



THE Physiologist

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Integrative Physiology and Organ Systems Research and the Reorganization of Study Sections at CSR

Designing New Study Sections

The Center for Scientific Review (CSR) at the National Institutes of Health (NIH) is in the second phase of its reorganization activities in accord with recommendations of its Panel on Scientific Boundaries for Review (PSBR). During this second phase, CSR organizes Steering Committees composed of staff from CSR and the appropriate NIH Institutes to solicit nominations of scientists from relevant communities and professional societies to participate on Study Section Boundaries (SSB) Teams. Each SSB Team recommends guidelines for the study sections within one of the Integrated Review Groups (IRGs) proposed in the PSBR report.

Integrative Physiology and Organ Systems Research

One of the hallmark conclusions of the PSBR report was that it "assigned high priority to the goal of reviewing applications that apply to a given disease/organ system in the context of the biological question being addressed because we believe that such a system results in the greatest net benefit." This priority is reflected in the PSBR recommendation that CSR create four new organ system IRGs: Pulmonary Sciences; Renal and Urological Sciences; Digestive Sciences; and Hematology. Four additional IRGs based on existing organ-centered IRGs were proposed: Cardiovascular Sciences; Immunology; Endocrinology, Metabolism, Nutrition and Reproductive Sciences; and Musculoskeletal, Oral and Skin Sciences. The three neurosciences IRGs will also continue in their current form. Therefore, once the reorganization is complete, 11 of CSR's IRGs will have an organ-system orientation.

All the SSB Teams acknowledged the value of recognizing and clustering whole animal and human integrative physiology within specific study sections. Two examples of study sections proposed with this in mind are the Pregnancy, Neonatology and Lactation Study Section and the Skeletal Muscle and Exercise Physiology Study Section. Parallel examples occur in other proposed IRGs as well, including the Clinical and Integrative Cardiovascular Sciences Study Section within the Cardiovascular Sciences IRG, and the Pathobiology of Kidney Diseases Study Section within the Renal and Urological Sciences IRG. These are but some examples of the increased emphasis on organ system physiology and the importance of integrative physiology in peer review at CSR in the reorganization.

At the same time, the SSB Teams recognized that some fields of integrative physiology research cut across multiple organ

systems and, because of their relatively small numbers, would be best served by being clustered in a single IRG or study section. Sometimes this approach is reflected in the name of a new IRG, such as Biology of Development and Aging, which includes the Aging Systems and Geriatrics Study Section. This proposed study section will review applications involving aging humans or animals, particularly research on post-maturational changes, which transcend single organ systems or disciplines and which may require integrated experimental, genetic or observational approaches. Other times, clustering of cross-cutting fields occurs in a study section with a seemingly unrelated name, such as the Xenobiotic and Nutrient Disposition and Action Study Section within the proposed Digestive Sciences IRG. This proposed study section will review applications related to the disposition of nutrients and non-nutrient chemicals, including xenobiotics such as pro-drugs and drugs, biopharmaceutical agents, alcohol, phytochemicals/ botanicals and toxic substances. Its scope may well extend beyond the digestive system.

Opportunity for Public Comment

Between February 2001 and November 2002, CSR convened 15 of the planned 17 SSB Team meetings. The guidelines proposed by each SSB Team are posted on CSR's Web site (<http://www.csr.nih.gov/PSBRI/IRGComments.htm>) for a period of 90 days to allow comment by the scientific community.

Resolution of Shared Interests

NIH staff will consider the proposed
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Ignore Lies About Animal Research

APS Member Robert Speth is to be commended for effectively demolishing some of the animal activists' most closely-held misrepresentations about animal research through the use of historical facts. Speth responded to a letter written by a retired science teacher that was published in *The Columbian*, the newspaper published in Vancouver, WA. Speth's response is reprinted below. Just as Speth has responded to the misrepresentations of an animal activist, physiologists should willingly step forward and meet similar challenges raised in their communities. Only by speaking up can we expect to continue to have the ability to use animals in our research and teaching programs. By speaking up, we can challenge the efforts of the Physicians Committee for Responsible Medicine and other groups to undermine public support for animal health charities that support animal research assertions. Speth is to be congratulated for showing the APS membership how to respond to the challenges raised by animal activists.

Robert C. Speth is a professor of Pharmacology and Neuroscience at the College of Veterinary Medicine at Washington State University in Pullman and adjunct professor of Physiology and Pharmacology at Oregon Health & Science University in Portland. He is a past president of the Society for Veterinary Medical Ethics.

The Columbian
Vancouver, WA
Monday, September 9, 2002

Opinion Page Editor

It is unfortunate to see a retired science teacher relaying the litany of lies and rhetoric of the animal rights movement ("A Local View," 8/30/02).

What the animal rights movement doesn't want you to know is that advances such as water purification and sewage treatment arose from the animal experiments of Pasteur and Koch showing that germs were the agents that transmitted infectious diseases.

Mr. Steinke's comment that our use of penicillin was not based on animal research, is another inaccuracy rampant in animal rights literature. In

what might be one of the most famous experiments ever done, Sir Howard Florey in 1940 used eight mice to demonstrate that penicillin cured streptococcal infections. This Nobel prize-winning discovery led to the use of penicillin in World War II saving the lives of countless soldiers. For more information, see: <http://naiaonline.org/body/articles/archives/inhumn.htm>

Regarding Charles Mayo, who retired from his medical practice in 1919, he specified that earnings of the Mayo Clinic be used for medical education and research. Today part of the Mayo Clinic's mission statement is to, "Conduct basic and clinical research programs to improve patient care and to benefit society." Today it invests nearly \$300 million dollars into animal and human research programs.

Another animal rightist distortion parroted by Steinke is that animal testing of drugs poses a danger to humans. Again, medical history refutes the animal rightists. Thalidomide caused one of the worst drug-induced disasters upon humanity because it was not adequately tested on animals. Only after thousands of deformed babies were born, was the proper animal testing done, showing that thalidomide was teratogenic (a cause of birth defects). Of note, thalidomide was not approved for morning sickness in the USA because FDA inspector Frances Kelsey required it to be tested on pregnant animals. This entire story is chronicled in the book *Suffer the Children: The Story of Thalidomide*, by Phillip Knightley and others.

Delving deeper into medical history, a major reason thalidomide was not approved for use in the USA was because of a prior disaster that led to the Federal Food Drug and Cosmetic Act of 1938. In 1937, an antibacterial, sulfanilamide, was dissolved in an antifreeze solvent (diethylene glycol) and given to children who subsequently died because diethylene glycol is toxic to the kidneys. This law led to safety testing of substances in animals prior to their use in humans and has undoubtedly saved us from countless similar disasters. For further information on these and other examples of US drug legislation, see the FDA web-

site: <http://www.fda.gov/opacom/backgrounders/miles.html>

This should also serve as a timely reminder of the need to properly store and dispose of antifreeze, because cats and dogs will seek out this sweet-tasting lethal substance.

The animal rights movement often compares the use of animals by humans to slavery, analogizing their efforts to the civil rights movement. But there is a stark contrast. Martin Luther King did not have to lie to gain support for his movement. Dr. King did not use violence and terror to force his beliefs on others. And, most importantly, Dr. King's philosophy did not endanger the very people he sought to protect.

The animal rights movement suffers from a corruption so deep as to defile the use of this term by anyone genuinely concerned with animal welfare. Worse yet, the dishonesty and ignorance of the animal rights movement threatens the health and welfare of the millions of animals whose lives benefit from the symbiotic relationship we have with animals. The animal rights movement would have us stop doing animal research today, knowing fully that this will interfere with the development of cures for newly emerging diseases, such as the West Nile Virus Disease, which causes suffering and death in human and animal populations.

When you hear stories of animal abuse from animal rightists, ask whether they accurately represent animal usage. There are millions of examples of humane animal use that animal rightists ignore, focusing only on rare incidents of animal abuse. Using their criteria we should also abolish police departments based on a videotape showing excessive force, we should abolish democracy if a public official violates the law, and we should abolish parenthood if a child is abused. Clearly such changes would lead to anarchy and destroy our society. Similarly, implementation of the demands of animal rightists would lead to an animal anarchy, whose victims will be the very animals that animal rightists claim to be wanting to help.

Robert C. Speth
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(continued from page 489)

study section guidelines and the comments received from the research communities. CSR will consult with experts as necessary to clarify instances where different study sections and IRGs have shared interests and make other modifications to the proposed guidelines. The Director of CSR, following presentations and discussions by the CSR Advisory Committee, will approve the final form and substance of each study section's guidelines. The process developed by CSR to implement these recommendations is deliberately cautious and iterative in order to achieve substantial community involvement and the best possible review committees.

In May 2002, the CSR Advisory Committee recommended adoption of

the Hematology SSB Team's study section guidelines and implementation of the new Hematology IRG. This was followed in September by presentation of the proposed Biology of Development and Aging IRG, Oncological Sciences IRG, and Musculoskeletal, Oral and Skin Sciences IRG. The CSR Advisory Committee recommended that the study sections for these IRGs also be adopted with the notable addition of a study section on Musculoskeletal Rehabilitation Sciences.

Additional Year of Advance Notice

New study sections will begin meeting no sooner than one year after the CSR Director approves them to ensure that applicants are fully aware of the nature of the study sections before they submit their applications, and to

complete logistical arrangements. For example, CSR is in the process of establishing rosters for the reorganized Hematology study sections, and we expect to post the rosters, along with the finalized guidelines, on our Web site by December 2002. The first meetings of the new Hematology IRG study sections will occur in June 2003 (receipt date February/March 2003).

If you would like additional news and information about CSR's PSBR reorganization, visit the CSR Reorganization Activities web page at <http://www.csr.nih.gov/review/reorgact.asp>. ♦

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APS News

APS Bylaw Changes

During the November 2002 meeting of the APS Council, it was recommended that Article IV. Officers, Section 1. Council and Article IV. Section 4a. Nominating Committee be amended to allow for the increased participation of the membership in Society governance. The portions of Article IV of the Bylaws requiring revision are published below. The APS Membership will have an opportunity to vote on the proposed changes during the APS Business Meeting scheduled for Monday, April 14, 2003 in San Diego, California.

ARTICLE IV. Officers

SECTION 1. Council. The management of the Society shall be vested in a Council consisting of the President, the President-Elect, the immediate Past President, and ~~six~~ nine other regular members. The terms of the President and President-Elect shall be one year. The terms of the ~~six~~ nine

additional Councillors shall be three years each and they shall not be eligible for immediate reelection except those who have served for two years or less in filling interim vacancies.

A quorum for conducting official business of the Society shall be ~~six of the nine~~ two-thirds of the elected members of Council.

The Chairpersons of the Publications Committee, the Finance Committee, the Program Committee, the Education Committee, and the Executive Director are ex officio members of the Council without vote; the Chairperson of the Section Advisory Committee is an ex officio member of the Council with vote. The Council may fill any interim vacancies in its membership. Council shall appoint members to all committees except the Section Advisory Committee.

In the interim between meetings of Council, an Executive Cabinet consisting of the President, President-Elect,

Immediate Past President, and the Executive Director shall implement the policies of the Council.

SECTION 4. b. Nominating Committee. The Nominating Committee shall consist of the immediate Past President, who will serve as Chairperson, and each member of the Section Advisory Committee. The Chairpersons of the Joint Program Committee and Publications Committee shall serve as ex officio members. The Nominating Committee shall select a slate from candidates nominated by the Society membership. The slate presented for vote shall be such that no more than one of the ~~six~~ nine Councillors shall be from a single institution and no more than two of the ~~six~~ nine shall have a primary affiliation from the same section. The Nominating Committee shall make two nominations for the office of President-Elect and ~~five~~ six nominations for Councillor. ♦

APS Launches Fund Raising Campaign for the 2005 IUPS Congress

After a lapse of over 30 years, the United States will be hosting the 35th International Congress of Physiological Sciences in April 2005 in the beautiful city of San Diego. The theme of this upcoming Congress is "From Genomes to Functions" and it will highlight the many emerging opportunities in the physiological sciences arising from the genomic revolution. We intend to make this Congress a truly outstanding international event by doing everything possible to provide the best forum for the exchange of knowledge in the physiological sciences among colleagues from all over the world. To achieve our goal of making this Congress the most successful one ever, we will need the enthusiastic support of the members of the American Physiological Society.

We invite all members of the APS to contribute to the success of this Congress through your attendance and participation. In addition, we hope that all Society members will make a

financial contribution to the Congress in order to provide assistance to emerging physiologists from the US and abroad and to encourage the participation of physiologists from all parts of the world. We would like to raise upwards of \$200,000 to underwrite the participation of US and foreign physiologists, especially those from developing countries.

The IUPS Congress will attract many graduate students and postdoctoral fellows seeking knowledge of the latest research findings. Many of these physiologists do not have adequate funds for foreign travel to the US and need to be supported with partial travel fellowships in order to attend and present their data and learn about yours. APS is proud to join with our sister physiology societies to organize the IUPS Congress, and we ask for your financial assistance to make it an exciting and dynamic meeting.

Please take an active role in ensuring the success of the first IUPS

Congress to be hosted by the US since 1968. Take a few moments now to complete the donation card on page 493 and return it with your check or credit card information. All contributions in support of the Congress are fully tax-deductible. Contributors will be acknowledged and recognized in materials distributed in conjunction with the Congress. Individuals committing \$500 or more will be invited to a special event held in conjunction with the Congress. Regardless of the amount that you contribute, your participation will make a big difference as we launch our corporate sponsorship campaign.

Please join with colleagues listed on the previous page who have already made a financial commitment to the 2005 IUPS Congress. ❖

The APS gratefully acknowledges the contributions of its members in support of the 2005 IUPS Congress.

Beverly Bishop	Gilbert Hageman	William Mengebier	Niels Henry Secher
David Bohr	Charles Hales	Christopher Michel	Mohamad Shahid Salles
Felix Bronner	John Hall	Florence Millar	Jose Pedro Segundo
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Erminio Costa	Alan Hofmann	L. Gabriel Navar	Zohreh Sirous
Allen Cowley	Andrew Huxley	Yasuhiro Nishida	Ralph Sonnenschein
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Francis Haddy	Nansie McHugh	Stanley Schultz	Richard Wyeth
	Ivan McMurtry	Gordon Searle	

Publications

The HighWire Library of the Sciences and Medicine: Search and Track your Favorite Journals

In the February issue of *The Physiologist*, we introduced the new “portal” site from Stanford’s HighWire Press: the HighWire Library of the Sciences and Medicine (HWLSM) (<http://highwire.stanford.edu>). In August we began a series of short articles highlighting tools or features of this new site, starting with the ability to quickly see which articles are freely available to you. This month we continue the series with a look at how you can have the system keep track of your favorite journals, including the family of APS journals.

The new HWLSM allows you to instantly search abstracts from all 4,500 journals in *Medline*, plus the full-text of over 325 journals hosted by Stanford’s HighWire Press. For the full-text journals, a registered user (registration is free, and takes less than a minute) can tell the portal which of the HWLSM-hosted titles are your “favorite journals.” Then, some special capabilities are available for those designated favorites.

HWLSM’s designers observed that labs typically monitor a few dozen journals, and that individuals in labs each take responsibility for knowing what is new and important in just a handful among those journals. So the system has features to help you take a narrow focus when you want to search several journals—but only your favorites—and to help you keep track of new content in these favorite journals.

Search Scope: You can click a button on any search form and instantly restrict the scope of a search to include only your favorite journals. Note the radio button labeled “My Favorite Journals” in the center column of the HWLSM home page shown (Figure 1) on page 495.

Search-result Highlighting: In any search result display—whether limited to favorite journals or not—the portal will highlight citations from your favorite journals by showing the journal cover over a purple bar.

Monitor new Content: The HighWire

home page identifies what the most current content is in each of your favorite journals, and lists your favorite journals by most recent content date. It also provides quick links to the newest content, the journal home page, the current-issue Table of Contents page, and the search page for each of your favorite journals. It also shows a tiny version of the new-issue cover for each journal. You will be able to see the listing of My Favorite Journals in the right column of the HWLSM home page. Later on, the portal will have a new alerting feature allowing you to restrict your CiteTrack alerts to include only your favorite journals.

Getting Started

To put these Favorite Journal features to work for you, you must tell the portal which journals are your favorites.

Step 1: If you haven’t already, you will need to Register with the portal (this takes only a minute), by clicking on the Register link on the HighWire

home page. If you have already registered, you will need to sign-in.

Step 2: After registering or signing in, first time users will see a “What is this?” link under the heading My Favorite Journals. Click on “What is this?” to be taken to a short summary of the My Favorite Journals feature, including the link “Create/Modify ‘My Favorite Journals’ preferences.”

Step 3: Click on the “Create/Modify ‘My Favorite Journals’ preferences” link and mark which journals are your favorites. After making your selections and clicking the submit button, you

are returned to the portal home page, and the Favorite Journal features will be active, with a new [edit] link at the bottom of your selected journals. You can easily change your Favorite Journal list by clicking on [edit].

In the next issue we’ll look at how you can instantly retrieve an article — and often its full-text—just by typing its year, volume and first page citation information into the search form.

Here is the list of what we’ve covered in this series of short tips:

February: “Creating a Better Mousetrap!”

August: “Find Full-Text Articles, Free and Fast”

October: “Tailoring Search Results in the HighWire Library of the Sciences and Medicine: ‘Have it Your Way’”

December: “The HighWire Library of the Sciences and Medicine: Search and Track Your Favorite Journals Easily”

Coming next: “Citation Search’: Type Just Three Numbers to Get Any Article.” ♦

The screenshot shows the HighWire website interface. At the top, it displays the HighWire logo and the text "LIBRARY OF THE SCIENCES AND MEDICINE". Below this, it states "12,295,217 articles in over 4,500 Medline journals, 439,728 free full text articles from 342 HighWire-hosted journals". A navigation bar contains links: Home, Search, My Email Alerts, For Institutions, For Publishers, About, Contact, Help. A welcome message reads "Welcome to HighWire! About our new look and new features...". The user is signed in as Margaret Reich, with links to "modify account", "sign in to journals", and "sign out".

