Cuellar Univ. of Texas, Brownsville and Texas Southmost College	Masako Isokawa Univ. of Texas at Brownsville
Stephanie V. Eldred Pennsylvania State Univ.	Donna H. Korzick Pennsylvania State Univ.
Jonathan Gumucio Univ. of Michigan	Susan V. Brooks Herzog Univ. of Michigan
Robert Heler Univ. of Richmond	Linda M. Boland Univ. of Richmond
Diana Herrera Univ. of Houston	Kirk P. Conrad Univ. of Florida College of Medicine
Jacob Hull Kansas State Univ.	Bruce D. Schultz Kansas State Univ.
Michael Johnston Univ. of North Carolina at Chapel Hill	Scott T. Magness Univ. of North Carolina at Chapel Hill
Anh-Thu Le Cornell Univ.	Michael B. Butterworth Univ. of Pittsburgh
Kelly M. Lufkin Hope College	Jason R. Carter Michigan Technological Univ.
Mariaha J. Lyons Univ. of North Dakota	Van A. Doze Univ. of North Dakota School of Med. & Health Sciences
Danielle Mabrey Univ. of Wisconsin-Madison	Troy A. Hornberger Univ. of Wisconsin, Madison
Mary C. McAllister Univ. of Notre Dame	Pamela A. Lucchesi Nationwide Children's Hospital
Christina Mitchell Mount Royal Univ.	Quentin J. Pittman Univ. of Calgary
William P. Mosenthal St. Lawrence Univ.	Ana Y. Estevez St. Lawrence Univ.
Alexandrea Nichols Univ. of Utah	J. David Symons Univ. of Utah School of Medicine
Matthew V. Puccetti Univ. of Dayton	Carissa M. Krane Univ. of Dayton
Sara Redd Bucknell Univ.	Jeff M. Sands Emory Univ.
Sarah Reed Univ. of Washington	Stanley C. Froehner Univ. of Washington
Anna Srouji Univ. of California, Riverside	Christian Lytle Univ. of California, Riverside
Breanne N. Wright Univ. of Maryland, Baltimore County	Andrea L. Meredith Univ. of Maryland School of Medicine
Sen Xu Tulane Univ.	Lisa M. Harrison-Bernard Louisiana State Univ. Health Sciences Center
Caitlin M. Zillner Univ. of Wisconsin - Madison	William G. Schrage Univ. of Wisconsin, Madison

APS Presents Awards for the Best Physiology Project at Local Middle and High School Science Fairs

APS members continue to judge and present Science Fair Awards on behalf of the APS at local and regional science fairs for pre-college students across the nation. The student selected to have the best physiology-related project receives an APS t-shirt, an APS researcher pin, and a certificate. The student's teacher receives the APS *Women Life Scientists* book and a K-12 resource packet.

Any APS member who participates as a judge in a local or regional science fair at an elementary, middle, or high school is eligible to apply and receive an APS award packet. For more information, visit <http://www.the-aps.org/education/sciencefair/index.htm> or contact Scarletta Whitsett (swhitsett@the-aps.org) in the APS Education Office.

Mark Golay, a seventh grader at St. Benilde Catholic Elementary School in Metairie, LA, received an APS award for the best physiology project at the school's Science Fair. APS member Lisa Harrison-Bernard of the Louisiana State Univ. Health Sciences Center School of Medicine was the APS judge who presented the award. The title of Mark's project is "Roach Café: What do Roaches Like to Eat." Harrison-Barnard wrote, "I examined the feeding behavior of Madagascar Hissing Cockroaches. His results demonstrated that cockroaches prefer fruits, sweets, and starchy foods more

than vegetables, dairy products, and proteins. He concluded that knowledge of feeding preferences of roaches may help pesticide companies make more effective roach baits." Mark also won first place in the Life Science Division of the Science Fair. His teacher and sponsor is Diane McCann.

Alex Wade, a senior at Paul Laurence Dunbar High School in Lexington, KY, received an APS award for the best physiology project at the Kentucky American Water Science Fair. APS member Kenneth S. Campbell of the Univ. of Kentucky was the judge who presented the award. The title of Alex's project is "Microgravity Influences on Bone Mineralization." His teacher and sponsor is Beverly Smith.

Piyusha Sane, a ninth grader at North Allegheny Intermediate High School in Pittsburgh, PA received an APS award for the best physiology project at the Pennsylvania Junior Academy of Sciences Region 7 Science Fair. APS member Alan F. Sved of the Univ. of Pittsburgh was the APS judge who presented the award. The title of her project is, "How Do Fears Change with Age and Relate to Medical Condition?" Her sponsor was Bruce Allen.

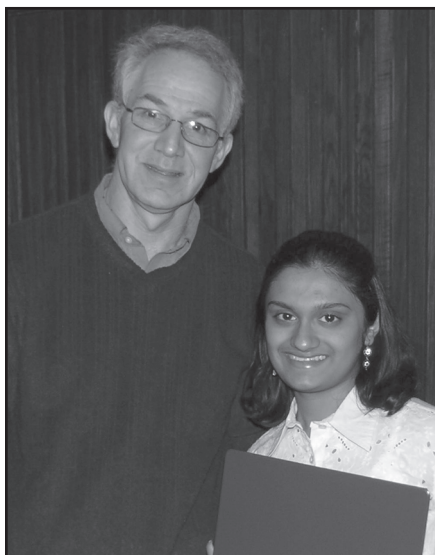
Cora Alvi, an eighth grader at Maclay School in Tallahassee, FL, received an APS award for the best physiology project at the Capital Regional Science and Engineering Fair. APS member Bryant Chase of the Florida State Univ. was the judge who presented the award. The title of her project is, "Does Resting Posture Affect Exercise Recovery." Her teacher was Helen Owenby.



APS Member Lisa Harrison-Bernard presented Mark Golay with an APS Science Fair award for his project titled, "Cockroach Café."

Daniel Dashevsky, an eleventh grader at Lathrop High School in Fairbanks, AK received an APS award for the best physiology project at the Alaska State High School Science Symposium. APS member Barbara Taylor of the Univ. of Alaska was the judge who presented the award. The title of his project is "Assessing the Influence of Individual and Environmental Variables on Snowshoe Hare Mortality Rates During a Peak Population Year." His teacher was Wendy Ehnert Allen.

