The Physiologist

A Publication of The American Physiological Society

*Integrating the Life Sciences from Molecule to Organism*

Volume 46, Number 5

October 2003

# When Pigs Fly?

## Legal and Ethical Issues in Transgenics and the Creation of Chimeras

## The Walter C. Randall Biomedical Ethics Lecture

Linda MacDonald Glenn,

Senior Fellow, Institute for Ethics, American Medical Association

*The following is a speech delivered by Linda MacDonald Glenn for the Walter C. Randall Lecture Award in Biomedical Ethics at Experimental Biology, 2003 in San Diego, CA.*

Thank you for inviting me to speak today. It is quite an honor to be among a distinguished group of colleagues who recognize the importance of balancing progress for humanity with advances in technology. Although I did not have the honor of meeting Walter C. Randall, from what I've learned of the man, he was a thoughtful, considerate man, who promoted integrity in the sciences and advocated education and interaction with the public sector.

When I've introduced myself to those attending the conference and some of the exhibitors, I've received a curious reaction to my affiliation with the American Medical Association's Institute for Ethics. My comments here today are not necessarily a reflection of AMA policy and I'm not a member of the "ethics police." My intent is to inform, help identify the issues, raise questions and advocate for a cautious, thoughtful approach.

The last few years have seen scientific advancements that we thought to be possible only in the realm of science fiction. From nuclear transfer to exogenous pregnancies, implantable brain chips to transgenic engineering, cyborg to chimera, we are forging the next step in our own evolution. Future developments will likely challenge our concepts of what it means to be "human." Currently, human beings cannot be patented, but the definition "human being" has yet to be defined by the courts or the legislature. Arguments as to what constitutes "personhood" are being closely scrutinized and debated in the fields of religion, ethics, psychology, and law. (For the purposes of this talk, I will sometimes use humans and persons interchangeably, because, as I discuss later, the law often defines "persons" without any reference to or distinction from "human.") Possible implications range from affecting the abortion debate to end-of-life decision making to animal rights. The next several decades will test the flexibility of the law in response to evolving advancements. Because our technical prowess often exceeds our ethical analysis, I offer some ideas how our new creations may fit within the context of historical ethical and legal analysis.

### Part 1: Current Developments in Transgenics and Chimeras

*A. Plant–Nonhuman Animal–Human Interface(s).*

In Greek mythology, the chimera was part lion, part goat, part dragon, which was slain by the hero Bellerephon. In modern day biology, a chimera is a genetically engineered creature created from the DNA of different species. What once was fiction has now become fact; through the process known as DNA recombinant research, scientists are able to splice genes together from different species that would never be able to mate under normal, non-laboratory circumstances. A review of some of the last few years announcements illustrate the amplitude of the advances:

- *Plant–Nonhuman Animal–Human Interface(s)*—DNA of human and nonhuman animal tumor fragments inserted into tobacco DNA, harvested, potential vaccine for lymphoma extracted (See http://www.grain.org/publications/dec001-en-p.htm)

*(continued on page 253)*

THE Physiologist
Volume 46 Number 5
October 2003

# Contents



**Published bimonthly and distributed by The American Physiological Society**

9650 Rockville Pike
Bethesda, Maryland 20814-3991
ISSN 0031-9376



**Subscriptions:** Distributed to members as part of their membership. Nonmembers in the USA: individuals $55.00; institutions $80.00. Nonmembers in Canada and Mexico: individuals $60.00; institutions $85.00. Nonmembers elsewhere: individuals $65.00; institutions $90.00. Single copies and back issues when available, $20.00 each; single copies and back issues of Abstracts issues when available, $30.00. Subscribers to *The Physiologist* also receive abstracts of the Conferences of the American Physiological Society.



Deadline for submission of material for publication: Jan. 10, February issue; March 10, April issue; May 10, June issue; July 10, August issue; Sept. 10, October issue; Nov. 10, December issue.