The main content area is divided into several sections:

- Quick search HighWire + Medline:** Includes a search bar with fields for Author (e.g., Smith, JS), Keywords, Year, Vol, Page, and a "go" button. Below the search bar are radio buttons for "In:" with options: "My Favorite Journals" (selected), "HighWire-hosted journals", and "HighWire-hosted journals + Medline".
- Browse articles:** Lists categories: Biological Sciences, Physical Sciences, Medical Sciences, Social Sciences. It also mentions "Browse using TopicMap, a graphical viewer (what's this?)".
- Browse HighWire-hosted journals:** Offers browsing by "alphabet", "topic", "publisher", or "other lists". Below are links for letters A through Z and "all".
- MY EMAIL ALERTS:** A section to "Monitor the publication of articles and issues matching your criteria." with an [edit] link.
- MY SITEBAR:** A tool for quick access to searching and your Favorite Journals. with a [view] link.
- MY FAVORITE JOURNALS:** A list of journals with their update dates:
 - American Journal of Physiology - Heart and Circulatory Physiology (new items Nov 11)
 - Journal of Applied Physiology (new items Nov 08)
 - American Journal of Physiology - Renal Physiology (new items Nov 08)
 - American Journal of Physiology - Lung Cellular and Molecular Physiology (new items Nov 08)
 - Journal of Neurophysiology (new items Nov 07)
 - American Journal of Physiology - Regulatory, Integrative and Comparative Physiology (new items Nov 07)
 - American Journal of Physiology - Endocrinology And Metabolism (new items Nov 07)
 - American Journal of Physiology - Gastrointestinal and Liver Physiology (new items Nov 06)
 - American Journal of Physiology - Cell Physiology (new items Nov 06)

On the left side, there is a "FULL TEXT I HAVE ACCESS TO" section listing the number of journals with various access types: personal subs., institutional subs., free trials, free journals, free back issues, and pay-per-view. Below this is a "plus! FREE access to the full-text of cited references in all 342 HighWire-hosted journals" and a red "CURIOUS?" banner.

Figure 1.

New Regular Members

*Transferred from Student Membership

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- Danny Petrasek**
California Insitute of Technology
- Charles S. Redwood**
Univ. of Oxford, UK
- Antonio Rendas**
Univ. Nova De Lisboa, Portugal
- Christian K. Roberts***
Univ. of California, LA
- Richard C. Rogers**
Pennington Biomedical Res. Ctr., LA
- Satinder Singh Sarang**
Brigham and Women's Hosp., MA
- Petra Maria Schmitt**
Univ. of California, Davis
- Weihua Shen**
Indiana Univ.
- Yukitaka Shizukuda**
NHLBI, NIH, MD

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Univ. of Texas Southwestern Med. Ctr.

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Millennium Pharmaceuticals Inc., CA

Michelle Zavitz Tucker*

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Rheoscience, Denmark

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David D. Woo

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Yale Univ., CT

Xiaojiang Xu

US Army Inst. Environ. Med., ME

Saul Yedgar

Hebrew Univ., Israel

Bin-Xian Zhang

Audie L. Murphy VA Hospital, TX

Shiping Zhang

Univ. of Cincinnati, OH

Wensheng Zhang

Tufts Univ., MA

New Student Members

Vijay Amarendran

Univ. of Wyoming

Jon C. Ashmead

Univ. of Calgary, Canada

Raul Cesar Camacho

Vanderbilt Univ., TN

Jennifer Diane Cannon

Medical College of Georgia

Erica Arden Dale Carewe

San Diego State Univ., CA

Mona Lynne Chappellaz

Univ. of Calgary, Canada

Melanie Cree

Univ. of Texas Medical Branch

Allison Nicole Dawson

Univ. of California, Davis

Chantel Teresa Debert

Univ. of Calgary, Canada

Valerie Karelle Duggan

Florida Atlantic Univ.

Anita E. Fofie

Univ. of Calgary, Canada

Olga Georgiadou

Univ. of Athens, Greece

Taren Grass

Univ. of Montana

Emile Mary Gray

Univ. of California, Irvine

Lewis George Halsey

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Francis Haman

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Melissa Lynn Holt

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Patrick C.H. Hsieh

Univ. of Washington

Kristen Leigh Hutchins

Univ. of Missouri, Columbia

Christina Marie Levensky

Kent State Univ., OH

Marcy K. Lowenstein

Florida International Univ.

Scott M. MacDonnell

Temple Univ.

Patricia M. Maldonado

Univ. of Puerto Rico

Jeremy Louis Mello

Florida Atlantic Univ.

Christopher L. Mendias

Univ. of Arizona

Michelle Mielke

Florida Atlantic Univ.

Jennifer Elaine Naugle

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Javier Sabarros

Univ. de Buenos Aires

Rasnapreet Sabharwal

Univ. of Birmingham, England

Sethu Raman Saminathan

Univ. of Madras-Taramani, India

Eric Matthew Sandberg

Univ. of Florida College of Med.

Sarah Louise Sayner

Univ. of South Alabama

Sandra C. Seufert

Florida Atlantic Univ.

Danielle R. Shemanski

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La'Tonia M. Stiner

Wright State Univ., OH

Amanda Mary Szucsik

Univ. of California, Irvine

Tiffany Ann Wallace

Univ. of Florida College of Med.

Yifan Yang

Ball State Univ., IN

Terese Marie Zidon

Univ. of Missouri

Tomasz B. Zawislan

Florida Atlantic Univ.

New Affiliate Members

Jianxin Chen

Harvard Univ. Sch. of Public Health, MA

Michael S Graham

St. Lawrence Univ., NY

APS Archive of Teaching Resources



The APS Archive of Teaching Resources (<http://www.apsarchive.org>) continues to grow with the recruitment of a variety of new learning objects from educators all over the country. To date, about 135 items have been received for the Archive from various sources.

However, more material is still needed. Please consider submitting material that you have developed to use to make your teaching more effective. These can be:

- lecture or course outlines or PowerPoint slides from a lecture that is particularly effective with your students;
- problems or cases you've written for your classes;
- diagram(s) that you've created to illustrate a specific pathway or process that seems to clarify it for your students;
- simulations or videos you have developed;

web sites you have discovered that have valuable information for your teaching;

teaching tools/materials that you are developing that would benefit from feedback from your colleagues; anything educational related to physiology, pathophysiology, or clinical physiology.

By submitting learning objects that you have developed, you can help your colleagues in their efforts to find the best tools for introducing their students to the exciting discipline of physiology.

Here are some new items in the Archive. Take a moment and check out those that are most relevant to your teaching. Don't forget that you can comment on any of these items through the comment section attached to each item.

Convective/Osmotic Water Movement (simulation)

Water-Electrolyte Disturbances (simulation)

Michael Davis

Pulmonary Jeopardy (review game)

Steven DiCarlo

Physiology of the Kidneys, Body Fluids and Acid-Base Balance (revised PowerPoint)

John Dietz

Acid-base Tutorial (simulation)

Alan Grogono

Human Physiology 801: Renal Section (course outline, lectures, practice exams)

Human Physiology 801: Cardiovascular Section (course outline, lectures, practice exams)

Robert Gore

Simulations in Physiology: The Respiratory System (simulation)

Harold Modell ❖

Career Opportunities in Physiology Symposium

"The Drug Discovery Process: Opportunities for Physiologists"

Experimental Biology 2003
Sunday, April 13, 5:30-7:30 PM
Room 11A Convention Center

This symposium will expose young physiologists to new career opportunities, educate others about the important work of the physiologist in drug

discovery, and demonstrate how academic collaboration with industry leads to new drug discoveries. The program will lead the audience through the drug discovery process from discovery of the initial drug target, to the role of the academic scientist, to the development of candidate

drugs that have efficacy in a disease model, to preclinical safety, pharmacokinetics, pharmacodynamics, to various phases of clinical trials all the way to getting the new drug on the market. Each speaker will highlight the unique career opportunities at all levels for trained physiologists. ❖

APS/NIDDK Minority Travel Fellows Attend 2002 Conferences in San Francisco and San Diego

The APS regularly awards Travel Fellowships for underrepresented minority scientists and students to attend APS scientific meetings with funds provided by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The Fellowships provide funds for transportation, meals, and lodging for travel to a meeting location, as well as complimentary meeting registration. Three Fellows attended the APS Conference "Physiological Genomics of Cardiovascular Disease: From Technology to Physiology," in San Francisco, CA, February 20-23, 2002. Eleven Fellows attended the APS Conference "The Power of Comparative Physiology: Evolution, Integration and Applied," in San Diego, CA, August 24-28, 2002.

Fellows in the NIDDK Minority Travel program not only received financial support to attend these meetings, but were also provided professional guidance through pairings with APS members who served as mentors to the Fellows for the duration of the conference. Thanks to the time and expertise offered by mentor volunteers, Fellows were able to maximize their time and more fully experi-

ence the many aspects of each conference.

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

Fellows at "Physiological Genomics of Cardiovascular Disease: From Technology to Physiology" were: **Carmen Padro**, University of Puerto Rico Medical Science; **Marcos Echegaray**, University of Puerto Rico at Cayey; and **Miguel Rivera**, University of Puerto Rico School of Medicine. The APS Mentor at the conference was **Curt D. Sigmund**, University of Iowa.

Fellows who attended "The Power of

Comparative Physiology: Evolution, Integration and Applied" were: **Rudy M. Ortiz**, University of California-Santa Cruz; **LaTonia Marie Stiner**, Wright State University; **Vanessa I. Toney**, Brown University; **Vallie M. Holloway**, Loyola University Medical Center; **Luciana Oliveira Santos**, University of Utah; **Elizabeth S. Quintana**, New Mexico State University; **Ruth A. Washington**, Stillman College; **Lee A. Aggison, Jr.**, Stillman College; **Rafael Alejandro Leos**, New Mexico State University; **Thomas F. Gallegos**, New Mexico State University; and **Marcy K. Lowenstein**, Florida International University. APS Mentors included: **Rudy M. Ortiz**, University of California, Santa Cruz; **Jeffrey Hazel**, Arizona State University; **William Milsom**, University of British Columbia; **Martin Frank**, Executive Director, APS; **Stephen Secor**, University of Alabama; **Marvin Bernstein**, New Mexico State University; **Siribhinya Benyajati**, University of Oklahoma Health Science Center; and **Jeffrey Graham**, University of California, San Diego. ❖

APS Education Committee

"Refresher Course on Muscle Physiology: From Cellular to Integrative" And "Laboratory Session on Human Exercise"

"Refresher Course on Muscle Physiology: From Cellular to Integrative"
Experimental Biology 2003
Friday, April 11, 8:00 AM -12:00 PM
Room 8, Convention Center

"Laboratory Session on Human Exercise"
Experimental Biology 2003
Friday, April 11, 1:00 - 5:00 PM
Convention Center

Muscle physiology is an important component in the teaching of a number of organ systems and of the integration of these systems in response to environmental stresses. Purposeful movement, as well as normal cardiovascular, respiratory, and gastrointestinal function all depend on intact, healthy muscles. This unique refresher course will present up-to-date concepts in muscle physiology. The material in the morning session will cover

smooth, skeletal, and cardiac muscle, followed by an integration of these systems in the context of the physiological response to exercise.

The afternoon workshop will include hands-on demonstrations by commercial companies. ❖



It's time to talk to middle and high school teachers about...

Frontiers in Physiology
Professional Development Fellowship for Teachers

Application Deadline is January 10, 2003

Teachers are seeking research hosts for Summer 2003.
Contact them soon—the deadline is just around the corner.

Contact the Education Office with questions.

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



American Physiological Society
9650 Rockville Pike, Bethesda, MD 20854-3991
T: 301-634-7132 F: 301-634-7098 E: kkelly@the-aps.org

Program Announcement

Porter Physiology Fellowships for Minorities

Closing Date for New Applications: January 15, 2003
Announcement of Awards: May 20, 2003

Annual Stipend: \$18,000

Duration of Fellowship: 1 year with possibility of 2nd year of support

The Porter Physiology Fellowships for Minorities are open to underrepresented ethnic 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.

FOR AN APPLICATION CONTACT:

The American Physiological Society
Education Office
9650 Rockville Pike
Bethesda, MD 20814-3991
(301) 634-7132
fax (301) 634-7098
education@the-aps.org
http://www.the-aps.org/education/minority_prog/porterfell.htm



Sponsored by: APS Porter Physiology Development Committee

Encouraging Undergraduate Students in Biomedical Research Careers

Undergraduate Summer Research Fellowship

www.the-aps.org/education/ugsrf/index.html



photo source: photodisc.com

For APS Members and Undergraduate Students:
Students will:

- ▶ Experience 10 weeks of research during the summer in the lab of an established APS-member investigator;
- ▶ Attend an APS meeting;
- ▶ Present an abstract at an APS Conference.

**Deadline for Applications
February 3, 2003**



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

Women in Physiology and Pharmacology Symposium "Presentation Skills"

Experimental Biology 2003
Monday, April 14, 8:00-10:00 AM
Room 11A Convention Center

This symposium will address the various types of presentation skills that a physiologist will need to have to prosper in his/her career. These include:

- Interview skills
- Oral presentation skills
- Poster presentation skills
- Presenting oneself at national meetings
- Facing the public
- Preparing/giving a lecture
- Using visual aids/multimedia effectively

Presentations will be made by speakers, which will be followed by small group discussions of specific topics.

The American Physiological Society Medical Physiology Curriculum Objectives

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

Download in HTML or PDF format

A systematic presentation of core physiological concepts focused primarily on normal body function. The Objectives provide guidelines for the breadth and depth of knowledge in the physiological principle and concepts in understanding mechanisms of disease and body defenses in pharmacology, pathology, pathophysiology, and medicine.

- ◆ Cardiovascular
 - ◆ Cell and General
 - ◆ Endocrinology and Metabolism
 - ◆ Gastrointestinal
 - ◆ Integration and Exercise
- ◆ Muscle
 - ◆ Neurophysiology
 - ◆ Respiratory
 - ◆ Renal, Fluid Balance, and Acid-Base

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

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

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



PHYSIOLOGY IN PERSPECTIVE:
THE WALTER B. CANNON
AWARD LECTURE (SUPPORTED
BY THE GRASS FOUNDATION)

Shu Chien
University of California,
San Diego

*"Modulation
of Gene Expression and
Cellular Functions by
Mechanical Forces:
Wisdom of the Body"*

FRIDAY, APRIL 11, 5:45 PM



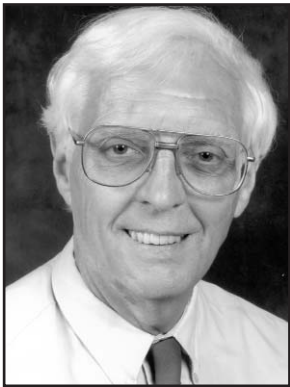
HENRY PICKERING BOWDITCH
AWARD LECTURE

Paul Kubes
University of Calgary

*"Molecular Mechanisms
Underlying Leukocyte
Recruitment in the
Microcirculation"*

SATURDAY, APRIL 12, 5:45 PM

Distinguished Lectureships



CARL LUDWIG
DISTINGUISHED LECTURESHIP
OF THE NEURAL CONTROL AND
AUTONOMIC REGULATION
SECTION

John Coote,
University of Birmingham, UK

*"The Significance for
Circulatory Control of the
Paraventricular Nucleus"*

SATURDAY, APRIL 12, 10:30 AM



CLAUDE BERNARD
DISTINGUISHED LECTURESHIP
OF THE TEACHING OF
PHYSIOLOGY SECTION

John D. Bransford
Vanderbilt University

*"When Knowledge of How
People Learn Meets
Classrooms and Technology:
Issues and Opportunities"*

SATURDAY, APRIL 12, 2:00 PM



JULIUS H. COMROE, JR.
DISTINGUISHED LECTURESHIP
OF THE RESPIRATION SECTION

John B. West
University of California,
San Diego

*"Thoughts on the Blood-Gas
Barrier"*

SATURDAY, APRIL 12, 2:00 PM



CARL W. GOTTSCHALK
DISTINGUISHED LECTURESHIP
OF THE RENAL SECTION

William J. Arendshorst
University of North Carolina

*"Reactivity of the Renal
Microcirculation in Genetic
Hypertension"*

SATURDAY, APRIL 12, 3:15 PM

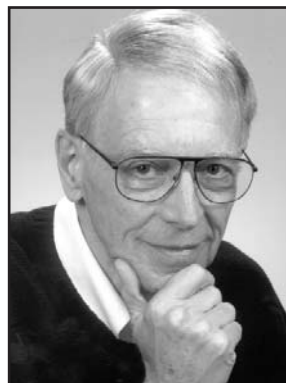


AUGUST KROGH
DISTINGUISHED LECTURESHIP
OF THE COMPARATIVE
PHYSIOLOGY SECTION

Peter Scheid
Ruhr University,
Bochum, Germany

*"The Goose of the Himalaya
and Central Chemosensitivity:
New Ideas From an
Old Problem"*

SUNDAY, APRIL 13, 9:00 AM



ROBERT M. BERNE
DISTINGUISHED LECTURESHIP
OF THE CARDIOVASCULAR
SECTION

Eric O. Feigl
University of Washington

*"Berne's Adenosine
Hypothesis of Coronary
Blood Flow Control"*

SUNDAY, APRIL 13, 10:30 AM



HORACE W. DAVENPORT
DISTINGUISHED LECTURESHIP
OF THE GASTROINTESTINAL
SECTION

Jeffrey I. Gordon,
Washington University

*"Living With Microbes:
An Inside View"*

SUNDAY, APRIL 13, 2:00 PM



EDWARD F. ADOLPH
DISTINGUISHED LECTURESHIP
OF THE ENVIRONMENTAL
AND EXERCISE PHYSIOLOGY
SECTION

Jere Mitchell
University of Texas,
Southwestern Medical School

*"Neural Circulatory Control
During Exercise: Insights
From Animal and Human
Studies"*

MONDAY, APRIL 14, 8:00 AM



ERNEST H. STARLING
DISTINGUISHED LECTURESHIP
OF THE WATER AND
ELECTROLYTE HOMEOSTASIS
SECTION

Friedrich C. Luft
Humboldt University, Berlin

*"The Role of Genetic Models
in Elucidating
Cardiovascular Reflex
Regulation"*

MONDAY, APRIL 14, 10:50 AM



JOSEPH ERLANGER
DISTINGUISHED LECTURESHIP
OF THE CENTRAL NERVOUS
SYSTEM SECTION

Fred H. (Rusty) Gage
The Salk Institute

*"Regulation and Function of
Adult Neurogenesis"*

MONDAY, APRIL 14, 2:00 PM



SOLOMON A. BERSON
DISTINGUISHED LECTURESHIP
OF THE ENDOCRINOLOGY AND
METABOLISM SECTION

Christopher B. Newgard
Duke University

*"Mechanisms of Fuel-
Stimulated Insulin
Secretion and How They
Fail in Diabetes"*

MONDAY, APRIL 14, 3:15 PM



HUGH DAVSON
DISTINGUISHED LECTURESHIP
OF THE CELL AND MOLECULAR
PHYSIOLOGY SECTION

Roger Y. Tsien
University of California,
San Diego

*"Unlocking Cell Secrets With
Light Beams and Molecular
Spies"*

MONDAY, APRIL 14, 3:15 PM

Fifth Annual Walter C. Randall Lecture in Biomedical Ethics

Linda MacDonald Glenn, LL.M.