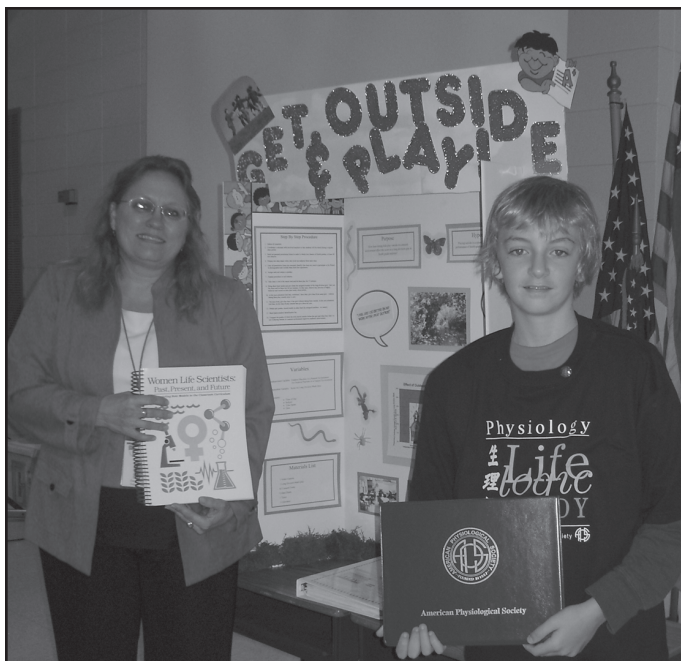
Caelan Mitchell-Bennett, a sixth grader at Episcopal Day School in Brownsville, TX received an APS award



APS Member Alan Sved presented Piyusha Sane with an APS Science Fair award for her project titled, "How do fears change with age and relate to medical condition."



APS Member Bryant Chase presented Cora Alvi with an APS Science Fair award for her project titled, "Does resting posture affect exercise recovery?"



Caelan Mitchell-Bennett and his teacher, Sandra Morfitt, are pictured with his award-winning poster.

for the best physiology project at the school's Science Fair. APS member Masako Isokawa of the Univ. of Texas at Brownsville was the judge who presented the award. The title of his project is "Get Outside and Play." Caelan said, "I studied whether unstructured playtime in nature with having more exercise and free-play can help kids do better in school and be more creative (presumably by stimulating the growth of brain cells). Indeed, long division quiz was better accomplished by two groups of kids when they spent 15 minutes outside playing before taking the quiz, than when they sat and worked on the math before the quiz (results were compared within a group). My interpretation of the result is that the brain is stimulated by the use of all the

senses and multi-sensory integration and helped us to focus better." His teacher was Sandra Morfitt.

Tatsiana Savenka, a tenth grader at Little Rock Central High School in Little Rock, AR received an APS award for the best physiology project at the Central Arkansas Regional Science Fair. APS member Parimal Chowdhury of the Univ. of Arkansas for Medical Sciences was the judge who presented the award. The title of her project is, "Anti-cancer Chemotherapy Causes Endothelial Injury and Mechanisms Leading to Cardiovascular Complication." Tatsiana wrote, "Cancer is one of the deadliest illnesses, but the effects of chemotherapeutic drugs on the human body may have as much negative effect as cancer itself. The results of



APS Member Parimal Chowdhury presented Tatsiana Savenka with an APS Science Fair award for her project titled, "Anti-cancer chemotherapy causes endothelial injury and mechanisms leading to cardiovascular complications."

the data suggest that chemotherapeutic drug treatment leads to endothelial cell injury and increased elevation of floating endothelial cells in the bloodstream. Chemotherapeutic drug treatment is toxic to endothelial cells, which leads to cardiovascular complications." Her teacher was Joy Thompson.

Baily Bowers, a ninth grader at Ada High School in Pittsburgh, PA received an APS award for the best physiology project at the OAS West Central District Science Day. APS member Nancy Woodley of the Ohio Northern Univ. was the judge who presented the award. The title of Baily's project is, "Why Do Objects Appear the Color They Do?" ♦

2010-2011 K-12 Minority Outreach Fellows Announced

The APS and Porter Physiology Development Committee congratulate the 2010-2011 APS Porter Physiology Fellows:

Jessica Ibarra, University of Texas Health Science Center-San Antonio

Annie Whitaker, Louisiana State University Health Sciences Center

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

Over the 2010 Fellowship year, students will attend EB 2010 and 2011, work with the Frontiers in Physiology Research Teachers, carry out two classroom visits, participate in PhUn Week,

and attend conferences for minority students in the fall. For more information, see the APS website at http://www.the-aps.org/education/minority_prog/stu_fellows/k-12_minor/ov_k12.htm or contact Brooke Bruthers in the APS Education Office at education@the-aps.org or 301-634-7132. The application deadline for 2011 fellowship year is December 27, 2010. ♦



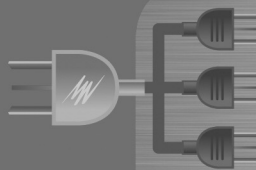
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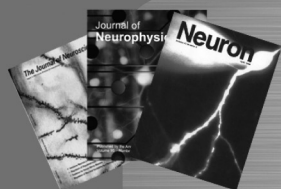
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CELEBRATING OVER 20 YEARS OF INNOVATIONS

Becoming a Faculty Member: Transition from Graduate Student/Post-Doc to the Tenure Track (Or...So You Got the Job...Now What?)

Edward McAuley

Univ. of Illinois at Urbana-Champaign

Introduction

For many years I have been concerned that the majority of graduate programs around the country have failed quite miserably in one vital aspect of graduate education: training graduate students to become faculty members. I don't believe that I am alone in this belief, as evidenced by the many excellent columns in the "Mentoring Forum" section of *The Physiologist*. Indeed, many professors do an excellent job of preparing their graduate students but much of this is informal training. After much discussion with colleagues, my concern prompted me, in 2008, to design and teach a graduate class in "Professional Development." In this class, I tried to share my own experiences of mentoring faculty and graduate students in such a way that the students in the class would feel better prepared for what "lay in wait for them" out there on the tenure track. In this column, I address one of those topics, the transition to becoming a faculty member.

What Do Assistant Professors Do?

Although this may appear a rather silly question, I am continually surprised by new faculty members' realization of the complexity of being on the tenure-track. The majority assume, and often correctly, that the primary focus of their job is building a successful research agenda. This is certainly how our students are trained: develop a line of research; be productive; fund your research, your laboratory, and your students. However, there are also those not so trivial elements of the position that encompass teaching and service (or public engagement). Please allow me discuss each of these briefly and offer a few tips that hopefully may serve you well as you begin your careers.

Not All Research is Equal

This cryptic sub-heading is not meant to suggest that some research endeavors are necessarily more superior to others. Rather, different institutions have different research demands within the tenure-track system. Some are *research intensive* and reflect situa-



Edward McAuley

tions where you have lots of independence in putting your research agenda or program together. Here the focus is on generating funding, an independent line of research, and publications. Such endeavors often require forming collaborative research groups across campus and developing a national and international reputation. One has to be particularly cognizant of structuring one's time appropriately in this type of position. Other institutions are less research intensive and there is somewhat less pressure on being an independent scientist. In these institutions, there is likely to be a greater emphasis placed on teaching, a higher teaching load, and therefore decreased need to structure your time (i.e., the teaching structures it for you). Finally, there are tenure-track positions that are comprised of primarily, possibly all, teaching where there are few expectations relative to conducting research, publishing, and securing funding.