**Please notify the central office as soon as possible if you change your address or telephone number.**

Headquarters phone: 301-634-7118
Fax: 301-634-7242
Email: info@the-aps.org
http://www.the-aps.org
Printed in the USA

(continued from page 251)

● *Nonhuman Animal–Nonhuman Animal Interface–"Spidergoats"*: A Canadian biotech company has spliced the genes of a spider responsible for spinning spiderwebs (one of the strongest fibers known to mankind) into the genome of a goat. When the goat's milk is processed, the result is BioSteel®, a substance that can be spun into a thread that has the tensile strength and flexibility of a super spiderweb. The potential applications range from medical applications to space exploration. For all the hype about potential benefits, the potential abuses are equally frightening. The expression "when pigs fly" is apropos on a variety of levels. I could have called my presentation "Spidergoats," the "When Pigs Fly" was a much catchier title and the phrase has captured the imagination of numerous artists on the internet, as you can see from images captured from the World Wide Web when I did an image search on Google™. While the thought and images of pigs flying is one that is bemusing, the underlying issue—that of crossing species boundaries and the creations of new life forms is serious business, not to be taken lightly.

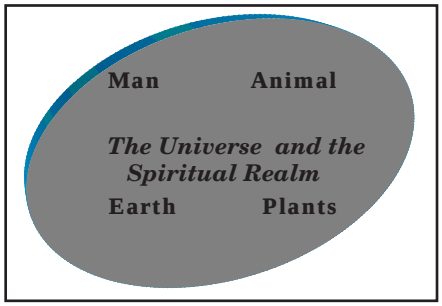
● *Human–Nonhuman Animal Interface(s)*—Scientists at the University of Missouri announce a possible breakthrough in xenotransplantation; they have created genetically engineered pigs whose organs lack a gene that triggers rejection by the human immune system (6). In April 1998, biologist Stuart Newman and biotech critic Jeremy Rifkin applied for a patent for a "humanzee," part human and part chimpanzee, in a calculated move designed to re-ignite debate about the morality of patenting life forms and engineering human beings (4).

The US Patent and Trademark Office (hereinafter, PTO) denied the patent, acknowledging that, although it has permitted the extensive patenting of biotech-engineered life forms and human DNA, the 13th Amendment of the US Constitution forbids the ownership, and they considered this application to be too close to the patenting of human beings. Since the United States Supreme

Court, Congress or Patent Office have never defined what a human being is, the debate still continues about whether or not the PTO as an executive arm of the United States government has the power to define "human being."

The International Olympic Committee has concerns that athletes will soon employ genetic engineering to run faster, jump higher, and throw further. Lawyer bioethicist George Annas suggests that we need to set up an international criminal tribunal that will ban genetic engineering and xenotransplantation, as well as other forms of possible alterations of humans for fear of endangering the species or creation of a slave race. The headlines and fears of potential abuses raise the question of just how many genes does one need to be considered "human."

Further advances in the blending of nonhuman animal and human DNA could result, intentionally or not, in chimeric entities possessing degrees of intelligence or sentience *never before seen in nonhuman animals.* Would an intelligent, sentient creation be property or a person? Could he/she/it be patented? Patents on animal and




**The Circle of Interdependence: this perspective reflects the non-hierarchical interdependent relationship between man and the Earth and its inhabitants.**

other life forms are allowed in the United States and likely soon in Canada. European and Asian patent legislation includes prohibitions on inventions whose commercialization would "offend society's fundamental and shared moral standards," and could arguably exclude certain higher life forms.

**Part 2: Some Historical Perspectives on Humanity and Personhood**

Traditional western philosophy has assumed that humanity is a necessary precondition to personhood. However, as I will discuss soon, the law has evolved in a manner that doesn't require humanity for "personhood."

Humans have held a special place in the "Great Chain of Being." The Great Chain of Being has come under attack for a variety of reasons: first, it reflects a traditional hierarchical Judeo-Christian view that man was "given dominion over the Earth and all of its inhabitants." Secondly, it reflects the Kantian secular notion of rational man as reigning. While philosopher Immanuel Kant contributed to the notions of human dignity and the worth of the individual, his philosophy and writings were inspired largely by Socrates and Plato, who maintained that only rational men had immortal souls. Kant is silent about the dignity and worth of the senile, demented, or disabled. Thirdly, the Great Chain of Being reflects a time when the Earth was viewed as the Center of the Universe, pre-Galileo and Copernicus.

An alternative view, the Circle of Interdependence reflects a non-hierarchical interdependent relationship between man and the Earth and also of its inhabitants; it is a view that is more consistent with, Native American, Buddhist and chthonic belief system. While it is more holistic, interdependent, approach, it needs to be balanced against notions of human dignity and individual worth.