Senior Fellow, Institute for Ethics
American Medical Association

Tuesday, April 14, 2003
2:00 PM
Room 9, Convention Center

Tentative Schedule of Sessions

Friday, April 11, Morning Session

*Refresher Course: Muscle Physiology:
From Cellular to Integrative*
Education Committee
G. Ordway and R. Hester

Friday, April 11, Afternoon Sessions

*Frontiers of Intravital Microscopy:
Crossroads of Physiology and Pathology*
Workshop
M.S. Goligorsky

"IACUC 101" for Scientists
Public Affairs
J. Stallone

Making Science News
Communications Committee
A. Gwosdow

*MCS President's Symposium:
Mechanisms of Microvascular Dysfunction in Diabetes*
The Microcirculatory Society
P.F. McDonagh

Methods to Detect Oxidative and Nitrosative Stress
Workshop
M.B. Grisham and J. Granger

Saturday, April 12, Morning Sessions

Genomics of Angiogenesis and the Microcirculation
Physiological Genomics Group
J.B. Hoying

*Physiology InFocus—Physiological Implications of
Oxidative and Nitrosative Stress: General Overview
and Disease Relevance*
M. Grisham and M. Traber

*Modulation of Respiratory Motoneurons
From Molecules to Behavior*
Respiration Section
A.J. Berger

Peroxisome Proliferator-Activated Receptors (PPARs)
Cross Sectional
Y. Guan and C. Sigmund

*Novel Ca²⁺ Signaling Mechanisms in Vascular Myocytes:
Cyclic ADP-Ribose, Ryanodine Receptors and
Ca²⁺-induced Ca²⁺ Release*
Cardiovascular Section
P-L. Li and C. Van Breeman

*Gap Junctional Hemichannels:
Physiology and Pathophysiology*
Cell & Molecular Physiology Section
L. Reuss and L. Ebihara

Functional Genomics and Proteomics of Hypoxia
Hypoxia Group
N. Prabhakar and J. Klein

*Physiology InFocus—Physiological Implications of
Oxidative and Nitrosative Stress: Emerging Concepts
in Oxidative and Nitrosative Signaling*
J. Beckman and Y. Janssen-Heininger

Molecular Regulation of Nitric Oxide Synthase Activity
Renal Section
P. Ortiz and J. Sullivan

The Teacher as an Educational Researcher
Teaching of Physiology Section
J. Michael and D. Silverthorn

Saturday, April 12, Afternoon Sessions

MCS Landis Award Lecture
The Microcirculatory Society
TBA

Recent Advances in the Study of Hexose Transport Proteins
Gastrointestinal Section and American Society for
Nutritional Sciences
R. Ferraris

Mechanisms for Contractile Depression in Heart Failure
Muscle Biology Group
R.A. Walsh and K.R. Chien

*Oxidative Stress, Antioxidant Supplementation
and Diabetes*
American Federation for Medical Research
E.C. Opara

Plasticity and Behavior
Association of Latin American Physiological Societies
R. Guevara Guzmán

MCS Young Investigator's Symposium
The Microcirculatory Society
J.C. Frisbee and D.W. Stepp

*NHLBI Program for Genomic Applications:
Background for Physiologists*
Physiological Genomics Group, National Institutes of
Health, and American Society for Biochemistry and
Molecular Biology
A. Kwitek-Black

Sunday, April 13, Morning Sessions

*Flow/Stretch-Regulated Membrane
and Ion Transport in Epithelia*

Epithelial Transport Group
L. Satlin and G. Apodaca

Understanding and Applying Critical Translational Assays

Liaison with Industry Committee
G. Reinhart and C. Montrose-Rafizadeh

Neurogenic Hypertension

Neural Control & Autonomic Regulation Section
A. Sved

*Physiology InFocus—Physiological Implications
of Oxidative and Nitrosative Stress: Cardiovascular
Consequences of Oxidative/Nitrosative Stress*

J. Elserich and K. Griendling

The Renin-Angiotensin System and Development

Endocrinology & Metabolism Section
J.C. Rose and C. Rosenfeld

*Magnetic Resonance: Unique Non-invasive Insights
Into the Physiology of Exercise*

Environmental & Exercise Physiology Section
R. Richardson and M. Olfert

Thin Filament Regulation of Muscle Contraction

Muscle Biology Group
J-P. Jin

*Physiology InFocus—Physiological Implications
of Oxidative and Nitrosative Stress: Pulmonary and
Endocrine Consequences of Oxidative/Nitrosative Stress*

B. Halliwell and J. Mannick

Peer Review and Publication in APS Journals

Publications Committee
D. Benos

Role of the Transcription Factor, TonEBP/NFAT5

Renal Section
M. Burg and J. Handler

The Pons: A Critical Component in Respiratory Control

Respiration Section
D.R. McCrimmon

Sunday, April 13, Afternoon Sessions

*Glucagon-like Peptide 2: A Nutrient-responsive
Intestinal Growth Factor-biological Function
and Therapeutic Application in Disease*

American Society for Nutrition Sciences and
Gastrointestinal Section
D. Burrin and K. Tappenden

The Chronobiological Environment of Mammals
Environmental & Exercise Physiology Section

R. Refinetti

Mitochondria Regulation of Cell Function

Cross Sectional
J. Bhattacharya

Redox Signaling of Angiogenic Response in the Heart

Cardiovascular Section
D.K. Das and N. Maulik

*Non-arterial Circulations: The Dark Side
of Cardiovascular Biology*

Comparative Section
S. Warburton and T. Wang

Physiology in Medicine:

Renal and Cardiovascular Physiology

Translational Research Group
J.E. Hall and D.J. Benos

Redox Regulation of Renal Function and Arterial Pressure
Water & Electrolyte Homeostasis Section

R.D. Manning, Jr. and A-P. Zou

Building Better Bone: Sex Genes and Drugs

American Federation for Medical Research
and American Society for Bone and Mineral Research

T.L. Clemens

Understanding Protein Unfolded States:

Implications for Folding, Function, Evolution and Disease

Biomedical Engineering Society

R.V. Pappu

Careers in Physiology Symposium:

*The Drug Discovery Process: Opportunities
for Physiologists*

Careers in Physiology Committee

J.H. "Wick" Johnson and J.M. Norton

Monday, April 14, Morning Sessions

Neuron-Glial Interactions in Nervous System Function

Cross Sectional
B. Ransom and J. Dietmer

The Function and Regulation of Mitochondrially

Produced Nitric Oxide in Cardiomyocytes
Cardiovascular Section

A.J. Kanai and J. Peterson

Caveolin Regulation of Endothelial Function

Respiration Section
R.D. Minshall, A. B. Malik

Presentation Skills

APS Women in Physiology Committee and
ASPET Women in Pharmacology Committee
C.M. Liedtke, S. Benyajati and J. Lakoski

Lineage Specific Programming of Stem Cells Into Tissues
Cross Sectional
Q. Al-Aqwati

Caveolar Domains in Cell Signaling
Cell & Molecular Physiology Section
P.A. Insel

Life to Death Decisions and the Fate of Apoptotic Cells
Endocrinology & Metabolism Section
J.A. Cidlowski

*The Identities of Estrogen Receptors Mediating
Nongenomic Effects*
Physiological Genomics Group
C.S. Watson and P.W. Shaul

Monday, April 14, Afternoon Sessions

*Remodeling of the Brain Underlies the Success
of Behavioral Therapies for Motor Dysfunction*
Central Nervous System Section
E. Taub

*The History and Physiology of High Altitude
Decompression Sickness*
History of Physiology Group
S. Schneider and M.R. Powell

*The Biology of Differentiated Thyroid Cancer:
A Bench to Bedside Review*
American Federation for Medical Research
B.R. Haugen

*Career Planning for Experimental Biology, Biomedical
and Physician Scientists*
Society for Experimental Biology and Medicine
K.L. Barker

Tuesday, April 15, Morning Sessions

*Functional Proteomics: Applications to the
Cardiovascular System*
Cardiovascular Section
P. Ping

*Epithelial-neuronal Interactions Underlying Bladder
Gene-Regulation and Sensory Function*
Physiological Genomics Group
L.A. Birder

*Regulation of Ion Channel Structure and Function
by Reactive Oxygen Nitrogen Intermediates*
Respiration Section
S. Matalon and D.C. Eaton

AT-1 and AT-2 Receptors: Angatonists in Cellular Action?
Cross Sectional
C. Sumners and M. Hay

*Subcellular Organization of Second Messenger Signaling
in Cells of the Cardiovascular System*
Cardiovascular Section
R. Lynch

New Roles for Ammonia in Renal Ion Transport
Renal Section
I.D. Weiner and L.L. Hamm

*Everything Old is New Again: Thyroid Hormone
and the Failing Heart*
American Federation for Medical Research
C.S. Long

Transgenic Models of Heart Failure Therapeutics
American Society for Pharmacology and Experimental
Therapeutics and Cardiovascular Section
J.D. Port

Moving?

If you have moved or changed your phone, fax, or email address, please notify the APS Membership Office at 301-530-7171 or fax to 301-571-8313. Your membership information

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

Section-Sponsored Featured Topics

Muscle Fatigue

William T. Ameredes

Tissue Response to Ischemic Injury: Adaptive and Regenerative Strategies

David P. Basile and William Chillian

Integrated Cell Systems

James Bassingthwaite

Developmental Plasticity of Respiratory Control

Ryan W. Bavis

Evolution of Vascular Regulation From the Neonate to the Aging Adult: Mechanisms and Functional Consequences

Matthew Alan Boegehold

Central Neurons and Efferent Pathways Controlling Thermoregulation

Jack A. Boulant and Kazuyuki Kanosue

Cardiovascular Physiology: From Bench to Classroom

Richard Bukoski and Charles Seidel

Development of Excitation-Contraction Coupling in the Embryonic Heart: From Simplicity to Complexity

Tony L. Creazzo

Oxidant Mechanisms in Neural Regulation of Cardiovascular Function

Robin L. Davisson

Control of Coronary Blood Flow (Berne Lecture Featured Topic)

Eric O. Feigl

Therapeutic Potential of Hypothermia: Bridging the Gap Between Clinical and Basic Thermoregulatory Research

Christopher Gordon and Michael Dae

Functional Brainstem Anatomy: Can We Tell Cardiovascular and Respiratory Neurons Apart?

Paul Gray

The Lung—A Very Special Place for Dendritic Cells

Gabriele Grunig

Interaction Between Histone Acetylation and DNA Methylation

Alessandro Guidotti

Intermittent Hypoxia: Physiological and Genomic Consequences

Gabriel Haddad

Causes and Consequences of pH Variability in Vertebrates

Lynn Hartzler

Glial/Neuronal Bi-directional Signaling

Glenn Hatton

Preconditioning of Myocardium Against Infarction

Franz Kehl and David C. Warltier

Epithelial Anion Channels: Structure, Form, Function

Kevin Kirk and Catherine Fuller

Structure and Regulation of Epithelial

Na and K Channels

Thomas R. Kleyman and Douglas C. Eaton

Reflex Regulation of Airway Function and Breathing

Lu-Yuan Lee and Brendan Canning

Nitric Oxide and the Cardiovascular System

(Wiggers Award Featured Topic)

Allan Lefer

Neurohumoral Control of Body Fluid Volume and Arterial Pressure

Thomas Lohmeier and Richard Roman

AstraZeneca Young Investigator Featured Topic

Jeffrey Miner

Is it the Physiology, the Students, or is it Me?

Reflections on the Classroom

Harold Modell

Trafficking of Membrane Transporters in the GI Tract and Beyond

Curtis Okamoto

Comparative Aspects of the Hormonal Responses to Metabolic Demands

Rudy M. Ortiz

Identifying Genes and Targets in Cardiovascular Autonomic Pathophysiological States

Julian Paton

Regulation of Vascular Smooth Muscle Cell Phenotype: Contractile versus Proliferative

Usha Raj

Hypertension (Starling Distinguished Lectureship Featured Topic)

Richard Roman

Insights on Renal Function and Blood Pressure Control From Genetically Manipulated Animals

Richard Roman

The Molecular Physiology of HCO₃ Transport

Michael Romero and Mark O. Bevensee

New Insights on Neuro-Immune Interactions in Autonomic Regulation

Yvette Tache

Hypoxic Metabolic Response: Autoregulation, Acclimation and Adaptation

Glenn Tattersall

Arteriogenesis and Collateralization

Joseph L. Unthank

Regulation of Ion Transporter Trafficking

Wenhui Wang and Michael Caplan

The Regulation of Sympathetic Nerve Activity in Chronic Heart Failure

Irving Zucker

Midterm Elections Cloud Appropriations Future

In the election for the 108th Congress, Republicans came out ahead, picking up four seats in the House of Representatives. This increased their majority over the Democrats to 227-206. The Republicans also picked up two Senate seats, giving them at least 51, with one race undecided and still another race that could be challenged as of this writing. Nevertheless, 51 seats are enough to return the Republicans to the majority for the first time since June 2000. The undecided Senate race is in Louisiana, where there will be a runoff. In the South Dakota race, incumbent Senator Tim Johnson (D-SD) narrowly beat out rival challenger Representative John Thune (R-SD) by a mere 528 votes. Under South Dakota law, Representative Thune is entitled to challenge the vote but he indicated he would not challenge the result absent some indication of fraud or error in the tallies.

This was an historic election because the party that controls the White House usually loses seats in a midterm election. Nevertheless, the Republican majorities in Congress are very slim, which may do little to ease

the legislative gridlock that dogged the 107th Congress.

The big news for biomedical research in this election is the shift to full Republican control of Congress. However, it is too early to know precisely what this will mean. In the Senate, all committee chairmanships will change hands. This usually means that the ranking Republican assumes the chairmanship, but sometimes a Senator opts to become the chair of a different committee, and this can result in a cascade of other changes.

Before the election Congress had passed only two of the 13 annual appropriations bills—Defense and Military Construction. Consequently, the rest of the government was left running at FY 2002 levels under a continuing resolution that was scheduled to run out November 22. Biomedical research was left in an especially precarious position. The NIH was hoping to receive the final installment in its five-year doubling. However, while the Senate had approved its NIH funding legislation, the House Appropriations Committee had been unable to muster the votes to produce an acceptable version of its Labor-HHS appropriations bill. Funding for the NSF, VA, and NASA fared only slightly better. Both the House and Senate had passed VA-

HUD appropriations bills, but the differences between them still had to be resolved by a conference committee.

The 107th Congress was scheduled to return for a lame duck session in mid-November where a decision would be made whether to finish the remaining FY 2003 appropriations bills or to pass a continuing resolution that would extend into the New Year when the 108th Congress convenes. Some congressional leaders had said that finishing FY 2003 appropriations should be on the agenda, but others expressed a preference for keeping the government operating at current levels until as late as March to rein in spending. This tactic would discourage the NIH and other agencies from undertaking new initiatives because of uncertainty about their budgets.

An update on appropriations for research agencies is provided in the chart below. ❖

Animal Activists Indicted

On October 25, 12 animal activists were indicted in Boston, MA for stalking an insurance company executive. They believed this executive had ties to Marsh Insurance Company, a major insurer of United Kingdom based Huntington Life Sciences (HLS)-a

Table 1. FY 2003 Budget Update

Agency/ Program	President's Request FY 2003	% Change From FY 2002	FY 2003 Senate Action	% Change From FY 2002	FY 2003 House Action	% Change From FY 2002	Conference Report
NIH	\$27.2 billion	17.0	\$27.262 billion S.Rept 107-216	17.0	Not complete	N/A	Not Complete
NSF	\$5.028 billion	4.9	\$5.353 billion S. Rept. 107-222	11.80	\$5.422 billion H. Rept. 107-740	12.8	Not Complete
VA Medical Research	\$409 million	10.2	\$400 million S. Rept. 107-222	7.8	\$405 million H. Rept. 107-740	9.1	Not Complete
NASA Office of Biological and Physical Research (OBPR)	\$842 million	3.4	Not Specified in Report	N/A	\$854.2 million H. Rept. 107-740	19.6	Not Complete

drug-testing firm that uses animals. In fact, this person had nothing to do with Marsh's insurance brokerage business.

The activists were members of the American branch of Stop Huntington Animal Cruelty (SHAC), whose stated goal is to use any means necessary in order to shut down the British drug-testing firm. The group has harassed, intimidated and in some cases even assaulted not only Huntington's employees, but also people with relatively distant ties to the company. This includes its directors and investors, as well as employees and investors in firms that do business with HLS.

According to the indictment, SHAC

members allegedly stalked the employee and vandalized his apartment building with red paint. They also called him a "puppy killer," demanded he quit his job and attempted to target him by publishing the names of his family members on the web. The campaign culminated with an August 2002 protest outside the insurance executive's apartment. Standing just a few feet away from the man's residence, the activists protested 24 hours a day using a megaphone to scream chants such as, "what comes around, goes around...burn his house to the ground." This resulted in members of the group being charged with attempted extortion, threats to burn a dwelling, criminal harassment, stalk-

ing in violation of a restraining order, and conspiracy. The most serious of these charges is attempted extortion, which carries a maximum sentence of 15 years in prison and a fine of up to \$5,000. This indictment highlights just one of the recent incidents in which SHAC has been a part of or been associated with.

In July 2002, smoke bombs in two Seattle high-rises caused the evacuation of 700 employees. According to Seattle Police Chief Gil Kerlikowske, the targets appeared to be insurance companies whose clients conduct research involving animals. Although SHAC denied having any involvement in the incident, it applauded them: "Although we do support direct action, as long as it doesn't hurt any animal, human or non-human, we do not engage in, organize or fund such actions," SHAC website contends. "However, we do applaud those brave enough to do so."