Whether you are required to do a little or a lot of research, it pays to develop a systematic research agenda that has a solid theoretical foundation and progresses logically in solving increasing more complex problems. Of crucial importance at this stage is the establishment of one's own independent line of research that may, in part, reflect one's graduate or postdoctoral work

and may be somewhat influenced by one's former mentors. In my own lab, we have several mantras that serve us well, and one that I frequently use with my students is that "You can't be me!" They may espouse the same theoretical biases that I have, but they must be able to demonstrate that they have something viable and important to bring to the research table over which they can exercise sole ownership. In large part, I am happy to say that the majority of my students have been successful in this endeavor.

Teaching is Not the Diametrical Opposite of Research

For the vast majority of assistant professors, teaching will take an inordinate amount of time during the first few years. Many consider that teaching "takes time away from my research." However, it is important to remember that, like it or not, as professors we are supposed to be educating students. Moreover, being a "good teacher," in my view can have many advantages, not the least of which involves assisting in your research program. I know many of you are probably thinking that this makes little sense. However, if you subscribe to the philosophy that your research can inform your teaching and your teaching can inform your research, I believe that teaching can have a remarkable pay-off for your research program. For example, as a new assistant professor, you may not have the luxury of having graduate research assistants to help you with your research. One solution to this is to recruit undergraduates to become involved in your research. This becomes more difficult to do if you are not viewed as a passionate teacher who cares about his/her subject matter. Several years ago, I started to recruit undergraduates to participate in our research as "undergraduate research assistants" (URAs). This has been an extraordinarily successful venture with between 10 and 20 URAs working *with* us (note: not *for* us) each year. This would have been impossible without them having had a good experience in the classroom.

There are, however, many challenges associated with teaching. These include: 1) time management (setting aside time for class preparation, reading, and grading); 2) trying to teach everything you have learned in graduate school to an incoming freshman class (remember – they were in high school six weeks ago!); 3) teaching new classes every semester (hint – be prepared to take an existing syllabus, modify it as you go along, and get comfortable teaching a couple of classes before moving to something new); 4) overusing technology (sure, your exploding 3D PowerPoint presentations are awesome, but don't let style destroy substance); 5) having to cover all topics on your syllabus (just because you have a syllabus doesn't necessarily mean that you HAVE to get through it; making sure that your students are learning the material is more important); 6) being chained to the lectern (movement is important in teaching; it gets you closer to the students and it suggests that you are interested in the students; so, work the room!); and 7) lacking "presence" in the classroom (be enthusiastic; modulate the pitch and cadence of your voice to give the impression that this is the greatest thing imaginable that you are talking about). Finally, being a good teacher demands putting in time and effort. More importantly, it demands that you *want* to be successful at teaching and not to simply treat it as a necessary evil.

Service (Professional Engagement)

Loosely speaking, service or professional engagement reflects activity that contributes to the successful mission of the department, the institution, and discipline. Most department heads attempt to "protect" assistant professors from too much involvement in service until such time as they receive tenure. Whether this is a good thing can be debated. Nevertheless, we are all expected to be involved in service. But what is this service? It can encompass both internal (department, college, campus committees) and external (disciplinary, professional, community involvement) service. Internal service for the most part involves committee work. Such committee work can be at the elected (e.g., departmental advisory, promotion and tenure, faculty senate), appointed (e.g., faculty searches, budgetary, campus level advisory), or administrative (leaders of institute concentrations, certification, institu-

tional review boards) levels. External service can involve organizational (e.g., leadership committees, holding office in national organizations), journal (e.g., reviewing, editorial boards, editors), and community (e.g., serving on community advisory boards) involvement. Clearly, doing all of this can take its toll on one's time, especially when the "tenure clock is ticking." Thus, judicious decisions must be made relative to what service is taken on voluntarily.

It would appear that service is a burden on the research and teaching demands on an assistant professor, so is it worth it? My answer is a resounding "yes!" It is worth it because it helps you to become a well-rounded departmental citizen. It can also increase your visibility locally and externally, which, in turn, can lead to collaborations that might enhance your research and teaching. Moreover, becoming more visible is important in advancing your reputation as you move through the academic ranks. However, although I advocate for involvement in service, again, one must be judicious in one's approach. Getting involved early is a great way to begin to understand the system within which you work and potentially to have some control over your own environment. The "dark side" of service is, in many ways, one's own fault brought about by excessive committee work demanding more time than you can spare. Learn to say no sometimes (albeit apologetically and with a smile!).

Putting Together Your Lab: More than Equipment

Among the many things that will assail you in your transition to being a faculty member will be the organization and structuring of your lab. Although having the funds and space necessary for the equipment that is needed to successfully carry out your research is vital, it is also important to remember that people are important too. Unfortunately, most new assistant professors are not in the position to immediately have a team of advanced doctoral students with a myriad of skills to assist them. So what is one to do? This is where the URA model comes into play again. Our URAs are trained in all of the day-to-day tasks associated with our lab and are integrated as fully functioning lab members. Over the years this model has been revised, upgraded, and nuanced to the point where we attract the very

best undergraduates. The model has been championed by a former chancellor as the optimal way for undergraduates to receive undergraduate research experience. Our URA model requires students to commit to a minimum of two semesters in the lab and has minimal expectations in terms of written assignments. Rather, we want them to become committed, responsible, and enthusiastic members of the lab. Most of our URAs are pre-health professionals (i.e., they plan to apply to medical, school, physical or occupational therapy, etc.). My goal is always to try to persuade some of them to enter a research career, and I have been fortunate to have converted a few of them! Importantly, the evaluations of their experience as URAs are uniformly positive, often citing their sense of accomplishment and pride that they

Edward McAuley is a Shahid and Ann Carlson Khan Endowed Professor of Applied Health Sciences at the University of Illinois at Urbana-Champaign. He holds appointments in the Departments of Kinesiology and Community Health, Psychology, Internal Medicine, and the Beckman Institute. He is also the director of the Exercise Psychology Laboratory at Illinois. He has published over 250 articles and chapters. He recently completed a five-year term as Associate Editor of the *Annals of Behavioral Medicine* and is currently on the editorial boards of *Psychology and Aging*, and the *Journal of Gerontology: Psychological Sciences*. He is the Chair of the Psychosocial Risk and Disease Prevention study section of the NIH. He is an elected fellow of the Society of Behavioral Medicine and the Gerontological Society of America. While at the University of Illinois he has been named a University Scholar and received the both the campus award for Excellence in Undergraduate Teaching and Excellence in Guiding Undergraduate Research. His research agenda has focused primarily on physical activity, aging, and psychological function, the use of efficacy-based treatment interventions to enhance exercise adherence in older adults, and the role played by fitness change in neurocognitive function in older adults. The focus of his current work is social cognitive models of physical activity, disability, and quality of life.

are running a metabolic cart flawlessly in front of a cardiologist, that they love interacting with our older participants (despite being terrified to begin with), and, in general, that this experience was the great “hands on” that they could not get in the classroom. So, all of this is by way of saying that upper level URAs can be a tremendous asset to your lab and may be a really good source of future graduate students!