Professor of Oncology Van Rensselaer Potter coined the term "bioethics" in 1970. In his landmark work, *Perspectives in Biology and Medicine*, his thoughts on this term were as follows:

(continued on page 254)

(continued from page 253)

*"We are in great need of a land ethic, an environmental ethic, an international ethic, and so on… Mankind is urgently in need of new wisdom that will provide the 'knowledge of how to use knowledge' for man's survival and for improvement in the quality of life. This concept of wisdom as a guide for action – the knowledge of how to use knowledge for the social good - might be called the 'science of survival,' surely the prerequisite to improvement in the quality of life…A science of survival must be more than science alone, and I therefore propose the term 'bioethics' in order to emphasize the two most important ingredients in achieving the new wisdom that is so desperately needed: biological knowledge and human values… Man's survival may depend on ethics based on biological knowledge and, hence, bioethics."*

But back to the question of what does it mean to be "human"? What of a biological definition that relies on *species* definition? A scientist could argue that distinguishing traits between species are manifestations of the genetic material of each species. However, the definition of species is a hotly debated and contentious issue among scientists, producing reams of publications. Darwin argued that "species" are not "real" entities in nature. The huge varieties of definitions (morphological, typological, etc…) reflect changing theory, and the different purposes to which the species are used by individuals. Even if we could agree that the biological species concept would be the accepted definition of species, species grade into one another in time as they evolve one into another. How do we decide where *Homo erectus* has evolved into *Homo sapiens*? The uncomfortable truth is that species differentiation is not as clear-cut as some would like it to be.

Joseph Fletcher, Episcopalian theologian and bioethicist, argued for a list of fifteen "positive propositions" of personhood. These attributes are:

- minimum intelligence
- self-awareness
- self-control
- a sense of time
- a sense of futurity
- a sense of the past
- the capability of relating to others
- concern for others
- communication
- control of existence
- curiosity
- change and changeability
- balance of rationality and feeling
- idiosyncrasy
- neocortical functioning.

This extensive list suggests that most individuals, at one time or another, are not persons (3). Fletcher's comments that a severely retarded Down's syndrome child was not a person and his proposal that chimeras and cyborgs be created to do man's distasteful or dangerous work (1), led to severe criticism from his peers and the public. These beings, Joseph Fletcher called "parahumans" whom he hoped would "be fashioned to do dangerous and demeaning jobs." In other words, Fletcher advocated the creation of a slave race of mostly—humans designed by us and for our use. The excessive stress on rationality and intelligence is arbitrary and degrading to those who are mentally retarded and senile.

However, Fletcher's list of traits may be useful if personhood were a continuum, rather than as a definitive, fixed state, a model that has been proposed philosophically, but not yet applied in legal theory or practice.

**Part 3: The Legal Implications**

The United States Supreme Court provides a spectrum of persons: including the "natural"—illegitimate children, minors, aliens, as well as "juridical," such as corporations, labor unions, nursing homes, municipalities, and government units. Currently, "natural" persons are biological beings, limited only to humans, although "human" is not defined legislatively or statutorily. Historically, nonhuman animals have been considered mere "property;" however, it is important to note that slaves, women, and children were regarded a mere chattel until the mid-to-late 1800's and early 1900's. Yet, nonhuman entities, such as corporations and ships have been recognized and given rights as "persons."

If historical notions of personhood prevail, we run the risk of denying essential basic liberties to intelligent, sentient beings. We need to be prepared to ask, "How can we preserve our human rights and dignity despite the fact that our 'humanness' may no longer be the exclusive possession of *Homo Sapiens*?"

The ever-so-gradual trend in the law is to grant living, sentient beings greater moral recognition and legal status. At least three states have had their highest court recognize that companion animals have a moral and legal status superior to that of inanimate objects. Several states have legislation pending to recognize the same; other court cases evidencing this trend involve dead body cases (such as the freezing of baseball legend Ted Williams' body, or what I like to call the Jerry-Springer-meets-bioethics case) and frozen embryos.

***"At least three states have had their highest court recognize that companion animals have a moral and legal status superior to inanimate property. Several states have legislation pending to recognize the same."***

If certain transgenic creatures were worthy of moral status and respect, where would these rights come from? Some examples would be from the courts, legislatures, and proclamations. For example, United Nations Resolution A-RES-37-7, the World Charter for Nature, declares:

*Every form of life is unique, warranting respect regardless of its worth to man, and, to accord other organisms such recognition, man must be guided by a moral code of action…*(5).