For a more in depth analysis of the Stop Huntington Animal Cruelty Campaign and their actions please visit the Americans For Medical Progress opposition research site at: <http://www.amprogress.org/ResearchOpposition/ResearchOppositionList.cfm?c=19>. ❖

APS to Sponsor 2003 Mass Media Fellowship

For the fifth consecutive year, APS will sponsor an American Association for the Advancement of Science (AAAS) Mass Media Science and Engineering Fellow for summer 2003. Applications are due to the AAAS by **January 15, 2003**.

The APS-sponsored fellow will be one of approximately two dozen AAAS Mass Media fellows who will spend 10 weeks during the summer working in the newsrooms of newspapers, magazines, Internet news outlets, or radio or television stations. Fellows will receive a short training course in science journalism prior to the fellowship, and will spend the summer developing their ability to communicate complex scientific issues to non-scientists and improving public understanding of science. The AAAS arranges placements at participating media outlets as part of the selection process. The fellowship includes travel to Washington for orientation and evaluation sessions at the beginning and end of the summer, as well as travel to the job site and a weekly stipend based upon local cost of living.

Individuals must be currently enrolled as a graduate or postgraduate student of physiology or a related discipline to apply for the APS fellowship. The application form is available in the "Awards for Students" sec-

tion of the APS website at http://www.the-aps.org/awards/awd_student.htm#AAAS. Additional fellowships are available for students in other scientific and engineering disciplines. Information about the program is posted on the AAAS Education and Human Resources Directorate website at <http://ehrweb.aaas.org/massmedia.htm>. A brochure with additional information about the program is also posted on both web sites.

In addition to the application form, applicants must submit a current résumé, a three- to five-page sample of writing directed to the general public, transcripts of graduate and undergraduate work, and three letters of recommendation. Two of the recommendation letters should be from faculty members, and the third should be a personal reference. The selection process is designed to seek out qualified candidates especially from under-represented communities, including African-Americans, Hispanics, Native Americans, and scientists with disabilities.

For more information or to receive a copy of the application by mail, contact Stacy Brooks in the APS Communications Office. (Tel.: 301-634-7253; Email: sbrooks@the-aps.org). ❖

Animal Charities Get Poor Marks for Stewardship

Several major animal activist groups have come under renewed criticism for their financial management practices. In October the independent organization Charity Navigator issued a scorecard on the financial soundness of major charities. The ratings were based on data from Form 990, which charities are required to file with the Internal Revenue Service. Its ratings awarded charities from zero to five stars depending upon their performance. Nearly 1,750 of the nation's largest charities were evaluated, and according to Charity Navigator the majority "continue to be fiscally responsible and financially healthy organizations."

However, several major animal

activist groups got low marks. The Humane Society for the United States (HSUS) and its affiliate, the Humane Society International (HSI), and People for the Ethical Treatment of Animals (PETA) were among the 9.4 percent of the rated charities that got only one star because of their “poor” performance. Charities received this rating if they failed to meet industry financial management standards and performed well below most other charities involved in similar activities. The Foundation to Support Animal Protection (FSAP) got zero stars—the lowest possible rating—for its “exceptionally poor” performance. FSAP has close links to PETA and to the Physicians Committee for Responsible Medicine (which was not rated). Only 1.3 percent of the 1,750 charities received a zero star rating.

Charity Navigator is a relatively new organization (<http://www.charitynavigator.org>). It evaluates short-term spending practices, including charity’s “fundraising efficiency,” as well as how much of their budgets they allocate to fundraising, programs, and administrative expenses. The ratings are a composite that also include several measures of the organizations’ long-term financial sustainability. Charity Navigator evaluates financial management practices and does not address the quality of program content or purpose of the organization.

The rule of thumb is that charities should spend at least 60 percent of their budgets on program expenses. Charity Navigator uses the IRS definition of program expenses to make this determination, which is less stringent than the one recommended by the now-defunct National Charities Information Bureau. NCIB did not believe that direct mail appeals should ever be counted as program expenses. The IRS allows such appeals for funds to be considered program expenses if the mailings also contain educational materials.

According to Charity Navigator’s report, HSUS reported total income of \$57,177,692 for the fiscal year ending in December 2001. It spent \$0.30 for each dollar it raised and allocated 28.4 percent of its functional expenses to

fundraising. HSUS also spent 61.4 percent of its budget on program expenses and 10.2 percent on administration expenses.

Charity Navigator also evaluated the lesser-known HSI, which serves as the international arm of HSUS. (Paul Irwin is the president of both organizations, and both list the same Washington, DC address as their headquarters.) HSI reported total revenue of \$1,918,700 for the fiscal year ending in December 2001, with fundraising costs of \$0.19 for each dollar it raised. HSI allocated 18.7 percent of its budget for fundraising, 61 percent for program expenses, and 20.3 percent for administration.

Both HSUS and HSI were rated as “poor” performers as charities, receiving one star out of a possible five.

PETA reported total revenues of \$13,867,001 on its IRS Form 990 for the fiscal year ending July 2001. Charity Navigator calculated that PETA spent a modest \$0.16 to raise each dollar, and that it allocated 15.5 percent of its functional expenses for fundraising, 81 percent for program expenses, and 3.5 percent for administrative expenses. As a result, PETA’s performance merited one star on the zero to five star scale.

The Foundation to Support Animal Protection (FSAP) reported a budget of \$2,358,625 for the fiscal year ending June 2001. FSAP spent a whopping \$5.42 for each dollar it raised and allocated 44 percent of its functional expenses for fundraising. FSAP also allocated 10.8 percent for program expenses and a hefty 45.2 percent for administrative costs. Consequently, FSAP was rated as “exceptionally poor” and received a zero star rating.

However, the unusually close ties between PETA and FSAP merit additional scrutiny of both organizations. FSAP was virtually unknown until its existence was disclosed a year ago by the activist publication *Animal People*. This monthly newsletter does an annual investigative report on charity finances called “Who Gets the Money?” In its November 2001 report, *Animal People* revealed that PETA and the Physicians Committee for Responsible Medicine (PCRM) estab-

lished the FSAP in 1993. According to its IRS Form 990, FSAP is headquartered at the same Norfolk, VA address as PETA. Furthermore, its purpose is described simply as providing “support” to a specified group of organizations, including PETA, four of its subsidiaries, PCRM, and the Washington Humane Society.

The FSAP board consists of three people: Neal Barnard (president), Ingrid Newkirk (director) and Nadine Edles (secretary). Barnard is also the president of PCRM. Newkirk is also the president and director of PETA. Edles has not previously been identified as holding positions in either organization, but her address on the form is the PCRM address.

Since FSAP’s existence was disclosed, there have been various speculations about its significance. It may serve to conceal actual expenses of the beneficiary organizations since fundraising or administrative expenses picked up by FSAP are kept off their balance sheets. For example, *Animal People* reports that in its fiscal years 1999-2000, FSAP paid the mortgage on the PETA headquarters and leased the site to PETA, as well as conducted mailings in the names of beneficiary organizations. It may also provide a way for wealthy PETA to quietly channel funds to PCRM. According to *Animal People*, in its fiscal year 2000 filing, FSAP’s sole reported program expense was a grant to PCRM in the amount of \$432,524. The organizational structure of FSAP certainly demonstrates the extent to which PETA and PCRM are intertwined. While PETA has engaged in wild publicity stunts, PCRM has sought to portray itself as a dispassionate source of expert information. However, FSAP’s narrowly defined purpose and tightly-controlled organization reveals an extraordinary degree of cooperation between the two groups.

Other websites that provide financial information about nonprofits include <http://www.give.org> (Better Business Bureau Wise Giving Alliance) and <http://www.guidestar.org> (Philanthropic Research, Inc.). ❖

Methods in Genomic Neuroscience

Hemin R. Chin and Steven O. Moldin (Editors).

Boca Raton, FL: CRC, 2001, 321 pp., illus., index, \$119.95. ISBN: 0-8493-2397-5.

With the recent publication of drafts of the human and mouse genome sequences, and advancements in molecular technologies, there could hardly be a more timely volume in the field of neuroscience than *Methods in Genomic Neuroscience*. Hemin R. Chin and Steven O. Moldin have compiled an excellent collection of chapters that provides an overview of current technologies and their potential for understanding gene-brain-behavior relationships. The volume covers a wide range of topics, from mutagenesis, transgenics and expression profiling, to human genetic analysis. The author list is quite impressive, representing the leaders of each of the respective topics.

The book begins with a chapter by Sokolowski and Wahlsten discussing the concepts of gene-environment interactions. Most genetic experiments are performed in a well-controlled environment, precluding the discovery of gene-environment interactions. The authors point out that genetic phenotypes may vary quite dramatically in different environmental contexts. The chapter provides some experimental design and statistical considerations for examining gene-environment interactions and discusses how molecular technologies can be used to elucidate the mechanisms of these interactions.

Several chapters discuss techniques for identifying gene loci responsible for particular neurological phenotypes. Wayne Frankel discusses how natural mutants can be used to identify genes involved in neurological processes. This chapter reviews the use of segregation and linkage analysis to map the chromosomal location of mutant alleles, as well as follow-up transgenic strategies for identifying

precisely the mutated gene. Lawrence Pinto and Joseph Takahashi discuss similar issues for identifying mutant genes in mutagenesis experiments. Their contribution provides practical information on chemical mutagenesis, including breeding schemes and theoretical considerations for designing genome-wide mutagenesis experiments. Steven Kanen et al. discuss the use of ENU chemical mutagenesis to discover genes relevant to psychiatric disorders. This chapter includes a useful discussion of the various mouse behavioral paradigms used for identifying mutant behavioral phenotypes. Descriptions of breeding schemes for mapping dominant, recessive and modifier loci are included in both mutagenesis chapters.

Knockout and transgenic mouse techniques are two of the most powerful and commonly used techniques for characterizing gene function. However, from the standpoint of behavioral neuroscience, this technique is fraught with complications arising from developmental and pleiotropic effects of the mutated gene. Mark Mayford and Eric Kandel contribute a chapter discussing the second generation of transgenic mouse technologies; conditional and inducible gene targeting. The use of Cre-lox and tetracycline inducible systems for creating region-specific and inducible knockout mice are reviewed.

Gene trap approaches provide another strategy to identify genes involved in specific neurobiological processes. Kevin Mitchell et al present a fascinating example of how this technique can be tailored to focus on genes involved in brain development and wiring. The technique involves randomly inserting into genes a DNA sequence that encodes markers that label the cell body and projections. The sequence disrupts the gene and the marker proteins are expressed in its place. By staining for the markers and comparing fiber pathways in heterozygous and homozygous brains, it is possible to identify genes involved in the wiring of the brain.

The genomic technology that has received the most fanfare recently is

DNA microarray expression analysis. Two chapters in the book are devoted to microarrays and gene profiling. David Lockhart and Carrolee Barlow, and Károly Mirnics et al. provide good general overviews of this technology with a discussion of different types of arrays, their advantages, and a host of useful practical information. Károly Mirnics et al focus their chapter on microarray strategies for studying human tissue and present methodological and analysis details that are specific for expression analysis in human brain tissue.

Gene therapy, or gene transfer, is another technology with great potential in neuroscience. Jürgen Hampl offers a description of methods of gene transfer to neural tissue, including viral vectors and grafting transfected cells. Much of this chapter is devoted to potential therapeutic uses of this technology, including disrupting tumor development or increasing dopamine synthesis in Parkinson's disease. Neural stem cell technology is another potential therapeutic approach for neurodegenerative diseases. Lorenz Studer and Ron McKay's chapter provides details on deriving neuronal stem cells and in vivo transplantation and functional assessment. CNS stem cells are likely to also be useful for identifying factors involved in neuronal differentiation.

The final two chapters discuss the approaches and problems in human genetics. These chapters discuss statistical considerations for the use of genome scans and SNP analysis for identifying genes involved in psychiatric or neurological disorders.

Overall, I found this book to be quite informative and comprehensive. Some of the chapters are quite specific, providing details on methodology and reagents, while others were broader in scope. In general the book is ideal for neuroscientist and physiologist wishing to be kept abreast of the current state-of-art technology in molecular neuroscience. ♦

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Cells, Gels, and the Engines of Life. A New, Unifying Approach to Cell Function

Gerald H. Pollack.
Seattle, WA: Ebner and Sons, 2001,
320 pp., \$55.00.
ISBN: 0962689513.

Glancing at the first paragraph of this book, I winced: uh-oh, here come the epicycles. The story of Galileo's experimental extirpation of the Ptolemaic epicycles seems always to foreshadow the pronouncements of scientific revolutionaries claiming that the accepted view of something big—physics, biology, whatever—is rotten at its core and requires a radical paradigm-shift (another familiar mantra in such circumstances). It's the core of cell physiology that Gerald Pollack sets out to extirpate here. He views the idea of a continuous lipid bilayer membrane, and the pumps, channels, and permeases that reside therein, as biological epicycles, "postulates put forth to rescue attractive theories that otherwise would have collapsed..." Pollack thinks that everyone has got everything wrong. Cells are not bounded by lipid membranes acting as permeability barriers; energy-consuming solute pumps, such as the Na/K ATPase or the H⁺-coupled ATP synthase, do not exist as such; cellular electrical potentials do not arise from selective ion flows down transmembrane gradients; muscle contraction does not proceed from ATP hydrolysis-driven conformational changes in the myosin head.

These ideas are, in the author's phrase "orthogonal to convention;" indeed, the book is a new exposition of the old "association-induction hypothesis" put forth by G.N. Ling, who has been promoting it vociferously for the past four decades (see <http://www.gilbertling.org> for the flavor of that discourse). What does this theory say? First, that cell water exists in a non-aqueous state, highly ordered by protein surfaces, and is, thus, a poor solvent for hydrophilic solutes like ions.

Second, that cytoplasmic proteins are delicately organized into a gel with a high density of charged groups that selectively bind ions. Third, that this protein-water gel is poised to undergo highly co-operative and very long-range "phase transitions" in response to the binding of ions like Ca⁺⁺, ATP³⁻, etc. Finally, that extracellular solutes exist in thermodynamic equilibrium with this cellular gel, not in an energy-consuming steady state. Cytoplasmic Na⁺ is low not because it is pumped out of the cell, but because cellular water is a poor solvent; K⁺ is high because of specific binding to negatively charged sites on cellular proteins. Thus, the cell is pictured as an exquisite kind of ion-exchanger, in which the interplay of solute binding to sites and exclusion from cell water, both equilibrium processes controllable by ligand-induced pan-cytoplasmic phase transitions, underlies all cellular behavior.

Pollack re-interprets many familiar physiological phenomena in terms of this picture. For example, ion channel proteins act not as transmembrane diffusion pathways, but as surface receptors which undergo conformational changes and, as a result, cause long-range phase transitions in the cytoplasm, transitions that alter the phase-boundary potential between cellular gel and extracellular solution. Likewise, kinesin does not "walk" along microtubules but rather "surfs" along waves of conformational changes in the microtubule, suspended within a traveling halo of water-structure disassembly linked to binding of ATP. Mitochondria act not as chemiosmotic machines but rather as platforms from which ATP shuttles to nearby cytoplasmic proteins, where it delivers energy by binding and provoking local phase transitions.

These are pretty wild notions, and Pollack takes pains to explain why we should embrace them, abandoning our familiar view of cell membranes, why the standard view fails so badly as to demand such a complete revision. With appropriate attribution to Ling, he describes three really big problems with the membrane theory.

1. The Na⁺ pump violates the laws of thermodynamics by requiring a much larger (>10-fold) free energy expenditure than is available in ATP hydrolysis.

2. Cellular function is maintained under conditions in which lipid membranes are disrupted by mechanical insult, detergents, organic solvents, or other outrages to hydrophobic integrity.

3. Cellular electrical behavior is inconsistent with the ionic theory based on selective transmembrane permeability.

It is not my purpose to critique the theory itself, which I consider nonsense. Rather, I aim to review Pollack's exegesis of this theory to his intended audience: interested scientists with little background in biology. Pollack writes in a most engaging style—vivid, colorful, and enthusiastic. His prose is crystal-clear, he never equivocates, and he puts great effort into making the central points and basic logic stand out from the background. Eschewing the resentful tone so often associated with ignored scientific heretics, Pollack instead relishes the role of mischievous contrarian, and, as a result, the book is a fun read. Moreover, the pages are festooned with David Olsen's imaginative illustrations that acutely illuminate the unfamiliar ideas offered. But the skillful writing fails to compensate for the intellectual flaccidity of the exposition. This would be an appallingly bad place for a biological novice to begin. I will cite a few characteristic examples of broad, breathless assertions that melt away upon even superficial examination and that mislead the biologically naive reader.

1. The reader is told authoritatively that the Na⁺ pump violates the laws of thermodynamics (p. 18), but is not informed that the experiments leading to this conclusion have never appeared in a peer-reviewed publication, only in Ling's monograph, which summarizes work he carried out in the 1950s. Likewise, consider the citation (p. 34) casting doubt on the existence of a continuous lipid membrane, in which ion permeability was unaffected by depletion of membrane lipids. The

citation is to a 1960 general review of red cell ion permeability containing a short description of an unpublished experiment in which the passive permeability increased by only 20% after about 10% of red cell lipids “should” have been extracted by exposure to alumina (lipids were not actually measured). Does this result tell you that the cell membrane doesn’t form a permeability barrier?

2. The novice biologist is reminded (p. 41) that certain organisms, such as the woolly bear caterpillar, survive in ultra-cold climates, and then told that this means that the freezing point of cellular water is much depressed, as though it is in a non-aqueous state. In fact, water in most cells freezes slightly below 0°C, and the cold-resistance of arctic insects, which specifically arises from fascinating antifreeze proteins, is an exception. Is this conflation of a special property of an extremophile with a general property of all cells a sly rhetorical device or

merely an honest howler? I don’t know, but in either case, the student will end up undereducated.

3. Asserting that the number of proposed pumps is impossibly large, Pollack fingers an outwardly directed tetracycline pump in bacteria (p 17) as a particularly egregious ad hoc epicycle invoked to patch up the faltering membrane idea. Inviting his audience to join him in throwing up his hands, he argues that such a pump is a priori ridiculous. How can you have a new pump for every new compound synthesized by organic chemists? Pollack leaves it there, without even a whisper about the exciting, vigorous, and medically compelling field of multidrug resistance transporters, several of which have recently been seen at atomic resolution. Regardless of whether this is simple negligence or determined tendentiousness, the naive student at whom the book is aimed has missed out on something awfully interesting.