Help: Where Does It Come From?

Needless to say, all of this may seem a bit daunting to say the least. However, within all departments there are numerous sources of assistance, guidance, and wisdom. Many departments have mentoring programs in place. If yours does not, find your own mentor. This may be in your department or across your college but seek someone

with experience, success, who is willing to be involved in your career, and who knows their way around the university system. This does not necessarily have to be a seasoned full professor by any means. Other columnists in *The Physiologist* have previously broached this topic and therefore I will not delve deeply into it in this column. Suffice to say that a good mentor can help you navigate the institutional waters more easily, guide your development as a faculty member, and help you to enjoy the transition into your new position.

Some Final Thoughts

Being a faculty member has been one of the great experiences of my life. Although there are certainly more difficulties ahead in these uncertain economic times, a career in higher education can be wonderfully rewarding. The better

prepared that you are on entering this career, the more successful you will be. Naturally, in this short column, I have only been able to touch on a few of the topics but I would strongly recommend two books that I have found to be very insightful. The first is *The Complete Academic: A Career Guide* by Darley, Zanna, and Roediger. This edited text provides some excellent chapters covering sections on starting your career, teaching and mentoring, research and writing, orientation to the academic environment, diversity in academia, and managing your career over time. The second is called *Life on the Tenure Track: Lessons from the First Year* by James M. Lang, an amusing but insightful treatise on the trials and tribulations of entering higher education. Best wishes for a successful and rewarding career! ❖

Science Policy

NIH Director's Priorities: Opportunities for Physiology

James Galligan and Zhongjie Sun

The mission of the NIH is “science in pursuit of fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to extend healthy life and reduce the burdens of illness and disability.” Four and a half months after assuming the helm of the NIH, Francis Collins published an article in Science (1) in which he set forth five promising areas of research that would receive priority consideration. Collins described these areas as “ripe for major advances that could reap substantial downstream benefits.”

APS Public Affairs Committee members James Galligan and Zhongjie Sun reviewed the current state of physiology in light of these priorities.

1. High-throughput technologies

- High throughput technologies are important tools to identify genes that contribute to normal function in organ systems as well as to identify gene changes that may lead to human disease.
- While high throughput technologies can identify gene targets, the func-

tional significance of the identified targets must still be established in progressively more complex systems. Initial studies done with *in vitro* systems are a useful intermediate step and can provide new information about the molecular physiology of the identified target(s). However, understanding function requires investigators who are qualified to design and implement integrative physiological studies. Interpreting the data from these studies is the next critical step and including the ability to recognize the limitations of data generated. Physiologists are uniquely qualified to take discoveries from high throughput screens into a functional context.

- High-throughput technologies offer many opportunities to advance important areas of physiology. APS members should bring these topics to the attention of NIH program officers responsible for developing requests for applications (RFAs) and program announcements (PAs).
- APS should maintain regular contact with NIH to ensure that the voice of the physiologist is heard.

2. Translational research

- The physiology community is well positioned to provide the expertise needed to implement this priority. Translational research involves the movement of basic science into the clinic. A key intermediate step is to

move genetic, molecular and cellular biological data into an integrative context. This is the basis for most physiological studies, and physiologists are trained specifically to meet this goal.

- Physiologists, by the nature of the discipline are actively engaged in translational research. Drugs that target molecules must be validated at the physiological level, and many breakthroughs in drug discoveries are made through physiology research.
- Drug development requires animal models of the disease in question to serve as platforms for preclinical study. The physiologist is best prepared to develop these animal models and to assess their strengths and weaknesses.

3. Health care reform and comparative effectiveness research

- Physiologists can play a role in understanding the mechanisms responsible for treatment success or failure in individual patients and in patient populations.
- Physiologists should take a broad view of this opportunity and work with pharmacologists, public health researchers, epidemiologists, physicians and others to develop new collaborative programs. This effort will enhance the significance and influence of physiology and explore new roles for physiology in other fields.

4. Global health

- The physiologist has a crucial role to

play as part of a global health research team. Implementing global health policies and recommendations requires an understanding of disease mechanisms. Since physiology is the study of the normal functioning of systems and also the pathology of system function, this knowledge is essential to the formation of sound health policies.

- Physiologists should make policy-makers aware of the potential influence of global health policy on human physiology. Environments, drugs, chemicals, and politics alter our body function over decades, which may cause adaptive changes, and therefore should be the focus of many studies of evolutionary physiology. These evolutionary changes in the body function may affect subsequent generations, which could have a greater public health impact than any one disease.

5. Empower the biomedical research community through sustained funding, encouraging young investigators, and funding innovative research

- The scope of physiological research and education has expanded greatly in the 21st century and now include studies of genetic, molecular, cellular, and integrative function in health and disease. A stronger physiology community guarantees greater advancements in progress against disease.
- The APS should advocate for sustained and predictable increases in research funding, recommend important topic areas of biomedical research, and support programs to attract young scientists into biomedical research as well as to facilitate the professional development of young investigators.
- NIH needs input from scientists to make new policies and modify existing rules. The APS should work with NIH policymakers to increase funding opportunities for physiological research.
- APS should educate the next generation of physiologists and train them to be powerful advocates for physiology. Young investigators are the hope of tomorrow's physiology.

In sum the physiology community has a critical role to play in furthering the NIH mission of using science to advance health and is ideally positioned to make significant contributions to the areas of emphasis highlighted by Dr. Collins.

Reference

- 1 F. Collins, *Science* 327, 36 (2010).
Doi:10.1126/science.1185055.

Second Pro-Test Rally Stands Up for Science

Pro-Test for Science [<http://www.pro-test-for-science.org/>] held its second pro-animal research rally [http://www.the-aps.org/publications/tphys/2009html/June/sci_policy.htm#ucla] on April 8, 2010. An estimated 200–400 people gathered on UCLA campus to show their support for animal research and condemn threats and violence against scientists. Tom Holder, of Speaking of Research [<http://speakingofresearch.com/>] and the original, UK-based Pro-Test [<http://www.pro-test.org.uk/>], lead the march, sparking the crowd to chant “No more threats! No more fear! Animal research wanted here!” Marchers held signs with slogans like “Scientists deserve thanks not threats,” “Animal research has already helped you,” and “Animal research saves pets.”