Examples like this—in politics it’s called “disinformation”—pervade the book. It seems clear why Pollack explicitly directs his exposition at “those with minimal background in biology”—nobody who knows the facts will swallow this stuff. In our scientific infancy in grad school, each of us dreamed of someday smashing received wisdom to smithereens, like Galileo or Darwin (neither of whom had set out with any such intention). Eventually, we all end up settling in to doing “normal science,” not because we are pathetic failures but because we become genuinely fascinated with the demanding details of specific problems. After reading this book, though, I wonder if it’s unhealthy to have these dreams of glory at all and whether it might be best just to ban Thomas Kuhn and Karl Popper from the children’s section of the library. ❖

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Neuropathic Pain: Pathophysiology and Treatment

Per T. Hansson, Howard L. Fields, Raymond G. Hill, Paolo Marchettini (Editors), *Progress in Pain Research and Management*, Volume 21
Seattle, WA: IASP, 2001, 277 pp., illus., index, \$79.00.
ISBN 0-931092-38-8.

The past ten years have seen a significant increase in basic and clinical research focusing on conditions, which can be placed under the umbrella of neuropathic pain. In spite of a multidisciplinary strategy involving researchers from around the world there remains significant shortcomings in our ability to treat patients with this condition. For this reason it is understandable why the International Association for the Study of Pain (IASP) has chosen this topic as

the focus of another outstanding contribution in their series devoted to progress in pain research and management. Considering the fact that an estimated 5% of all patients with traumatic nerve injury suffer from pain, 8% of stroke patients suffer from central neuropathic pain, as do 28% of patients with multiple sclerosis, 40% of patients with Parkinson’s disease, and 75% of patients with syringomyelia or spinal cord injury, it is easy to appreciate the importance of this topic. Although research in the field of neuropathic pain is progressing rapidly, the contents of this volume provides a valuable overview along with descriptions of recently emerging information within the field of neuropathic pain. This book represents a state-of-the-art summary of two symposia held in conjunction with the World Congress on Pain held in August 1999. The volume contains contributions from an internationally recognized list of clinical and basic science experts who address the latest clinical and scientific knowledge deal-

ing with the pathophysiology, diagnosis and treatment of neuropathic pain.

The monograph can be divided into three sections, the first dealing with the clinical characteristics of neuropathic pain (Chapter 1); the second with basic research and putative mechanisms of neuropathic pain (Chapters 2-8); and the third with treatment strategies (Chapters 9-13).

The opening chapter by Hansson provides an outstanding summary of the clinical characteristics of neuropathic pain, as well as a commentary on the current state of diagnostic and treatment strategies for this condition. This chapter also establishes the clinical dimensions of different neuropathic pain states. A timely perspective on the relevance of current animal models and behavioral outcome measures in studying the complexities of neuropathic pain is also provided. Emerging from this chapter is the recommendation that a continuing dialogue is needed between pain clinicians and pain scientists to enhance research

(continued on page 514)

(continued from page 513)

related to the underlying mechanisms of neuropathic pain. The opening chapter is followed by a series of seven chapters focusing on the pathophysiology and possible mechanisms of neuropathic pain. These chapters focus on experimental studies dealing with sodium channels, cytokines, peripheral and central sensitization, plastic changes in chronic pain states and the role of descending facilitatory pathways in neuropathic pain. Chapter 5 by Dickenson and colleagues provides an excellent summary of the central changes that are thought to play a critical role in the pathophysiology underlying the onset and persistence of chronic pain resulting from injury to the peripheral or central nervous system. Porreca and colleagues (Chapter 6) add to the proposed underlying mechanisms of neuropathic pain in their description of bulbospinal facilitatory influences on spinal pain processing. Their contribution describes a novel component to the mechanism of neuropathic pain and typifies the way contributors have provided insightful interpretations of their work. This chapter challenges existing views on the mechanisms responsible for the onset and maintenance of neuropathic pain. Based on a comparison of research in animal models and human studies the role of the sympathetic nervous system in neuropathic pain is provided by Janig

and Baron (Chapter 7). The predictability of animal models and their relevance to the human condition is discussed. Chapter 8 describes the use of postherpetic neuralgia as a potential model for the study of neuropathic pain.

Effective, long-term treatment of neuropathic pain represents one of the biggest challenges in medicine today. Chapters 9-13 deal with treatment strategies and focus on the use of antidepressants, anticonvulsants, opioids, local anesthetics and electrical stimulation. An important consideration in this section of the book is whether research related to mechanisms of neuropathic pain represents a viable strategy for identifying future targets of therapeutic intervention. Mechanism-based approaches for the treatment of neuropathic pain including blockade of calcium and sodium channels, inhibition of cytokine production, and the use of opioids are discussed. An important underlying theme of these chapters is the fact that in spite of progress in predicting the diagnosis of different neuropathic pain conditions what is lacking is a way to predict the success of different therapeutic interventions. The concluding chapter (14) provides an integrated discussion focusing on the current state of scientific and clinical knowledge related to neuropathic pain and a perspective on what to expect in the future.

In conclusion this volume consists of short chapters dealing with the major components of topics related to the clinical characteristics, mechanisms and treatment of neuropathic pain. Each chapter is well-referenced and provides an outstanding state-of-the-art review of research and clinical practice related to this condition. The volume offers the reader a fundamental view of the landscape as well as an account of recently emerging information in basic and clinical areas of neuropathic pain. The contributors have emphasized the importance of increasing our understanding of the mechanisms and clinical characteristics of various conditions in hopes of promoting the development of novel treatments. The book represents a wealth of high quality information for the basic scientist, as well as health professionals, interested in neuropathic pain and emphasizes the importance of current and future research efforts directed towards understanding the pathophysiology and identification of potential therapeutic targets. This volume is an outstanding reference for those interested in the field of neuropathic pain. It contains a comprehensive index, meets the high standards of the IASP Press, and will serve as valuable reading for the established as well as beginning researcher in the field of neuropathic pain. ♦

Robert P. Yeziarski
University of Florida

Experimental Biology
2003

"Translating the Genome"
Call for Late-Breaking Abstracts

Deadline:
February 26, 2003

Late-breaking abstracts will be accepted for special poster sessions to be scheduled on Tuesday, April 15, 2003. The purpose of the late-breaking abstracts is to give participants the opportunity to present and hear about new and significant material. Late breaking abstracts will be published in an addendum to the meeting program; they will not be published in *The FASEB Journal*.

Abstracts must be submitted electronically with payment of \$60 and received on or before Wednesday, February 26, 2003.

Abstract submission site: <http://www.faseb.org/meetings/eb2003>

Abstract Submission Fee: \$60

Questions contact:

Experimental Biology 2003 Meeting Office

Phone: (301) 530-7010

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For information, including each Society's preliminary program, housing, and registration forms, see the EB 2003 Web Site: <http://www.faseb.org/meetings/eb2003>

Save Money! Register online by February 13 and make your housing reservations by March 7.

Postdoctoral Positions

Postdoctoral Fellow: Human Cardiovascular-Integrative Physiology. A position is open in the Faculty of Applied Health Sciences, University of Waterloo for an individual with training in human cardiovascular physiology. A background in mathematical modeling and computing is an asset. The research will focus on the study of baroreflex function in various populations including young and older individuals and astronauts. More information on the activities of the lab can be obtained from the web site: <http://healthy.uwaterloo.ca/~hughson/cvlab.html>. Candidates should send a CV and the names and Email addresses of three references to: Prof. Richard Hughson, Department of Kinesiology, University of Waterloo, 200 University Ave. W., Waterloo, ON, N2L 3G1 Canada or by Email to hughson@uwaterloo.ca. **The deadline for applications is December 1, 2002.**

Postdoctoral Position in Endothelial Electrophysiology: A postdoctoral position is available to study mechanogated ion transport in different endothelial phenotypes in the pulmonary circulation and its role in mechanical stress induced vascular permeability and lung pathology. The recruited candidate will join an electrophysiology group in a newly established NIH-funded pulmonary vascular biology program emphasizing the role of endothelial phenotypes in calcium signaling, cyclic nucleotide regulation and lung injury. Fluorescent microscopy, cell culture and gene transfer core facilities are available. Recent electrophysiology studies are included in: Wu et al. *J. Biol. Chem.* 275:18887-96, 2000 and Brough et al. *FASEB J.* 15:1727-38, 2001. The candidate should have patch clamp experience and knowledge of cell culture methods. Send curriculum vitae and names and addresses of three references to: Dr. James C. Parker, Department of Physiology, MSB 3024, College of Medicine, University of South Alabama, Mobile, AL 36688; Tel:

251-460-6826; Fax: 251-460-6464, Email: jparker@usmail.edu.

Postdoctoral Position: A postdoctoral position is available to study the role of NFAT transcription factors in CD154 (CD40-ligand) gene regulation in patients with systemic lupus erythematosus. Both murine and human studies are involved. A background in immunology and/or molecular biology will be useful. Candidates must have a PhD or MD. Salary is competitive and commensurate with experience. We seek a creative, independent, and highly motivated individual to spend at least 2-3 years in the laboratory. Interested candidates should send a curriculum vitae and names, addresses, and current phone numbers of three references to: Randy Q. Cron, MD, PhD, Children's Hospital of Philadelphia/University of Pennsylvania, 3615 Civic Center Blvd., ARC 1102B, Philadelphia, PA 19104-4318. Interested candidates may also send their credentials directly to mayoe@email.chop.edu. [EOE]

Postdoctoral Position: A postdoctoral position is available, effective immediately, in molecular imaging program, Section of Cardiovascular Medicine, Yale University School of Medicine. Position in multidisciplinary laboratory focused on targeted imaging of myocardial angiogenesis, coronary physiology, and myocardial mechanics. Laboratory employs small and large animal models of ischemia/reperfusion to develop non-invasive imaging approaches for assessment of myocardial angiogenesis. NIH-funded projects involve cardiovascular imaging of large and small animals with multiple modalities, including: 3D echocardiography, single photon emission computed tomography (SPECT), angiography, and magnetic resonance imaging. Applicant should hold PhD and/or MD degree, and have strong background in cardiovascular physiology with some experience in immunohistochemistry, animal surgery, or imaging. Please send a statement of research interests, curriculum vitae,

and three letters of reference to Albert J. Sinusas, MD, Director of Animal Research Laboratories, Section of Cardiovascular Medicine, Yale University School of Medicine, PO Box 208017, New Haven, CT 06520-8017; Email: albert.sinusas@yale.edu.

Research Positions

Research Associate/Postdoctoral Positions: The University of Virginia Health System, Department of Pharmacology is seeking applications for Research Associate/Postdoctoral positions to investigate mechanisms of ion channel modulation. The successful applicant will apply diverse approaches, electrophysiological and molecular, in both cell culture and in native neuronal preparations to study physiological roles of background K⁺ channels (see <http://www.med.virginia.edu/medicine/basic-sci/pharm/bayliss.html>). Experience in these areas is desirable, but not essential. Applicants at the PhD level will be considered; salary will depend on qualifications. To apply send resume to: Dr. Douglas A. Bayliss, Dept. of Pharmacology, PO Box 800735, University of Virginia, Charlottesville, VA 22908-0735; Email: dab3y@virginia.edu. (Application deadline: open until filled). [AA/EEO]

Tenure-Track Scientist: The Laboratory of Kidney and Electrolyte Metabolism (LKEM), National Heart, Lung, and Blood Institute, is recruiting a Tenure-Track Scientist with expertise in renal physiology and epithelial transport physiology. The successful candidate should have a PhD, MD or MD/PhD with training in physiology, biomedical engineering, biochemistry, molecular biology, or a related discipline. Experience in ion transport physiology in renal tubule epithelia is particularly desirable. Possible areas of specialization include use of heterologous expression systems to study ion transporters, application of large scale genomics techniques to the study of ion trans-

port regulation, application of proteomics methodologies to study ion transport regulation, development of gene knockout models to study regulation of salt and water excretion by the kidney. LKEM has a long history of technological innovation and a candidate is sought who can continue this tradition. The successful candidate will be offered a competitive salary commensurate with experience and qualifications. Appointees must be US citizens, resident aliens, or non-resident aliens with a valid employment visa. Applicants should send a descriptive letter of interest, curriculum vitae and bibliography, and arrange for three letters of reference to be sent to: Ms. Christine Fisher, Human Resources Branch, DHHS, NIH, National Heart, Lung, and Blood Institute, 31 Center Drive, MSC 2484, Bethesda, MD 20892-2484. Please include vacancy identifier, HL-02-0120 on all correspondence. **Applications must be received no later than January 8, 2003.** HHS and NIH are Equal Opportunity Employers. Applications from women, minorities, and persons with disabilities are strongly encouraged.

Associate Research Scientist: The Department of Internal Medicine, Division of Cardiovascular Diseases, University of Iowa College of Medicine, is seeking an Associate Research Scientist to perform basic or applied research on problems which present critical or unusually difficult obstacles to understanding and which involve the development of new theories or methodologies with complete responsibility for all aspects of the research project. Requires a person in this classification has the academic knowledge of a discipline generally associated with a Doctoral degree, or an equivalent professional degree, i.e., MD, DDS, or DVM, and several years of postdoctoral or postgraduate research experience. In addition, such a person will normally have accumulated several years of progressively responsible independent research work. This work will be evidenced by publications, inventions and the like, which have had considerable impact

and value to the person's field or discipline. Desires considerable experience with the generation and design of recombinant viruses, and use and characterization of genetic models of cardiovascular disease. Please send resume and cover letter indicating #44679 to: Carol Wehby, Human Resources, Internal Medicine, E400 GH, 200 Hawkins Drive, Iowa City, IA, 52242-1081. [EEO/AA] Women and minorities are strongly encouraged to apply.

Research Associate/Scientist: A position for a postdoctoral research associate is available immediately to work on a project that is currently studying ovarian gene expression during ovulation. Preference is for candidates who have experience with differential display, microarray, and/or related techniques in molecular biology. The individual must be willing to become totally integrated into a small research group in a well-equipped laboratory at a private, undergraduate, liberal arts institution. Candidates should be either a US citizen or a Permanent Resident, and they should be willing to make a commitment of three years to the project. Applicants should send their CV (including names and telephone numbers of three references) and a cover letter stating their research interests via Email to lespey@trinity.edu. (No telephone calls will be accepted.) Trinity University is an Equal Opportunity Employer. Direct application information to Lawrence Espey, PhD, Department of Biology, Trinity University, San Antonio, TX 78212; <http://www.trinity.edu/lespey>.

Research Assistant Professor: Applications are invited for a 12-month research-track position at the assistant professor level in the Department of Anatomy, Physiology, and Pharmacology to start March 3, 2003. The Department is seeking an individual to complement strengths in ongoing cardiovascular research focused on heart failure. Preference will be given to candidates with exter-

nal support and experience in any of the following areas: 1) extracellular matrix remodeling; 2) mechanisms of female cardioprotection; 3) calcium signaling; and 4) cytokine-mediated signal transduction. Applicants must have a PhD in bioengineering or physiology. Send curriculum vitae, research plan, and three letters of reference to: Dr. Greg Brower, Search Committee Chair, 106 Greene Hall, College of Veterinary Medicine, Auburn University, AL 36849. Application review will begin **December 1, 2002** and continue until the position is filled. Women and minorities are encouraged to apply. The selected candidate must be able to meet eligibility requirements for work in the US at the time of employment. [AA/EEO]

Assistant Research Scientist: The University of Iowa College of Medicine, Department of Internal Medicine, Cardiovascular Diseases Division, is seeking an Assistant Research Scientist to perform basic or applied research to advance knowledge concerning defibrillation and resuscitation. The work will require expertise in theoretical and methodological aspects of integrated cardiovascular physiology. Requires a person in this classification has the academic knowledge of a discipline that is generally associated with a Doctoral degree, or an equivalent professional degree, i.e., MD, DDS, or DVM. In addition, the person will have demonstrated the ability to plan and execute a research study through some progressively responsible independent research work. Requires considerable experience with animal surgery, both large (canine and porcine) and small (mice, rats, rabbits). Desires experience with physiological research and with cardiovascular surgical techniques, including endotracheal intubation, thoracotomy and Langendorff isolated heart preparation, and insertion of coronary arterial and coronary sinus catheters. Desires record of publications and evidence of grant applications. Please send resume and cover letter indicating #44686 to: Carol Wehby, Human Resources, Internal

Medicine, E400 GH, 200 Hawkins Drive, Iowa City, IA, 52242-1081. Women and minorities are strongly encouraged to apply. [AA/EEO]

Faculty Positions

Chair, Department of Biomedical Engineering: Oregon Health & Science University (OHSU) announces a new department of Biomedical Engineering and a search for its first chair. Responsibilities: develop a unique focus for research and training; recruit outstanding faculty and students; develop interdisciplinary educational programs; build collaborative linkages with the larger university; foster partnerships with the regional biotech community; secure external programmatic funding and encourage technology transfer and commercialization of research discoveries. Qualifications: a strong background in engineering or another quantitative science and relevant experience within a biomedical field; a record of success as an independent scholar; an entrepreneurial spirit; capacity to represent the department effectively to external constituencies; familiarity with commercializing intellectual property, a commitment to translational research and successful technology transfer; an understanding of a research university's role in the economic development of its region and state; a record of successful fiscal management and academic credentials suitable for a senior faculty appointment. The Institution: OHSU includes the first medical school west of the Mississippi and Oregon's first dental and nursing schools. Located in Portland, it serves 2,600 students. Its annual research budget is \$160 million. In July 2001, OHSU expanded, by merger, with The Oregon Graduate Institute of Science and Technology. As OHSU's new School of Science and Engineering, OGI serves 300 students. Its annual research budget is nearly \$20 million. Additional information about both institutions is available at <http://www.ogi.edu> and <http://www.ohsu.edu>. The search has

begun and will continue until the position is filled, ideally in early spring 2003. Confidential inquiries and requests for a Position Specification should be directed to the consultant assisting the search committee, E. Kay Dawson, by Email (preferred) at ekdawson@qwest.net, or by telephone at 503-292-4889. Applicants should submit a cover letter responsive to the Position Specification, a curriculum vitae, and the names of five references to the search committee chair, Dr. Misha Pavel, OGI School of Science & Engineering, 20000 NW Walker Road, Beaverton, OR 97006-8921. [EO/AA]

Tenure Track Assistant Professors: California State University, Northridge invites applications for tenure track Assistant Professors of Biology in Mammalian Physiology to begin August 2003. Candidates must hold a PhD in Biology, or related field, and have postdoctoral experience. Teaching includes Introductory Biology, Cell Biology, graduate seminars, and Human Physiology. The successful candidate is expected to develop a vigorous research program involving undergraduate and graduate (MS) students, seek extramural research funding, demonstrate teaching excellence, and provide effective instruction to students of diverse backgrounds in a multicultural setting. Applicants should specify the Physiologist position in a letter of application and submit a *curriculum vitae*, summary of teaching experience, statements of teaching philosophy and research interests, and three representative publications and arrange to have three letters of recommendation sent to: Chair, Department of Biology, California State University, 18111 Nordhoff Street, Northridge, CA 91330-8303. **Complete applications must be received by January 10, 2003.**

Assistant/Associate/Full Professor: The Department of Molecular & Integrative Physiology and the School of Molecular & Cellular Biology at the University of Illinois at Urbana-

Champaign invites applications for a faculty position in Systems Physiology. The successful candidate will address fundamental mechanisms involved in the functioning of organs and tissues using molecular, genetic or computational approaches. Although the Department has a particular interest in identifying outstanding candidates working in cardiovascular, respiratory or renal physiology, the excellence of the candidate is more important than the area of research. Because of recent success in filling positions in Neuroscience, applications in this area are not encouraged. The position is full-time and tenure track in the Department of Molecular & Integrative Physiology in the College of Liberal Arts and Sciences and/or in the College of Medicine. Although we anticipate the appointment will be made at the Assistant Professor level, applications for positions at the Associate and Full Professor levels will also be considered; highly qualified scientists at these levels are encouraged to apply. The starting date for this position is August 2003. Appointment at the Assistant Professor level requires a doctoral degree, postdoctoral experience, and evidence of outstanding research potential. Appointees at this level will be expected to develop a vigorous, independently funded research program. Appointment at higher levels requires evidence of outstanding research accomplishments including extramural funding and national recognition. Applicants at all levels will be expected to contribute effectively to undergraduate/graduate teaching. The University of Illinois at Urbana-Champaign has added substantial faculty strength in the biological sciences over the last four years and additional hires in related areas are anticipated each year for the next several years. Successful candidates will be provided with excellent laboratory facilities, substantial start-up funds, and a salary commensurate with experience. The University of Illinois at Urbana-Champaign offers a highly interactive, interdisciplinary research environment and state-of-the-art research support facilities.

Urbana-Champaign offers the residential advantages of a medium-sized university city, excellent cultural opportunities and easy access to Chicago and St. Louis. Information concerning the School of Molecular & Cellular Biology at the University of Illinois can be found at <http://www.life.uiuc.edu/mcb/>. Applications should be submitted to: Systems Physiology Search, School of Molecular & Cellular Biology, University of Illinois at Urbana-Champaign, 393 Morrill Hall, 505 S. Goodwin Ave., Urbana, IL 61801. An application must include a curriculum vitae, with a complete list of publications and a concise summary of past research accomplishments and future plans. In addition, four letters of recommendation should be sent to the same address. Electronic submissions, such as pdf files, are encouraged and should be sent to mcbsearch@life.uiuc.edu. If submitting electronically, please indicate that the application is for the systems physiology position. **To ensure full consideration, applications should be received by January 20, 2003.** Interviews may be conducted before the closing date but no hires will be made until after the search is closed. [AA/EEO]

Assistant/Associate/Full Professor: Applications are solicited for a tenure-track faculty position at the Assistant/Associate/Full Professor rank. Applicants must have a PhD and/or MD degree or equivalent and have completed postdoctoral training. Preference will be given to candidates with demonstrated productivity as evidenced by extramural grant support, a strong publication record, potential to develop a research program in vascular smooth muscle regulation and endothelial cell physiology, and potential for interaction within the department and with relevant clinical departments in the School of Medicine. The successful applicant will sustain an active research program in physiology, employing contemporary techniques to which interact with existing programs in vascular smooth muscle regulation and endothelial cell physiology. All areas of

physiology will be considered but special consideration will be given to candidates with interests in blood pressure regulation, microvascular circulation, or electrophysiology and signal transduction in vascular tissue. Preference will be given to individuals with demonstrated excellence in medical and graduate teaching. This position may be subject to criminal records screening in accordance with NM Law. For best consideration, applicants must submit a curriculum vitae, a short description of their research program and the names of three references **by December 15, 2002**, however, position will remain open until filled to: Nancy L. Kanagy, PhD, Associate Professor of Cell Biology and Physiology, University of New Mexico School of Medicine Albuquerque, NM 87131-5218; Email: nkanagy@salud.unm.edu. [EEO/AA]

Assistant/Associate Professor: The Department of Physiology, College of Veterinary Medicine, at Michigan State University seeks applicants for a full-time tenure system position in the area of animal biotechnology, as part of a larger effort to build a center of excellence around animal biotechnology as it relates to animal agriculture, and biomedical applications. The candidate will be expected to develop an independent research program directed at the underlying molecular mechanisms of disease and who use germline modification approaches to their investigation. Applicants must have a PhD degree or equivalent, and special consideration will be given to candidates also holding the DVM degree. Candidates must have postdoctoral experience, demonstrate potential for developing a vigorous externally-funded research program, and be capable of outstanding teaching in the department's education program. Review of applications will begin **January 1, 2003**, and continue until the position is filled. Applicants should request letters of recommendation from three individuals who can evaluate their accomplishments and future potential for research and teaching. Please send CV and bibliog-

raphy, a brief statement of research plan, and copies of key publications to: William S. Spielman, PhD, Department of Physiology, 2201 Biomed. Phys. Sci. Bldg., Michigan State University, East Lansing, MI 48824-3320; email: spielman@msu.edu. [AA/EEO]

Associate/Full Professor: The Division of Kinesiology at the University of Michigan seeks outstanding candidates for full-time, tenured faculty position in one of the following areas: motor control/development; biomechanics; exercise physiology; and sport management. The successful applicant must have an advanced degree in kinesiology or a related field and a nationally recognized record of funded research and scholarly publications. Applicants must have a history of successful doctoral student training and be willing to contribute to the mentoring of junior faculty. Appointment will be made at the senior associate or full professor level and will include a competitive research and technical support package. Women and minority candidates are particularly encouraged to apply. Please forward a detailed letter of interest addressing the requirements for this position, curriculum vitae, selected reprints, and the names, addresses, and telephone numbers of three references to Susan H. Brown, PhD, Associate Dean for Research, Division of Kinesiology, The University of Michigan, 401 Washtenaw Ave., Ann Arbor, MI 48109-2214; Tel: 734-763-6755; Fax: 734-936-1925; Email: shcb@umich.edu. Review of applications will begin immediately; the position will remain open until filled. For detailed information regarding research activities within the Division of Kinesiology, please visit <http://www.umich.edu/~divkines/kinweb/>. [EEO/AA]

Assistant Professor: The Movement Science and Education Program in the Department of Biobehavioral Sciences at Teachers College, Columbia University is seeking an applied exer-

cise physiologist. Responsibilities: Teach graduate courses (e.g., exercise testing and prescription, assessment of physical activity, physical activity and health, physical activity in children and youth); supervise graduate student research; and conduct a focused program of research. Qualifications: Earned doctorate in exercise physiology or a related field and present evidence of successful teaching experience and research accomplishments. Candidates are expected to demonstrate the potential for sustained scholarship and the ability to support a research program through external funding. Preference will be given to those candidates who have ACSM certification and have had postdoctoral research or teaching experience. Rank: Assistant Professor, Tenure Track. Send CV, a cover letter, three representative publications, and the names and contact information of three references to Professor Stephen Silverman, Search Committee Chair, Box 126, Teachers College, Columbia University, 525 West 120th Street, New York, NY 10027; <http://www.tc.columbia.edu>. Review of applications will begin **November 21, 2002** and continue until the search is completed. Appointment begins September 2003. *Teachers College as an institution is committed to a policy of equal opportunity in employment. In offering education, psychology, and health studies, the College is committed to providing expanding employment opportunities to minorities, women, and persons with disabilities in its own activities and in society. Candidates whose qualifications and experience are directly relevant to College priorities (e.g., urban and minority concerns) may be considered for higher rank than advertised.*

Assistant Professor: The Department of Kinesiology at the University of Illinois at Urbana-Champaign is seeking qualified applicants to fill a full time tenure-track position at the Assistant Professor level in the area of Exercise Physiology. Candidates will be expected to contribute to interdisciplinary research within the Department, seek extramural fund-

ing, teach at the undergraduate and graduate levels, and advise and direct student research. The successful candidate will be expected to complement Departmental strengths in human lifespan physical activity (including aging), disability, disease or rehabilitation. Potential research areas related to exercise/physical activity include molecular and cell biology, epidemiology, neurobiology, and cardiovascular physiology. Laboratories exist both within the Department of Kinesiology and campus-wide to support research in exercise physiology. Further information about the Department of Kinesiology and current faculty can be found at <http://www.kines.uiuc.edu>. Qualifications: an academic background in kinesiology or related field and the ability to teach one or more courses in kinesiology and exercise physiology. A doctorate is required. Teaching and postdoctoral experience are preferred. Salary: Commensurate with experience and qualifications. Application Procedures: **to assure full consideration, a letter of application, vitae, and three letters of recommendation should be submitted by February 1, 2003.** The appointment will be effective August 21, 2003. Interviews may be conducted before the closing date, but all applications will receive full consideration and the final decision will not be made until after that date. Application materials should be sent to Jeffrey A. Woods, Search Chair, Department of Kinesiology, University of Illinois at Urbana-Champaign, 61-a Louise Freer Hall, 906 South Goodwin Avenue, Urbana, IL 61801; Tel: 217-244-8815; Fax: 217-244-7322. [AA/EEO]

Assistant Professor, Biology: Duquesne University is seeking an assistant professor, tenure track, who uses molecular, cellular, or organismal approaches to explore basic physiological questions. The successful applicant is expected to establish a vigorous research program involving MS, PhD, and undergraduate students, and to teach in the biology curriculum, including a course in vertebrate physiology. We are an interactive faculty,

committed to combining externally funded research with excellence in teaching. We investigate problems in a diverse range of systems and we seek individuals who complement and extend these interests. Competitive salary and start-up packages are available. Additional information about the department can be found at <http://www.science.duq.edu/biology>. To apply, send a cover letter, CV, names and contact information of three references, and statements of research and teaching goals to Dr. Steve Thomas, Faculty Search Committee Chair, Department of Biological Sciences, Duquesne University, Pittsburgh, PA 15282. Review of applications will begin **December 2**. Founded by the Holy Ghost Fathers, Duquesne University is Catholic in mission and ecumenical in spirit. The University values Equality of Opportunity both as an Educational Institution and as an Employer.

Assistant/Associate Professor: The Department of Pharmacology, Physiology and Therapeutics University of North Dakota, School of Medicine and Health Sciences, (<http://www.med.und.edu/bimd/pharm.html>) invites applications for a tenure track position at the Assistant/Associate Professor level. The successful candidate will contribute to team-taught courses for graduate and medical students in systemic and cell physiology. Research areas are open, but preference will be given to individuals with strong backgrounds in cardiovascular physiology or pharmacology, and to those demonstrating potential for vigorous research programs supported by extramural funds. Candidates must have a PhD, MD, or equivalent and at least two (2) years of postdoctoral experience. Review of applications will begin **January 1, 2003**, and continue until the position is filled. Interested candidates should send a current curriculum vitae, descriptions of research and teaching experience, and names of three (3) individuals willing to serve as references to: Dr. Edward C. Carlson; Tel: 701-777-2101; Fax: 701-777-2477; Email: ecarlson@medicine.

nodak.edu; Search Committee Chair, Department of Pharmacology, Physiology and Therapeutics, Box 9037, University of North Dakota, School of Medicine and Health Sciences, Grand Forks, ND 58202. [AA/EEO]

Assistant/Associate Professor: The Department of Physiology of the Northeastern Ohio Universities College of Medicine (NEOUCOM) is seeking applicants to fill a tenure track (assistant/associate professor level) position in cardiovascular or pulmonary pharmacology or physiology. The Department has a cardiopulmonary research focus and invites applicants who are using modern cellular and/or molecular biology techniques to address integrative physiological problems that complement ongoing research programs. Conveniently located near Akron, Youngstown, Canton, and Cleveland, NEOUCOM is a community-based state medical school offering a combined BS/MD program with the University of Akron, Kent State University, and Youngstown State University. Further information about the Department and Institution can be obtained from the NEOUCOM web site at <http://www.neoucom.edu>. Candidates must have a PhD and/or MD with appropriate postdoctoral fellowship training, a strong record of research accomplishment, and the ability to establish an independent externally-funded program. Excellent opportunities exist within the Department and Institution for collaboration. Medical student teaching responsibilities will be to participate in teaching the medical pharmacology course. Departmental faculty are members of the graduate faculty in programs leading to the PhD through the School of Biomedical Sciences at Kent State University. The successful candidate will have the opportunity to develop graduate courses that relate to his/her specialty. To apply, candidates should send a letter of application describing research experience and goals, accompanied by a curriculum vitae, and the names and addresses of three references to Human

Resources: c/o Michael B. Maron, PhD, Professor and Chairperson, Department of Physiology, Northeastern Ohio Universities College of Medicine, PO Box 95, Rootstown, OH 44272-0095. Review of applications will commence **November 29, 2002** and continue until the position is filled. [AA/EEO]

Assistant Professor: The York University, Faculty of Pure and Applied Science, School of Kinesiology and Health Science, invites applications for two tenure-track appointments at the Assistant Professor level in exercise physiology for a starting date of July 1, 2003. One position is in the area of molecular muscle physiology and gene expression. A second position is in either cardiac or vascular physiology, or in endocrinology and metabolism. Knowledge of these areas at the cellular and molecular levels would be an asset. The present Masters and PhD programmes cover health-related aspects of exercise physiology, psychology, biomechanics and fitness/epidemiology. Applications from individuals with an interest in health and knowledge of the effects of exercise are particularly welcome. The opportunity exists for a cross-appointment to the Graduate Programme in Biology. Duties will include the supervision and teaching of graduate students and undergraduate teaching. A PhD and a promising publication record in refereed journals are required, as well as the ability to develop a productive research programme supported by external funding. Postdoctoral experience would be a definite asset. Applicants should send a curriculum vitae, a covering letter stating future research goals, relevant reprints, and have three letters of reference sent by **January 10, 2003** to: Dr. David Hood, School of Kinesiology and Health Science, York University, 4700 Keele Street, Toronto, Ontario, M3J 1P3; Email: dhood@yorku.ca. This position is subject to budgetary approval. Further information about the School can be obtained at <http://www.kinesiology.yorku.ca>. York University has an Affirmative Action Program with

respect to its faculty and librarian appointments. The designated groups are: women, racial/visible minorities, persons with disabilities and aboriginal peoples. Persons in these groups must self-identify in order to participate in the Affirmative Action Program. The School of Kinesiology and Health Science welcomes applications from persons in these groups. The Affirmative Action Program can be found on York's web site at <http://www.yorku.ca/acadjobs/> or a copy can be obtained by calling the affirmative action office at 416-736-5713. Canadian Citizens and permanent residents will be considered first for this position.

Assistant Professor: The Department of Physiology of Morehouse School of Medicine invites applications for a faculty position at the level of Assistant Professor. Applicants should hold a PhD or MD degree and have postdoctoral research experience. This recruitment is part of a departmental expansion. Preference will be given to the candidate who has experience teaching medical physiology and who has established a funded independent research program. While individuals with expertise in all areas of physiology will be considered, preference will be given to those whose primary interest is in cardiovascular or respiratory physiology. Morehouse School of Medicine has a wide array of core facilities and a Cardiovascular Research Institute with which faculty may affiliate. Candidates with expertise in cancer research may be eligible for a Georgia Cancer Research Scholar award. Start date open. Interested candidates should send their current curriculum vitae and a statement of research goals and teaching experience to: Gordon J. Leitch, PhD, Chair, Department of Physiology, Morehouse School of Medicine, 720 Westview Dr., Atlanta, GA 30310; Fax: 404-752-1045; Email: leitch@msm.edu.

Associate Professor: The School of Applied Physiology at the Georgia Institute of Technology is soliciting applications and nominations for a tenure-track position at the rank of

Associate Professor. Individuals from all related fields are encouraged to apply, but primary consideration will be given to applicants with experimental experience in the cellular mechanisms of skeletal muscle biology with application to systems physiology. The successful candidate must have an earned doctoral degree, an established record of scholarship and extramural funding and a documented commitment to excellence in teaching, service and research. The candidate is expected to develop a nationally recognized research program at Georgia Tech, participate in interdisciplinary research activities, teach undergraduate students and actively participate in the development of a graduate program in applied physiology. The School of Applied Physiology is in the College of Sciences, one of six colleges at the Georgia Institute of Technology. Current faculty members are active in the areas of biomechanics and the neural control of movement, motor control and motor behavior, biomedical engineering and prosthetics and orthotics, molecular biology and muscle physiology and systems physiology as applied to exercise. Collaborations currently exist at Georgia Tech with the Center for Human Movement Studies, the Center for Assistive Technology and Environmental

Access, the School of Psychology and the College of Engineering, and at the Emory University School of Medicine with the departments of Physiology, Cell Biology, Neurology, Pharmacology and Rehabilitation Medicine as well as the Atlanta Veterans Administration Hospital. Interested individuals should send a letter of application, curriculum vitae, three recent publications and the names, addresses, Email addresses and phone numbers of at least three individuals we would contact for letters of recommendation. Applications will be reviewed beginning immediately and continue until the position is filled, but **all material must be received by 12/31/02** to be assured of full consideration. Position to start August 2003, fall semester. Contact: Dr. Robert J. Gregor, School Chair, School of Applied Physiology, 281 Ferst Drive, Atlanta, GA 30332-0356; Tel: 404-894-3986; Email: robert.gregor@ap.gatech.edu. A unit of the University System of Georgia. [EEO]

Biology Faculty Position: The University of Redlands invites applications for a tenure track faculty position in Biology. We seek to broaden our existing offerings in animal biology at the systems level. The successful can-

didate will teach both non-majors and majors as well as involve undergraduates in research. Areas of expertise might include, but are not limited to, invertebrate zoology, systems physiology, neurobiology, parasitology and entomology. A PhD (by September 2003), evidence of excellence in undergraduate teaching, and a commitment to undergraduate research are required. Please send letter of application, curriculum vitae, a description of research plans, a statement providing your philosophy of teaching with a list of potential course offerings, and arrange for three letters of recommendation to be sent to: Chair, Search Committee, Department of Biology, University of Redlands, PO Box 3080, Redlands, CA 92373-0999. **Applications received by November 21, 2002 are assured full consideration.** Located in an ethnically and culturally diverse region midway between Los Angeles and Palm Springs, the University of Redlands (<http://www.redlands.edu>) is a private, selective, liberal arts university enrolling approximately 2,200 undergraduates in the residential College of Arts and Sciences. The University of Redlands is an Equal Opportunity Employer. We actively seek applications from members of under-represented populations. ❖

Advertise your job vacancy to over 10,000 members and subscribers!