The first speaker was neuroscientist and founder of Pro-Test for Science, J. David Jentsch. Together with other UCLA faculty, staff, and students, Jentsch founded Pro-Test for Science and organized last year's rally after his car was firebombed in March of 2009. Jentsch noted that there have been no criminal attacks on researchers in the last year, and two members of the Animal Liberation Front had been indicted for earlier harassment. He pointed to the increasing willingness of scientists to advocate for research as an important contributor to this reduction in extremism. “A small but vocal and violent minority of people have decided that they want to seek an end to animal research, including its contributions to medical research,” he told the crowd. “If we continue what we're doing here today, people will understand what's at risk, and that effort will fail.”

Only one counter-protester was spotted at the event.

Holder presented a pro-research petition bearing 11,621 signatures—including those of Nobel Laureates and all the UC-system chancellors—to two representatives from the National Institutes of Health, who also spoke. Kevin Quinn, Chief of Behavioral Science and Integrative Neuroscience at the National Institute of Mental Health addressed the role animal research plays in confronting mental health issues, saying “animal research conducted in a humane, ethical, and responsible manner is absolutely critical...to understand, treat, and cure mental disorders.”

Michael Steinmetz, Program Director of the National Eye Institute, spoke of

the role animal research plays in vision research, noting both studies that translated into treatments and the importance of basic research as the means “to discover...underlying biological principles.”

The final speaker was UC Executive Vice-Chancellor Scott Waugh, who reaffirmed UCLA's support for animal research. “Violence, threats, and other criminal activity are never a viable alternative to dialogue,” Waugh said.

In closing, Holder encouraged everyone present to tell five people about the benefits of animal research, and encourage each of them in turn to speak to five more. With such a simple effort, Holder said “we can start effecting a change across the US in how animal research is perceived.”

Animal Research Outreach Materials

The APS Science Policy Department is offering two new pro-research materials: the website www.animalresearchcures.org and the brochure *Animal Research: Finding Cures, Saving Lives* [<http://www.animalresearchcures.org/savinglives.pdf>]. Designed to aid outreach efforts, these products address common questions about animal research with easy to read answers, while providing sources for deeper exploration.

At www.animalresearchcures.org, you can download the PDF or order print copies of *Animal Research: Finding Cures, Saving Lives*, or use the html version for easy-reference links. You can also make a donation to help put *Finding Cures* in the hands of those working in public outreach. ❖

Animal Research Finding Cures, Saving Lives



Why do researchers study animals?



Why can't they use computers instead?



Who makes sure research animals are treated well?

Why do some people say animal research is wrong?

Is research painful?

Why do some drugs still have serious side effects?

And more

The American Physiological Society

Letters to Bill Dantzler

Ed J. Weinman writes: "It was good to hear from you. It has been some time since we worried about the renal tubular transport of organic compounds. I have now been at the University of Maryland School of Medicine 10 years since stepping down as Chair of Medicine at West Virginia University Medical School. At Maryland, I have managed to keep my laboratory intact and continue our studies of NHERF-1, a PDZ domain adaptor protein we cloned several years ago. Our direct studies have focused on the role of the NHERF proteins in renal electrolyte and mineral excretion, particularly the regulation of renal phosphate transport. Our work with collaborators, on the other hand, has tended to concentrate on the role of NHERF in the signal transduction and trafficking of hormone receptors.

"We recently had the good fortune to have all our grants renewed thereby insuring we will continue for several more years. I have decided, however, that I will not renew these grants when they are done and I will not apply for additional funding during this period. I have, starting this year, scaled back my clinical commitments and for the first time in nearly 40 years, I do not have weekend or holiday clinical responsibilities. I remain active, full time, with activities in the laboratory and in clinical venues I particularly enjoy.

"Seemingly daily, another of my early intellectual idols and friends retires or passes away; a source of sadness and reality. On the other hand, it is remarkable how many new bright and creative people emerge to make remaining in academics an expanding experience. The advent of the new technologies also seems to provide an endless source of opportunities to address questions that seemed impossible to approach previously. For us seniors, it is a time that is unfamiliar yet appealing in a rather unique way."

Maurice McGregor writes: "I was born in South Africa. I live in Montréal with my wife, Prof Margaret Becklake. After medical education at the University of the Witwatersrand in Johannesburg, I served in Italy with the British Eighth Army and US Fifth Army (1943-1946). Upon release, I undertook postgraduate training in London and then returned to South Africa to teach at my alma mater. In 1957, I moved to McGill University in Canada.

"After 10 years of active teaching and research (physiology) I served terms as Dean of Medicine, Head of Cardiology and VP Health, and terms as head of Cardiology and as Physician in Chief

of the Royal Victoria Hospital.

"Following retirement in 1983 I served a term as Dean of Medicine at my alma mater in Johannesburg (1984-1986), and on returning to Canada initiated and Chaired the Council for the Evaluation of Health Technology of Quebec (1988-1994). I subsequently Chaired the Canadian National Steering committee on Guidelines for Breast Cancer Management (1994-98).

"In 2000, I launched and Chaired the Technology Assessment Unit of the McGill University Health Centre. During this time, I also served on the International Expert Panel convened to advise on the use of economic evaluation in the German health care system (2007-09), and on the Steering Committee of the Canadian Blood Services (2009-present). I am currently Prof Emeritus of medicine at McGill University and Honorary Physician at the McGill University Health Centre.

Letter to Frank Knox

Hugh Van Liew writes: "Thank you for your letter of March 25, 2010. It is good to hear from you and to know that the American Physiological Society is interested in its retired members.

"I retired from the Physiology Department, State University of New York at Buffalo, in 1997 and then went to work for the US Navy at the Experimental Diving Unit at Panama City Florida. I left there after three years but continued to work at home on projects started at NEDU; after about four years of collaborating by e-mail, we finished four papers that were published in the Undersea and Hyperbaric Medicine journal.

"After Judy Van Liew and I retired, we moved our permanent base from Buffalo to Cape Cod MA. After finishing the NEDU work, I found that without the stimulation of colleagues, seminars, and a hands-on library, I did not have the interest or ambition to continue scientific pursuits, so I've given myself over to other matters: music, gardening, and reading on topics that I'd missed out on when fully devoted to science.

"As for words of wisdom, fairly late in my career, I developed a growing appreciation of the rewards of working with investigators in other fields and of enlisting the talents of students (who, in their education, acquire skills that we professors lack). If I had it to do over, I might have cultivated these avenues sooner. As for the academic ladder, I advise younger colleagues to figure things out for themselves because the world has changed so much since I was working my way up.