Ads are accepted for either positions available or positions wanted under all categories. The charge is only \$75. All ads are also posted on the APS Career Opportunity Web page for a period of three months.

If you would like to have your ad listed in *The Physiologist* and on the APS Career Opportunities Web page (http://www.the-aps.org/careers/car_pos_avail.htm), the fol-

lowing items are needed: a copy of the ad, the name of a contact person, and either a purchase order number, credit card number (with expiration date and name of cardholder) or billing address. Send the information to Linda Comley (Email: lcomley@the-aps.org; Tel: 301-634-7165; Fax: 301-634-7242).

Letter to Douglas Stuart

Jose Segundo writes: "It's not quite by return post that I answer the APS's and your cordial message for my birthday but, you must agree, better late than never and, anyway, these lines are no less sincere and heartfelt. The delay is due to my recently spending several months in Montevideo, where I am now, and get my mail about once a month.

"So please convey my many, many thanks to the APS and your colleagues for their friendly wishes. Needless to say, many thanks go to you, too.

"Cordially, your octogenarian friend and colleague."

Letters to Novera Herbert Spector

S. P. Masouredis writes: "Thank you and the Society for your congratulatory letter on the occasion of my 80th birthday and for the invitation to write a note for *The Physiologist*.

"I must confess your letter was totally unexpected. At the time of my election to the American Physiological Society in 1957 I had published only one paper in the *American Journal of Physiology*, in 1953, which compared the intravascular and extravascular distribution of iodide-131 in the guinea pig and of 1-131 labeled rabbit globulin in the guinea pig and rabbit. However, I had published some 10 papers in other journals some of which involved physiological studies, such as, blood flow in the human leukemic bone marrow, comparative behavior of 1-131 and C-14 labeled albumin in man. My experimental work drifted into other disciplines, primarily immunology and hematology.

"Even though I published only one paper in the Society's journals, I prized my membership in the American Physiological Society. My respect and admiration for physiology developed while in medical school in the mid 40's. The only medical textbook that fascinated me was Best&Taylor. In addition, ideas such as Claude Bernard's "milieu interne" and Walter Cannon's concept of homeostasis, which provided explanations and understanding of function were so

much more satisfying than structural studies. My exposure to physiological thinking was reinforced by two professors during medical school at the University of Michigan. One, Louis Newburgh, professor of medicine, who in his small group sessions with students, analyzed clinical problems. It was fascinating to watch him demonstrate how the application of basic science in a rigorous and quantitative fashion could lead to a more satisfying understanding of the clinical problem. Dr. Newburgh's expertise was in classic energy metabolism, nutrition, heat exchange, insensible water loss and obesity. The other was Fred Collier, professor of surgery. I expected surgery to be a specialty concerned only with procedures and techniques. To my surprise I found a surgeon in 1944 talking about salt and water balance and pre- and post-operative care based on physiological principles. I was also fortunate while in medical school to discover *Physiological Reviews* and was impressed with the scholarly discussion of many interesting physiological topics. With such an exposure one can appreciate my respect for the physiological sciences.

"After medical school I went to Berkeley to learn about radioisotopes and obtained a PhD in medical physics. Most of my subsequent publications exploited radioisotopes in immunological and hematological studies.

"I have enjoyed my retirement. I have always enjoyed working with wood and using tools. When I was very young, elementary school, a family friend who owned a grocery store saved wooden fruit crates for me. With Woolworth dime store tools, which were inexpensive and worked very badly, I was able to dismantle the boxes, remove the nails and make simple toys, such as wooden boats with rubber band-powered paddle wheels. It was and still is a joy to make things with your hands, a skill that was very useful in my research.

"On retirement I was able to devote much more time to wood working. I embarked on furniture making and learned many new skills, such as how to make tambour doors. With three grandchildren I began to devote more

time to making toys out of wood. Toys made from wood are so much more attractive and more friendly to the touch than the many toys on the market made from plastic and other synthetic materials, especially if one can find plans for old 19th century toys, such as games, rocking horses and doll houses. I still own a 48-year old Sears table saw, and up to now I still have all my 10 fingers.

"Both my wife, Marion, and I love to travel. Travel has been very important in my professional career. I was fortunate to attend and participate in many international meetings. I have gotten to know many friends and colleagues in many European countries. It is always a pleasure to be able to meet such old friends in many of the countries we visit during our travels. A high point in our travels was the opportunity to take our children and grandchildren to visit the villages of my parents in Greece. We all went to the island of Chios to visit the village where my mother was born and then to the southern Peloponese to visit the village of my father on the slope of Mt. Taigitos. On our last visit to Paris I visited the famous Cimetiere du Pere-Lachaise to look for the grave of Claude Bernard who is buried there. I found the graves of many famous people, Chopin, Sarte, and Collete but was unable to find Claude Bernard. This was due in part to the fact that my daughter and the granddaughters had the map showing the location of the gravesites, since my granddaughters were determined to find the grave site of the rock star, Jim Morrison. Rather than being upset at our failure to find Claude Bernard we now have an excuse to plan another trip to Paris.

"It is difficult to find the appropriate words of wisdom after these many years. For what they are worth I would say: always do your best, try to appreciate and seize the opportunities that come your way, have a good time, and most importantly enjoy your work."

J.H.U. Brown writes: "I was surprised and delighted to receive the beautiful plaque on my fiftieth year with APS. I have almost lost contact as I switched fields. After becoming chairman of the Physiology Depart-

ment at Emory Medical School, I became a Director at NIH and then Associate Administrator in HSMHA. Both related to medicine but were concerned with instrument development, etc. At that time I formed with Biomedical Engineering Society and turned my attention in that direction. Although I am a physiologist I was proud to be elected to the National Academy of Engineering.

"During my time at HSMHA I was fortunate to manage the project for NIH which produced the first personal computer (LINC) as documented in the Museum of Computer Sciences. I reached retirement age at that time and moved to San Antonio as Director of the Research Consortium, which was designed to unite biological and physical sciences. Three years later I was offered the position of Associate Provost of the University of Houston. Two projects interested me. In conjunction with NASA and Sumitomo (Japan) we devised and tested a new medical record system which would put 4.5 megabytes of information on a credit card. I became interested in two non-profit organizations. We provided information about the formation of small for profit business (many scientists were in the group) and Executive Service Corps, which served as an advisor to non-profit companies in securing patents, etc. I became Chairman of the 70 member chapter which had been the best in the nation and later the District Director to an area of several chapters.

"I am now 84 and still working. I have written several books in the fields mentioned above since retirement and still counsel in small business areas and have some 50 clients per month on the Internet."

Letter to Karlman Wasserman

Harold James "Jeremy" Swan writes: "I turned 80 on June 1, 2002. Born in Sligo on Ireland's west coast in 1922, I graduated from St. Thomas's Hospital Medical School (Univ. of London) in 1945. After Boards in Medicine (M.R.C.P.) and military service in Iraq, I joined Henry Barcroft FRS in 1948 as a research associate in

the study of the circulation in the limbs in man. To Barcroft, the kindest man I have ever known, I owe my career in research. I published my first paper, 'On the Action of Noradrenalin on the Human Circulation,' in 1949 in *Lancet*. Barcroft honored me as co-author of his 'Sympathetic Control of Human Blood Vessels. Monographs of the Physiological Society,' No.1 (1953). It is interesting to note, half a century later, that we had reported an anomalous response in calf blood flow to increasing concentrations on intraarterial adrenalin, and suggested the transient initial vasodilatation might be due to liberation of a second transmitter 'when adrenalin reaches the periphery it causes the momentary liberation of a vasodilator substance from the arterioles which is swept on and causes transient dilatation of the pre-capillary-sphincters' (p. 22.-EDRF). H.H. Dale FRS was my thesis advisor for a PhD degree in 1951.

"I was awarded a two-year position of Research Associate at the Mayo Clinic and the new field of cardiac catheterization under the astute directions and rigorous discipline of Earl H. Wood, to whom I also indebted for any career success I may have enjoyed. I renewed my friendship with John T. Shepherd, also a Barcroft graduate and fellow Irishman. After 14 years, I decided to move on and have spent the subsequent 35 years at Cedars-Sinai Medical Center in Los Angeles, a large community hospital and one of the five teaching hospitals of the University of California, Los Angeles (UCLA) School of Medicine. I became Director of the Division of Cardiology at Cedars-Sinai and Professor of Medicine at UCLA. In that position, I moved from physiological research to a more applied field, namely, clinical cardiology and clinical investigation in cardiovascular diseases. Hence, my academic activities became more appropriate to organizations such as the American College of Cardiology and the American Heart Association and found myself moving away from the APS.

"The highlights included: Presidency of American College of Cardiology (1972-1973); Master: The American College of Physicians; Master: The

American College of Cardiology; and the James B. Herrick and the Laennec Awards from the American Heart Association. I received an honorary MD degree from Trinity College University of Dublin and honorary fellowships from the Hebrew University in Jerusalem, and the Royal College of Physicians of Ireland. I published my first paper in 1948. My most recent book chapter has just appeared and I have another manuscript in press. Over the years, I have enjoyed a wonderfully productive group of colleagues, including William Ganz, William Parmley, M.M. Laks, James Forrester, George Diamond, Dan Berman, and others. Collectively we published over 1,000 manuscripts from Cedars-Sinai in the course of close to 40 years. My greatest satisfaction comes from my association with Cedars-Sinai where I and my staff enjoyed extraordinary cooperation from the private Attending Staff, the Board of Directors, Hospital Management, the volunteers, and the voluntary community support groups which made possible the organization of a highly productive Division of Cardiology. Finally, with complete retirement in 1994, I anticipated more time at our second home in Sunriver, OR, the pleasures of life in Pasadena, and my rose, flower and vegetable garden. And so it was.

"But another, more difficult challenge lay ahead. On March 8, 2001, my right leg 'went out' and I fell in the shower. Rapid recovery indicated a TIA. I went to my local hospital, walking normally into the emergency room and with no impairment of motor function, and anticipating prompt anti-coagulation. But the admission, evaluation and decision making process was painfully slow. As time passed, I recognized a progressive loss of right motor function. As a consequence, I ended up with a completed stroke and a severe right hemiparesis. The neurologist termed it as 'dense,'-meaning bad! However, I have my sight, speech, swallowing, and I believe, most of my marbles. But, as W.B. Yeats put it in his poem-1916, 'All is changed. Changed utterly,' and indeed, it is, and for the rest of my life. A never-smoker, mild hypertension,

slightly overweight, on lipid-lowering drugs, using a calcium-channel blocker and intermittent aspirin. Nevertheless, it happened.”

“A lot of my thoughts now go to

relearning elementary motor function, neural tracts and reconnect neurons. If that really does occur post-stroke, it takes a darn long time. However, my spirits are good and I remain not only

optimistic for a further improvement, but remarkably accepting of my limitations, since I have so much—a loving supporting wife and family whose care and affection have carried me so well.”

Robillard Appointed as New Dean

Jean Robillard, professor and chair at the University of Michigan Medical School Department of Pediatrics, has been appointed to be the new dean of the University of Iowa Roy J. and Lucille A. Carver College of Medicine. Robillard also serves as physician-in-chief at C.S. Mott Children’s Hospital. He will begin his tenure at Iowa on February 1.

According to the *Iowa City Press-Citizen*, “It was the strength of the university and the strength of the College of Medicine,” Robillard said of his choice to apply at the UI. “They have

an international reputation, and the people of Iowa are so nice. I’ve been there before so I know that. And the faculty is fun to collaborate with.”

Robillard received bachelor’s and medical degrees from the University of Montreal. He did an internship at the Hotel Dieu Hospital and a residency in pediatrics at Ste. Justine Hospital in Montreal. He was a fellow in pediatric nephrology at the University of California Medical Center in Los Angeles before coming to the UI in 1974.

“We’ve got a wonderful dean,” said Francois Abboud, chairman of the

search committee. We worked very hard to get that list of candidates from around the country. The other candidates were very good. It was a very difficult choice.”

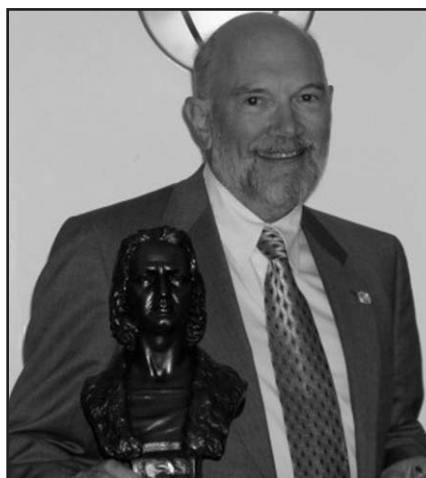
Robillard said he plans to focus on two areas when he joins the faculty at the UI. “It’s so important to make sure to recruit excellence in the chairs of the departments, Robillard said. “It’s an important responsibility in developing the strength of the place.” ❖

M. Ian Phillips Receives Frank Annunzio Award

The Christopher Columbus Fellowship Foundation announced that APS Member **M. Ian Phillips**, PhD, of the University of Florida College of Medicine, is the recipient of a \$50,000 Frank Annunzio Award in the Science/Technology field for his three decades of research on cardiovascular disease.

Phillips has developed new ways of treating hypertension with gene therapy. Phillips’ team also developed a gene “switch” that “turns on” protective genes when a heart attack begins in response to oxygen deprivation. This “vigilant vector” provides cardio-protective genes to reduce heart damage from repeated attacks. Phillips believes this technique could be applied to a host of other chronic diseases, such as diabetes, stroke and lung disease.

“Innovative research in gene therapy has the potential to provide great benefits to society,” said Rosalyn Queen Alonso, Chair of the Foundation. “Dr. Phillips’ work reflects the level of discovery we look for in all of the Foundation’s Columbus Scholars.”



M. Ian Phillips

Born in the United Kingdom, Phillips received his Bachelor of Science in Zoology/Psychology from the University of Exeter, his doctorate in Neuropharmacology and his DSc in Physiology/Pharmacology from the University of Birmingham. He came to the United States as a postdoctoral fellow to conduct brain research at the University of Michigan and the California Institute of Technology.

The awards ceremony took place in Washington, DC, following the 90th annual celebration in honor of Christopher Columbus. Phillips is one of four Frank Annunzio Award recipients this year. The Foundation’s Board of Trustees has selected Annunzio Award recipients annually since 1998.

The Christopher Columbus Fellowship Foundation is an independent Federal government agency established by the US Congress in 1992 to “encourage and support research, study and labor designed to produce new discoveries in all fields of endeavor for the benefit of mankind.” Governed by a Presidential appointed Board of Trustees, the Foundation has established Frontiers of Discovery-Work in Progress and Discover the Future programs that recognize “cutting edge” innovation, innovative ideas of America’s youth and honor teachers. These programs include the \$200,000 Frank Annunzio Awards, Christopher Columbus Awards, National Gallery for America’s Young Inventors and the \$10,000 Freida J. Riley Teacher Award. ❖

APS Congratulates 2002 Lasker Award Winner Willem J. Kolff

APS member **Willem J. Kolff** was named the co-recipient the 2002 Albert Lasker Award for Clinical Medical Research. He was honored for developing the first useful artificial kidney (hemodialyzer). Kolff shares his award with Belding H. Scribner.

Kolff's initial goal was to create a device that would filter his patient's blood through bouts of acute kidney failure. The hemodialyzer would send the blood through a cleansing solution that would remove metabolic byproducts, thereby performing the job of a normal functioning kidney. Kolff developed the artificial kidney in the Netherlands through Nazi occupation and the outbreak of World War II in Europe. He achieved his first success in 1945 when he effectively filtered the blood of a 67 year-old woman. The woman's kidney began to produce



Willem J. Kolff

urine again and she went on to live for seven more years. Though others have further developed and reproduced this technology many times over, Kolff's

pioneering work is responsible for the dramatic drop in mortality from acute, reversible kidney failure and prolonging and improving the lives of countless individuals.

Kolff is a professor emeritus of surgery and medicine, at the University of Utah School of Medicine. Aside from his work with the hemodialyzer, he has participated in the development of numerous other artificial organs including the artificial heart. He has been an APS member of since 1956. As a recipient of the award often called the "American Nobel," he joins the ranks of some of the world's most renown scientists. The APS extends its sincere congratulations to Dr. Kolff for both his latest achievement and his lifetime of groundbreaking research.



Gregory C. Amberg has affiliated with the University of Washington School of Medicine, Seattle, WA, as a Senior Fellow. Prior to his new assignment, Amberg was associated with the Department of Physiology and Cell Biology, University of Nevada School of Medicine, Reno, NV.

Lee E. Brown moved to California State University as Associate Professor, Division of Kinesiology and Health Promotion, Fullerton, CA. Brown had been with the Department of Health, Physical Education, and Sport Sciences, Arkansas State University, Proville, AR.

Inyeong Choi has accepted a position with the Department of Physiology, Emory University School of Medicine, Atlanta, GA. Prior to his new affiliation, Choi was affiliated with the Department of Cell and Molecular Physiology, Yale University School of Medicine, New Haven, CT.

James Allen Coles has joined Medtronic Inc., Minneapolis, MN, as a

Senior Scientist. Prior to his new affiliation, Coles was with the Department of Biomedical Engineering, University of Minnesota, Minneapolis, MN.

Hesam Dehghani has associated with the Department of Physiology, School of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran. Dehghani formerly was with the Department of Biochemistry, University of Guelph, Canada.

Sudhansu K. Dey is currently affiliated with the Department of Pediatrics, Division of Reproductive and Developmental Biology, Vanderbilt University Medical Center, Nashville, TN. Prior to his new assignment, Dey was with the Department of Physiology, Kansas University Medical Center, Kansas City, KS.

Ilan A. Kerman recently affiliated with the Mental Health Research Institute, University of Michigan, Ann Arbor, MI. Prior to his new position,

Kerman was with the Department of Otolaryngology, University of Pittsburgh, Pittsburgh, PA.