When counseling a favorite student, I told him 'You'll find your way.'"

Letter to Clark Blatteis

J. Leslie Glick writes: "Thank you for your wishing me a happy 70th birthday.

"In response to your questions, I continue to be very active professionally as a management consultant and, from time to time, I publish articles, typically in the area of management/business.

"I accidentally got into business early in my career. After postdoctoral studies in Biochemistry at Princeton, I joined the Roswell Park Memorial Institute Division of SUNY-Buffalo in 1965 and, from 1968 to 1970, served as its chairman of Physiology. In 1969, I co-founded a biologicals manufacturing company, Associated Biomedic Systems, assuming various management responsibilities that induced me to leave academia in 1970. I continued in my new capacity until 1977, during which time I founded and directed another organization, the Institute for Scientific and Social Accountability. I next became a serial entrepreneur, starting and running some of the earliest biotech companies, e.g., Genex Corporation (1977-1987) and Bionix Corporation (1987-1993). Since 1993, I have spent most of my time advising CEOs in a wide variety of industries, although the majority of my assignments are in the biotech and IT industries. I mostly focus on strategic planning and corporate development, but on occasion I deal with human resource issues. I also advise venture capital and investment banking firms. I did return to academia eventually, however, albeit in a different field than originally. Thus, from 1988 to 2004, I served as adjunct professor of Technology Management in the Graduate School at University of Maryland University College and, from 2006 to 2007, on its Doctor of Management Advisory Board. And from 1992 to 2001, I was editor-in-chief of the journal *Technology Management* that I had co-founded in 1992. I have also served over the years on numerous academic and business advisory boards and forums related to industrial biotechnology and its management and am currently on the editorial board of *Accountability in Research* and Vice-Chairman of Advanced Processing & Imaging. As to my professional legacy, I have published to-date 158 articles, patents, books and manuals.

"As an aside, I am also a jazz guitarist (I typically burn the candle at both ends) and a CD producer for other jazz artists." ♦

Postdoctoral Positions

Postdoctoral Fellow Positions in Cardiac Metabolism. Description:

Full-time post-doctoral positions are immediately available to perform research on the influence of lipid dynamics and metabolic enzyme expression on heart function. The Program in Integrative Cardiac Metabolism at the University of Illinois College of Medicine is a multidisciplinary research program that supports 6,000 sf of research space for cardiovascular physiology, biochemistry and gene therapy. The program includes dedicated, state-of-the-art facilities for ultra-high field NMR/MRI, LC/Mass Spectrometry, and gene delivery, as well as analytical laboratories. Successful candidates will have the opportunity to investigate mechanisms of metabolic flux regulation at the molecular level within the intact beating heart and receive training in a wide array of skills, including stable isotope kinetics, NMR, MRI, LC/MS, in vivo gene delivery, and cardiac physiology. Qualifications: PhD required. Experience required in any of the following procedures: protein assay, LC/MS, isolated heart perfusions, or NMR. Application Information: Send a letter of application, stating research experience and interests, a CV, and a list of 3 references to E. Douglas Lewandowski, PhD, Director, Program in Integrative Cardiac Metabolism, MC 901, UIC College of Medicine, 835 S. Wolcott, Chicago, IL 60612, or submit materials electronically to Ms. Vonaire Daly, Program Coordinator, Program in

Integrative Cardiac Metabolism at vonaire@uic.edu. UIC is an AAEOE.

Postdoctoral Position: A FEMA-funded postdoctoral position is anticipated in the laboratory of Drs. Dave Hostler and Joe Suyama at the University of Pittsburgh Department of Emergency Medicine, Emergency Responder Human Performance Lab to study firefighter health and safety. The incumbent would assist with, and contribute to, a trial of statins and cardiovascular function after exertional heat stress. If funded, the position would be available after July 1, 2010. The anticipated duration of the position is two years. A PhD, or MD from an accredited institution is required. Although a broad range of skill sets will be considered, experience in the physiology of thermoregulation or heart rate variability (or similar quantitative measures) is preferred. Fluency in written and spoken English is mandatory. Interested persons should send their CV and a cover letter, which includes the preferred starting date, to: Dr. Dave Hostler, Univ. of Pittsburgh, Dept of Emergency Medicine, 3600 Forbes Ave, Suite 400A, Pittsburgh PA USA 15261; hostlerdp@upmc.edu. To insure full consideration, application materials must be received by April 30, 2010.

Faculty Position

Chair, Department of Biomedical Sciences: The New York College of

Osteopathic Medicine (NYCOM) of New York Institute of Technology in Old Westbury, New York seeks a dynamic researcher to assume the position of Chair of its Department of Biomedical Sciences. Current areas of research interest at NYCOM include cell biology, physiology and pathophysiology of renal cells and neural, muscle, and skeletal cells and systems. Preference will be given to candidates carrying out research in these areas, but all areas of research will be considered. The incoming Chair will play a major role in guiding a significant expansion of the research effort at NYCOM. He or she will also have a major responsibility for medical education and assisting in the development and implementation of the curriculum. This is a unique opportunity for a creative leader to contribute to the development of a school-wide research program at an early stage. Applicants must have a PhD or a DO degree from a COCA (Commission on Osteopathic College Accreditation) accredited college of osteopathic medicine (COM). The successful candidate will have a strong history of extramural funding; current funding is a plus. NYCOM offers a competitive salary and an attractive benefits package. Applications will be considered as received; however, the search will remain open until the position is filled. Please send a cover letter, curriculum vitae and the names and contact information of four professional references by email to Ms. Tara Greco at tgreco01@nyit.edu. Please visit our website at: <http://nyit.edu/nycom/>. ❖

People & Places

Yates Selected for Distinguished Teaching Award

Bill J. Yates of the University of Pittsburgh was selected to receive a 2010 Chancellor's Distinguished Teaching Award. In his letter, Chancellor Mark A Nordenberg praised Yates for "your dedication to undergraduate research, your sustained commitment as a mentor to your students, and your progressive teaching style."

Nordenberg further noted that each term Yates involves an average of seven undergraduate students in his lab, that he has "co-authored journal articles with 34 undergraduate students" and has "afford[ed] one student the privilege and responsibility of lead authorship."

NAS Elects New Members

The National Academy of Sciences announced the election of 72 new mem-

bers and 18 foreign associates in recognition of their distinguished and continuing achievements in original research. Those newly elected bring the total number of active members to 2,097, and among those elected are the following APS members:

Roger D. Cone, Vanderbilt Univ.; Terrence J. Sejnowski, HHMI-Salk Institute; and newly elected foreign associates are: Sten E. Grillner, Karolinska Inst. ❖

The Wine Wizard

Peter Wagner



Peter Wagner

White wines – finally found a few to write up.

2009 Kim Crawford Sauvignon Blanc, Marlborough, New Zealand \$13. A year ago I had this in the column (2008 vintage) saying it had beaten out 11 other NZ SB's in a group of 12 tasted blind in one sitting. That the wine had loads of clean, herbal, grassy gooseberry/passionfruit flavors, good but not excessive acidity, great body and length. Well, fast forward 12 months and other than the passage of time, nothing has changed.

2008 Calina Chardonnay, Reserva, Chile \$12. Searching for drinkable new white releases has been hard, but here is a decent moderately priced wine with a nose of tropical fruit and minerality. The palate is spicy, soft and rich in tropical/citrus fruit while light on oak. It is clean, with good acidity and length. It is not so complex, but it is easy to quaff.

2009 Zolo Torrontes, Mendoza, Argentina \$9. I have written up the Torrontes grape variety before. Here is another great example at a good price. The nose is all florally perfumed lychee, very forward. The palate does have lychee as well, especially early, making you think it will be a sweet wine. But with a lemony backbone, especially evident at the finish, it ends quite dry with excellent acidity. It is clean, different, and interesting.

Red wines

Hahn is a central California coastal region winery that has been very consistent in recent years with its reds. They are very modestly priced and tasty. They are not blockbusters, but they are far better than party wines. In blind tastings, they stand up to wines triple their price or more.

2007 Hahn Cabernet Sauvignon, Central Coast \$9. The nose is not the wine's best feature. The fruit seems very ripe, almost cooked as we say

(=overripe). There is a little herbaceousness and a touch of oak char. The palate is very tasty though with red/dark berries, moderate tannin and good acid (ie, the wine has some structure). There is a little green stemminess and a hint of oak char, both of which enhance the wine as they are well in the background.

2007 Hahn Meritage, Central Coast \$12. Meritage, recall, is a Bordeaux blend, with cabernet, merlot, and sometimes, cabernet franc, petit verdot, and malbec. Deeply colored, the nose has lots of dark berry fruit, with a hint of yeast and slight green olive. The palate has lovely forward dark red/black berry fruit, slight green olive, medium tannin, and very good length and balance. In a blind tasting of 12 reds last week, this wine was the cheapest (most expensive was \$140). Adding up votes for 1st, 2nd and 3rd place from the 11 panelists at the tasting ($3 \times 11 = 33$ possible total votes), three wines each received 6 votes. That is, just three wines accounted for 18 of 33 total votes.

One was the \$140 wine, the second was the famous Caymus Napa Cabernet (\$70), and the third was Hahn meritage. The other 9 reds in the tasting averaged just 1.7 votes each (and \$45 in price). Nothing more to say.

2005 Artesa Cabernet Sauvignon (Napa/Sonoma blend) \$15. In sum, you have to like American oak (dill). If you do, this wine has plenty – some will say too much. That said, the nose also has lots of dark berry fruit, as does the palate. It is round, soft, fresh and easy to drink. Body is medium with softer tannins and balanced acid. Length is good.

2005 Truchard Cabernet Sauvignon (Carneros, east Block) \$17. In sum, you have to like big, rich, juicy, very ripe fruit driven wine. If you do, enjoy. This wine is opaque, with a somewhat pruny dark berry nose. The palate has very ripe, almost pruny fruit and is mouth-filling and rich. There is some chocolate and vanilla. It is not too tannic, and has good acid and length. The problem is I do not think this wine will last much longer.

2007 BR Cohn Cabernet Sauvignon, North Coast \$15. This wine has a complex nose of dark berry fruit, slight spice, green olive and vanilla. The palate has lots of dark berry fruit and a touch of green olive, is clean and fresh, with medium tannin and acid and a long finish.

2007 Kirkland Zinfandel, Amador County "Grandmere" \$13. Recall that the Kirkland label is Costco's. This Zin has 15.5% alcohol, common for Sierra Foothill region wines and the grapes come from a famous vineyard (Grandmere). The nose has sweet raspberry, vanilla and tobacco. The palate is bright and light with slightly sweet raspberry fruit, vanilla and tobacco. Acidity is excellent, balancing the sweet fruit and alcohol. There is a little evident alcohol ("heat") but in this style, it's very good stuff. ❖

July 18-30

51st Annual Short Course in Medical and Experimental mammalian Genetics, Bar Harbor, ME. *Information:* Internet: <http://courses.jax.org/2010/51st-short-course.html>.

June 20-23

The 45th Annual Meeting of the Lake Cumberland Biological Transport Group, Jamestown, KY. *Information:* Stephen Kempson, Chair. Email: skempson@iupui.edu; Internet: <http://www.cumberlandbio.org/>.

June 24-26

6th International Symposium on Cough, London, United Kingdom. *Information:* Tel.: 00 44 (0) 207 351 8172; Fax: 00 44 (0) 207 351 8246; Email: k.dixon@imperial.ac.uk.

June 25-27

SEB Symposium on Intra-Specific Diversity in Aquatic Animals, Sete, France. *Information:* Taliya Dempster. Email: dempster@sebiology.org; Internet: <http://www.sebiology.org/meetings/Sete2010/Sete.html>.

June 28-30

8th Annual Ion Channel Retreat, Vancouver BC, Canada. *Information:* Internet: <http://www.aurorabiomed.com/retreat10.htm>.

June 30-July 2

Physiology 2010, University of Manchester, United Kingdom. *Information:* Tel: +44(0) 20 7269 5715; Email: info@physiology2010.org; Internet: <http://www.physiology2010.org>.

June 30-July 3

SEB at Prague 2010, Prague, Czech Republic. *Information:* Taliya Dempster. Email: dempster@sebiology.org; Internet: <http://www.sebiology.org/meetings/Prague/Prague.html>.

July 10-11

1st International Symposium on Neuroendocrine Effects of Endocrine Disruptors: A Satellite Symposium of the ICN 2010, Rouen, France. *Information:* Internet: <http://www.needimpact.eu/index2.php>.

July 15-16

Neuroendocrine Programming of Obesity, Rouen, Normandy, France. *Information:* Dr. Sebastien Bouret. Email: sbouret@chla.usc.edu; Internet: <http://www.neurobese.com>.

August 1-13

8th International Workshop on The Biology of Desert-Dwelling Bats, Berlin, Germany. *Information:* Dr. Carmi Korine. Email: ckorine@bgu.ac.il.

August 3-5

International Human Cadaver Prosection Program, Gary, IN. *Information:* Ernest F. Talarico, Jr., Ph.D., Assistant Director of Medical Education & Assistant Professor of Anatomy & Cell Biology. Tel.: 219-981-4356; Fax: 219-980-6566; Email: cadaver@iun.edu; Internet: <http://medicine.iu.edu/body.cfm?id=4951&oTopID=225>.