Steven R. Kleeberger recently joined the National Institute of Environmental Health Science as Laboratory Chief, Research Triangle Park, NC. Kleeberger moved from the Department of Environmental Health Science, Johns Hopkins University, Baltimore, MD.

Dietmar Kültz is currently Assistant Professor Physiological Genomics, Animal Sciences, University of California, Davis, CA. Kültz had been with the Whitney Lab, University of Florida, St. Augustine, FL.

Michael A. Kurz has accepted the position of Director, Cardiovascular Medical Affairs, Centocar, Inc., Malvern, PA. Kurz was previously the Senior Clinical Scientist for Centocar, Inc., Avon, IN.

Julian Estrella Mesina is now Director, MLAS Biomedical Graduate

Studies, Drexel University, Philadelphia, PA. Mesina was formerly affiliated with the Department of Physiology, Lake Erie College of Osteopathic Medicine, Erie, PA.

Benjamin F. Miller recently joined the Sports Medicine Research Group, Bispebjerg Hospital, Copenhagen, Denmark. Miller had previously been associated with the Department of Integrative Biology, University of California, Berkeley, CA.

Ryan Joseph Monti has affiliated with the School of Dentistry, University of California, Los Angeles, CA. Monti was formerly associated with the Department of Organismic Evolutionary Biology, Harvard University, Bedford, MA.

Paul M. O'Byrne recently joined the Department of Medicine, McMaster University Health Sciences Centre, Hamilton, Ontario, Canada. Prior to his current position, O'Byrne was affiliated with the Firestone Chest & Allergy Unit, St. Joseph Hospital, Hamilton, ON, Canada.

Yves Ouellette has accepted a position with the Pediatric Department, Mayo Clinic, Rochester, MN. Prior to his new appointment, Ouellette was with the Department of Pediatrics and Physiology, Children's Hospital Western Ontario, Canada.

Darby Stewart Petitt has joined the Department of Kinesiology and Applied Physiology, Human Cardiovascular Research Laboratory, University of Colorado, Boulder, CO. Prior to her new position, Petitt was a student of Exercise Science at the University of Georgia, Athens, GA.

Philip Posner has moved to the Department of Biomedical Sciences, Florida State University College of Medicine, Tallahassee, FL. Posner previously was affiliated with the Department of Anatomy, Physiology, and Pharmacology, Auburn University, Auburn, AL.

Solomon Silas Senok affiliated with the Department of Physiology, Arabian Gulf University College of Medicine, Manama, Bahrain. Prior to his new assignment, Senok was with the Department of Psychology, University of Stirling, Scotland, UK.

Scott E. Sinclair accepted a position with the Department of Medicine, Pulmonary and Critical Care Medicine, University of Tennessee Health Science Center, Memphis, TN. Sinclair was previously associated with the Division of Pulmonary and Critical Care Medicine, University of Washington, Seattle, WA.

Scott Alan Spier joined the Department of Health & Kinesiology, University of Texas at Tyler, TX. Spier was formerly a Research Assistant with Texas A&M University, College Station, TX.

Douglas H. Sweet has joined the Medical University of South Carolina as Assistant Professor, Charleston, SC. Sweet had been a Project Scientist, Department of Medicine, University of California, San Diego, La Jolla, CA.

Glenn Jeffery Tattersall has moved to the Department of Biological Sciences, Brock University, St. Catharines, Ontario, Canada. Prior to his new assignment, Tattersall was affiliated with the Department of Zoology, University of British Columbia, Vancouver, BC.

Paloma Valverde joined the Nutrition and Vision Department, USDA-HNRCA at Tufts University, Boston, MA. Valverde was formerly with the Department of Oral Biology, The Forsyth Institute, Boston, MA.

Ping Wang has affiliated with the Department of Surgery as Chief, Division of Surgical Research, North Shore-Long Island Jewish Medical Center, Manhasset, NY. Wang had previously been associated with the Department of Surgery, University of Alabama, Birmingham, AL.

Brian J. Whipp is currently a member of the Respiratory & Critical Care Physiology and Medicine, Harbor-UCLA Medical Center, Torrance, CA. Before his new affiliation, Whipp was with the Center for Exercise Science and Medicine, University of Glasgow, UK.

Johannes F. Zanzinger accepted a position with the Department of Research and Development Coordination, Boehringer-Ingelheim Pharma KG, Biberach, Germany. Zanzinger had recently been Principal Scientist, Pfizer Ltd., Sandwich, England.

Experimental Biology 2003

Important Deadlines

Early Registration
Deadline
February 13, 2003

Housing Deadline
March 7, 2003

31st Annual Pediatric Trends Course

This course has been designed to fill the current needs of pediatricians, family practitioners and allied health professionals interested in the care of infants, children and adolescents. In its 31st consecutive year, Pediatric Trends is designed to review recent advances in biomedical and behavioral sciences, which will have an impact upon the health and medical care of children from fetal life through adolescence. Combining lectures in pediatric science, clinical demonstrations, conferences and symposia, a

problem-oriented approach is emphasized.

The Johns Hopkins University School of Medicine is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians. The Johns Hopkins University School of Medicine takes responsibility for the content, quality and scientific integrity of this CME activity.

The Johns Hopkins University School of Medicine designates this educational activity for a maximum of

37.25 hours in category 1 credit toward the AMA Physician's Recognition Award. Each physician should claim only those hours of credit that he/she actually spent in the activity.

For more information, contact: Office of Continuing Medical Education, Johns Hopkins University School of Medicine, Turner 20, 720 Rutland Avenue, Baltimore, MD 21205-2195; Tel: 410-955-2959; Fax: 410-955-0807; Email: cmenet@jhmi.edu; Web: <http://www.med.jhu.edu/cme>. ❖

International Course on Laboratory Animal Science

A two-week intensive international course on laboratory animal science will be organized at the Department of Laboratory Animal Science, Utrecht, The Netherlands, in May 2003.

The objective of the course is to present basic facts and principles that are essential for the humane use and care of animals and for the quality of research.

The contents of the course are in line with recommendations of the

Federation of European Laboratory Animal Science Associations (FELASA) regarding the training of the young scientist whose research involves the use of vertebrate animals.

The course may also be of interest for those who intend to set up a similar course at their location. For this purpose, during the course the acquisition of teaching materials can be discussed with the course committee.

For information and application

forms please contact: Prof. dr. L.F.M. van Zutphen or Mr. Stephan van Meulebrouck, Department of Laboratory Animal Science, Faculty of Veterinary Medicine, PO Box 80.166, 3508 TD Utrecht, The Netherlands. Tel: 31-30-2532033; Fax: 31-30-2537997. Email: pdk@las.vet.uu.nl; Internet: <http://las.vet.uu.nl> and click on "Education." ❖

Laboratory Animal Science

A Preparatory Course for American Association for Laboratory Animal Science

Certification Examinations

Learn the skills and techniques required to start a career in a research lab. This hands-on course is designed to prepare participants to work in a research institution where the handling, restraint, bleeding and anesthetizing of laboratory animals is required. Through lectures, presentations, and hands-on laboratory training, participants will learn the principles and practices of lab animal science with an emphasis on animal care and various research techniques.

This is a semester-long, undergrad-

uate course that is being offered to continuing professional education students. It is excellent preparation for the AALAS Certification examinations. More than 95% of students who successfully complete this course also pass the Assistant Technician or the Technician certification test. College credit is not available to continuing professional education students; however, seven (7) Continuing Education Units (CEUs) and a certificate of completion will be awarded.

The class meets Tuesday and

Thursday evenings from 6:10 pm - 8:50 pm (including laboratory time), January 21 through May 1, 2003. Register before January 5, 2003 for a discounted rate of \$490. After January 5 the registration fee increases to \$540. Multiple discounts are available to registrants from the same company or organization. Class size is limited, so register early. For more information, please call 732-932-9271, ext. 618.

Albert Lasker Medical Research Awards

The major purpose of these Awards is to recognize and honor individuals who have made significant contributions in basic or clinical research in diseases that are the main cause of death and disability. The Award winners may reside in any country of the world.

The Awards are intended to recognize contributions that have opened new fields of research, advancing novel concepts or their applications in a particular biomedical discipline. These advances may consist of a specific contribution or a long series of contributions that demonstrate the nominee's significant leadership towards the development of research concepts or their clinical application.

Each Award consists of an honorarium, a citation and inscribed statuette of the Winged Victory of Samothrace, symbolizing victory over death and disease.

When the Award is given to more than one individual in a category, the

honorarium will be divided among the winners, and each will receive a statuette and a citation. More than one scientist may be nominated if they have worked as a team, or if they independently have made comparably contributions in their field. No more than three individuals will be considered for an Award in the basic or clinical category.

The Jurors' evaluations of the contributions of the nominees depend heavily on the information supplied in the nomination forms. Therefore, the nomination should be accurate, detailed, current and complete. Supporting letters that specifically address the nominee's scientific accomplishments will be helpful to the Jury.

Basic Medical Research Award (\$50,000): This Award honors the scientist or scientists who have made fundamental investigations that open new areas of biomedical science.

Clinical Medical Research

Award (\$50,000): This Award honors the scientist or scientists whose contributions, directly or indirectly, have led to the improvement of the clinical management or treatment of patients and to the alleviation or elimination of one of the major medical causes of disability or death.

Special Achievement Award in Medical Science (\$25,000): This Award honors a scientist whose contributions to research are of unique magnitude and immeasurable influence on the course of science, health, or medicine, and whose professional career has engendered within the biomedical community the deepest feelings of awe and respect. (This Award will be given at the discretion of the Foundation in 2004).

Nomination forms are available at the Foundation's website (<http://www.laskerfoundation.org>) and should be received by the Foundation no later than **February 3, 2003**. ♦

Arthur C. Guyton Physiology Educator of the Year Award

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

Nominees must be full-time faculty members of accredited colleges or universities and members of the APS. The Selection Committee will look for independent evidence of: 1) excellence in classroom teaching over a number of years at undergraduate, graduate, or professional levels; 2) commitment to the improvement of physiology teaching within the candidate's own institution; and 3) contributions to physiology education at the local community, national or international levels.

In the past, all nominees have shown excellence in teaching at their home institution and many have made significant local contributions through advising, graduate education, or curriculum design and reform. Consequently, the activities that distinguish a candidate in the rankings include outreach activities at the state, national, or international level; contributions to education through APS activities; peer-reviewed educational journal articles; and widely disseminated publications such as commercially produced textbooks, lab manuals, or software.

Each nominee must be nominated by a member of APS. The nominator is responsible for completing the application materials and forwarding six (6) copies of the application materials listed below to the Chairman of the Award Selection Committee, post-marked no later than Friday **December 13, 2002**.

1. A letter from the nominator
2. Letters of support from three other colleagues familiar with the nominee's contributions to physiology education. If possible, one letter should be from the nominee's chairperson. One letter must be from a colleague outside of the nominee's institution
3. Letters of support from up to five current and/or former students
4. Scores on standard student evaluations (with normative data if possible)
5. Details of all teaching honors received (i.e. Golden Apple, Teacher of the Year, etc.)
6. Evidence of education-related activities outside the classroom for which the nominee has achieved national or international reputation. This could include (but is not limited to):
 - publication of teaching innovations or educational research;
 - development and publication of laboratory exercises;
 - development and distribution of

teaching software;
authoring of textbooks;
presentation and/or publication of educational research;
conducting seminars, workshops, conferences, etc. on physiology education;

A copy of the nominee's curriculum vitae;

Any additional documentation that would assist the selection committee in evaluating the nominee's contribution to physiology education.

The person selected will receive the award during the APS business meeting at the April 2003 annual meeting of the American Physiological Society (Experimental Biology 2003, April 11-15 in San Diego, CA). The Arthur C. Guyton Physiology Educator of the Year will receive a framed, inscribed certificate, an honorarium of \$1,000 and expenses of up to \$600 to attend the meeting. The awardee is requested to write an essay on his/her philosophy of education for publication in *The Physiologist*.

The Chairman of the Guyton Award Selection Committee is Michael Levitzky, Department of Physiology Box P7-3, LSU Health Sciences Center, 1901 Perdido Street, New Orleans, LA 70112-1393. Tel: 504-568-6184; Fax: 504-568-6158; Email: mle-vit@lsuhsc.edu. ❖

Gift Planning Opportunities

The American Physiological Society is pleased to invite the membership to consider including the APS in their gift giving plans. Over the last several years, the Society has received donations of land and securities, all of which have been used to launch the Society's various young investigator award programs.

Many options exist if you are interested in including the APS and its Endowment Fund in your financial or estate planning. Some options include:

Immediate Gifts: Cash, gifts of appreciated securities, gifts of closely held stock, gifts of tangible personal property, retirement assets, charitable lead trusts and gifts of real estate.

Life Income Gifts: Gift annuities, deferred payment gift annuities, charitable remainder trusts, charitable remainder unitrusts, and charitable annuity trusts.

Gifts of Insurance: Ownership of life insurance policies can be donated, or the APS can become the beneficiary of policies owned by others.

Designated Gifts: Gifts given to

honor or memorialize an individual or an organization and can include scholarships, programs, etc., which are specified for support and named for individuals.

Gifts by Will: Bequests of a percentage of estate, stated dollar amount or specific property or assets.

For more information on gift giving to the APS, please contact Martin Frank, Executive Director (Tel.: 301-530-7118, Email: mfrank@the-aps.org), or Robert Price, Director of Finance (Tel.: 301-530-7173, Email: rprice@the-aps.org).

February 1-5

The 2003 Miami Nature Biotechnology Winter Symposium: 50 Years On: From the Double Helix to Molecular Medicine, Miami Beach, FL. *Information:* MNBWS, 1011 N.W. 15 St., Rm. 315, Gautier Bldg., Miami, FL 33136-1019. Fax: 305-324-5665; Internet: <http://www.med.miami.edu/mnbws>.

February 2-7

Sixth International Congress of Comparative Physiology and Biochemistry, Mount Buller Village, Australia. *Information:* Abstract deadline and Early Bird Registration deadline are September 30, 2002. Email: iccpb@Latrobe.edu.au; Internet: <http://www.zoo.Latrobe.edu.au/iccpb>.

February 2-7

Gordon Research Conference on Salivary Glands and Exocrine Secretion, Ventura, CA. *Information:* David Castle, Department of Cell Biology, University of Virginia Health System, School of Medicine, P.O. Box 800732, Charlottesville, VA 22908-0732. Tel: 434-924-1786; Fax: 434-982-3912; Email: jdc4r@virginia.edu; Internet: <http://www.grc.uri.edu>.

February 15-20

SPIE International Symposium Medical Imaging, Town and Country Hotel, San Diego, CA. *Information:* Internet: <http://www.spie.org/info/mi>.

February 19-22

13th International Hypoxia Symposium, Banff Mountain Centre, Banff, Alberta, Canada. *Information:* <http://www.hypoxia.net>.

February 23-25

The Art of Grantsmanship—George Mason University, Washington, DC. *Information:* Lisa Driver, Meetings Manager, The Council on Undergraduate Research, 734 15th Street, NW, Suite 550, Washington, DC 20005. Tel: 202-783-4810; Fax: 202-783-4811, Internet: <http://www.cur.org/03CURDialogues/03CURDialogues.htm>.

March 1-5

Biophysical Society 47th Annual Meeting, San Antonio, TX. *Information:* Biophysical Society, 9650 Rockville Pike, Bethesda, MD 20814; Tel: 301-530-7114; Fax: 301-530-7133; Email: society@biophysics.org; Internet: <http://www.biophysics.org>.

March 12-16

The National Comprehensive Cancer Network's 8th Annual Conference: Practice Guidelines and Outcomes Data in Oncology, Hollywood, FL. *Information:* National Comprehensive Cancer Network, 50 Huntingdon Pike, Suite 200, Rockledge, PA 19046. Tel: 215-728-0862; Fax: 215-728-3877; Internet: <http://www.nccn.org>.

April 9-11

4th International Symposium on Agmatine and Imidazoline Systems, San Diego, CA. *Information:* John E. Piletz, Depts. of Psychiatry, Pharmacology & Physiology, University of Mississippi Medical Center, 2500 North State St., Jackson, MS 39216-4505 USA. Email: AISymposium@psychiatry.umsmed.edu; Internet: <http://aisymposium.aacdp.org/>.

May 13-17

The 30th Annual Meeting of the International Society for the Study of the Lumbar Spine, Vancouver, Canada. *Information:* Secretary, Dr. Scott Bodes, Sunnybrook and Women's Health Science Center, Room MG 323, 2075 Bayview Ave., Toronto, Canada M4N 3M5. Tel: 416-480-4833; Fax: 416-480-6055.

May 28-31

Canadian Society for Pharmaceutical Sciences Symposium, Delta Centre-Ville, Montreal, Quebec, Canada. *Information:* Canadian Society for Pharmaceutical Sciences, 3119 Dentistry/Pharmacy Centre, University of Alberta Campus, Edmonton, Alberta, Canada, T6G 2N8. Tel: 780-492-0950; Fax: 780-492-0951; Internet: <http://www.ualberta.ca/~csp/s/>.

June 2-5

Eighteenth Annual Offering of Critical Issues in Tumor Microcirculation, Angiogenesis and Metastasis: Biological Significance and Clinical Relevance, Boston, MA *Information:* Internet: <http://steele.mgh.harvard.edu>.

June 8-12

The Joint Meeting of the 13th Annual Meetings of the American Summer Neuropeptide Conference & The European Neuropeptide Club (ENC), Montauk, NY. *Information:* Orit Khafi, Neuropeptides Conference Secretariat, P.O. Box 3190, Tel Aviv 61031, Israel. Tel: 972 3 520 99 99; Fax: 972 3 523 92 99; Email: meetings@uni-tours.co.il.

June 28-July 3

3rd Congress of the Federation of European Physiological Societies, Nice, France. *Information:* Sophia Antipolis, Faculte des Sciences, 06108 Nice Cedex2, France. Tel: +33 4 92076851; Fax: + 33 4 92076850; Email: FEPS2003@unice.fr; Internet: <http://www.unice.fr/FEPS2003/>.

June 29-July 4

International Society for Developmental and Comparative Immunology (ISDCI) - 9th International Congress, St. Andrews, Scotland. *Information:* Dr. Val Smith or Mrs. Jane Williamson, Gatty Marine Laboratory, School of Biology, University of St. Andrews, Fife KY 16 8LB. Email: v.j.smith@st-and.ac.uk or jmcw@st-and.ac.uk; Internet: <http://www.st-and.ac.uk/~seeb/ISDCI/home.htm>.