August 26

ANMS 5th Biennial Course on Gastrointestinal Motility & Neurogastroenterology in Clinical Practice, Boston, MA. *Information:* Internet: <http://www.motilitysociety.org>; Live Demonstrations and Interactive Meeting With the Experts; Course duration 7 AM – 6 PM; Hotel: Westin Copley Place.

August 26-29, 2010

NGM 2010 Joint International Meeting in Neurogastroenterology and Motility, Boston, MA. *Information:* Abstract Deadline: March 3, 2010. Internet: <http://www.motilitysociety.org>; Hotel: Westin Copley Place; August 26, 2010; Registration opens 3:00 PM; Welcome Reception 6:00 PM. • August 27, 2010; Program begins 7:00 AM.

August 28-31

2010 Aspen Perinatal Biology Conference, Aspen, CO. *Information:* Loren Thompson, Department of Obstetrics, University of Maryland School of Medicine, Bressler Research Bldg., 11-029, 655 W. Baltimore Street, Baltimore, MD 21201. Tel.: 410-706-4422; Fax: 410-706-5747; Email: ltompson1@umm.edu

September 1-3

Cardiac & Respiratory Physiology Themed Meeting, University of Birmingham, United Kingdom. *Information:* Tel: +44(0) 20 7269 5715; Email: sbarnsley@physoc.org; Internet: <http://www.physoc.org/cr2010>.

September 2-4

6th International Muscle Symposium, Vienna, Austria. *Information:* Internet: <http://www.musclesymposium2010.at>.

September 13-16

14th European Congress on Biotechnology, Barcelona, Spain. *Information:* Chiara Angelucci, IBS 2010 Organizing Secretariat, Adria Congrex Srl, Via Sassonia, 30, 47900 Rimini. Tel: +39 0541 305896; Fax: +39 0541 305842; Email: c.angelucci@adriacongrex.it; Internet: <http://www.adriacongrex.it>.

September 19-23

HUPO 2010 Sydney Congress and Exhibition, Sydney, Australia. *Information:* HUPO 2010 Congress Secretariat, GPO Box 3270, Sydney, NSW 2001 Australia, Tel.: +61 2 9254 5000; Fax: +61 2 9251 3552; Email: info@hupo2010.com; Internet: <http://www.hupo2010.com>.

September 22-25

Integrated Physiology of Exercise Meeting, Miami Beach, FL. *Information:* Internet: http://www.acsm.org/AM/Template.cfm?Section=Roundtables_Specialty_Conf.

September 22-25

6th International Congress of Pathophysiology and the 14th International SHR Symposium, Montreal, Canada. *Information:* ISP and SHR 2010 Congress Secretariat - JPdL, 1555 Peel Street, Suite 500, Montreal, Quebec, H3A 3L8, Canada. Tel.: +1 514 287-1070; Fax: +1 514 287-1248; Email: ispmontreal2010@jpdL.com; Internet: <http://www.ispmontreal2010.com/>.

CALL FOR NOMINATIONS

For the Editorship of the *Journal of Applied Physiology*

Nominations are invited for the Editorship of the *Journal of Applied Physiology* to succeed J. Dempsey, who will complete his term as Editor on June 30, 2011. The Publications Committee plans to interview candidates in the Fall of 2010.

Applications should be received before **August 15, 2010**.

Nominations, accompanied by a curriculum vitae, should be sent to the Chair of the Publications Committee:

Kim E. Barrett, Ph.D.
American Physiological Society
9650 Rockville Pike
Bethesda, MD 20814-3991



MEMBERSHIP APPLICATION FORM

The American Physiological Society

1. Check membership category you are applying for: ☐ Regular ☐ Affiliate ☐ Graduate Student ☐ Undergraduate Student

2. Name of Applicant: _____
Last Name or Family Name First Name Middle Name

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

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

5. Institution Street Address _____

6. City/State/Zip/Country _____

7. Home Address (Students Only) _____

8. Work Phone _____ Home Phone _____

9. Fax _____ E-mail _____

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

Dates** Degree Institution Major Field Advisor

11. **WHAT IS YOUR SECTION AFFILIATION?** Please identify your primary sectional affiliation with a "1" and check (✓) up to two additional sections with which you would like to affiliate. **There can be only one "Primary" affiliation.**

☐ Cardiovascular	☐ Endocrinology & Metabolism	☐ Renal Physiology
☐ Cell & Molecular Physiology	☐ Environmental & Exercise Physiology	☐ Respiration Physiology
☐ Central Nervous System	☐ Gastrointestinal & Liver Physiology	☐ Teaching of Physiology
☐ Comparative & Evolutionary Physiology	☐ Neural Control & Autonomic Regulation	☐ Water & Electrolyte Homeostasis

12. **DO YOU WORK IN INDUSTRY?** ☐ YES ☐ NO

13. **SPONSORS** (Sponsors must be Regular APS Members. If you are unable to find sponsors, check the box below, and we will locate them for you.) *Undergraduate Students do not require sponsors but must supply proof of enrollment such as transcripts or letter from your advisor.*

CHECK THIS BOX IF APPLICABLE: ☐ Please locate sponsors on my behalf.

#1 Sponsor Name _____

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Fax _____

E-mail _____

Sponsor Signature* _____

#2 Sponsor Name _____

Mailing Address _____

Phone _____

Fax _____

E-mail _____

Sponsor Signature* _____

*signature indicates that sponsor attests applicant is qualified for membership.

 **Please turn over for more questions...and mailing instructions.**

Membership Application (Continued...) Applicant Last Name (please print) _____

14. OCCUPATIONAL HISTORY [Check if student ☐

Current Position:

Dates	Title	Institution	Department	Supervisor
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Prior Positions:

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

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

16. DOCTORAL DISSERTATION TITLE (if applicable):

17. POSTDOCTORAL RESEARCH TOPIC (if applicable):

18. WHICH FACTOR INFLUENCED YOU TO FILL OUT OUR MEMBERSHIP APPLICATION?

☐ Mailer ☐ Meeting (Which meeting? _____) ☐ Colleague ☐ Other _____

Mail your application to:

Membership Services Department, The American Physiological Society
9650 Rockville Pike, Bethesda, Maryland 20814-3991 (U.S.A.)
(or fax to 301-634-7264) (or submit online at: www.the-aps.org/membership/application.htm)

Send no money now—you will receive a dues statement upon approval of membership.

Approval Deadlines: Membership applications are considered for approval on a monthly basis.

Questions? Call: 301-634-7171 • Fax: 301-634-7264 • E-mail: members@the-aps.org • Web: www.the-aps.org