The resolution is a plea that lifeforms, other than those falling within the traditional concepts of human, are

worthy of moral status. It also establishes a common scale of value that both human and nonhuman life have intrinsic worth.

As I mentioned earlier, some bioethicists have proposed an international criminal tribunal to monitor genetic manipulation, and that the insertion of any human gene into any other species be banned, but considering that the US and Canada do not prohibit the patenting and marketing of DNA sequences or cell lines, this is unrealistic.

Some legislation has been proposed that would define "human being" as any entity possessing higher faculties (such as the ability to reason or formulate speech in oral or written fashion) or any creature born of human ovum and sperm (whether or not the genetic material was scientifically altered), but such legislation has been rejected as overly broad.

**Part 4: Conclusions**

The Property—continuum—Personhood will continue to evolve. At one end of the spectrum, you will see pure property, such as inanimate objects, land, and those things that cannot suffer. As one approaches the center of the continuum you would have basic rights, which would consist of primarily negative liberties, such as the right to be free from torture, the right to be free of restrictive physical confinement or imprisonment, and right to maintain bodily integrity. At the other end of the spectrum, you have the Kantian ideal of the fully autonomous rational individual, with the attending full course of negative and positive rights, such as the right to vote and the right of self-determination as well as the responsibilities that attend those rights. As "co-creators," like parents, the courts are finding we have attendant responsibilities as moral agents.

***"As different forms of intelligent transgenic creatures are created, the courts will be determining where these creations fall on the continuum of personhood."***

As different forms of intelligent transgenic creatures are created, the courts will be determining where these creations fall on the continuum of personhood. Legislators, policymakers and governmental bodies will ponder the question and submit statutes. The Great Chain of Being will yield to alternative "Pyramid of Being," which is more reflective of stewardship, ecological awareness and an interdependent approach.

Until then, we can expect intense cross-disciplinary debate and discussion as new intelligent life is created through science and medicine and recognized legally, morally, and ethically (2). Thank you for your attention. ❖

**References**

1. **Fletcher, J.** *The Ethics of Genetic Control: Ending Reproductive Roulette*, Prometheus Books, 135-139 and 154-156, 1988.
2. **Glenn, L.M**, Biotechnology at the Margins of Personhood: An Evolving Legal Paradigm. *Journal of Evolution and Technology*, 13:110, 2003.
3. Indeed, when presenting this list at several conferences, a number of participants implied that they knew more than a few people in their workplace and classrooms who might not meet all of these criteria at any given time.
4. **Newman, S.** Almost Human—and Patentable, Too! *Genewatch*, 11:3, 1998.
5. United Nations Resolution *A-RES-37-7*, World Charter for Nature, adopted October 28, 1982; full text available at http://www.un.org/documents/ga/res/37/a37r007.htm.
6. Weiss, R. Gene Alteration Boosts Pig-Human Transplant Feasibility. *Washington Post*, E05, January 3, 2002.

**APS President Barbara Horwitz and David Randall present the Randall Award to Linda MacDonald Glenn.**

## Council Meets in Bethesda

The APS summer Council meeting was held in Bethesda, MD, on July 25-27, 2003. During the meeting Council met with the APS committee chairs. The chairs presented reports of the committees' programs and accomplishments during the past year, and committee plans for the coming year. These committee reports are published in this issue of *The Physiologist*.

Approximately two years ago, the APS Council established a Task Force on Trainees charged with identifying ways in which the Society could do more for graduate students and postdoctoral fellows. One of the recommendations of the Task Force was to establish a Trainee Advisory Committee (TAC) comprised of members from each of the Society's disciplinary sections. At the summer meeting, Council approved the formation of this new Committee, and the charge of the Committee. The primary mission of TAC will be to "investigate the needs of trainees, both pre-doctoral and postdoctoral, to determine how the Society can provide necessary support and assistance." As with the other APS Committees, the TAC will meet regularly during the Experimental Biology meeting and at other times needed for the completion of business.

The Chairs of both the Public Affairs Committee and the Animal Care and Experimentation (ACE) Committee are due to retire from their respective committees at the beginning of 2004. The continuity of expertise in the chair position is critical to the success of both these committees, and is critical to the continued relationship between the two Committees. The PAC and the ACEC recommended that the term of one of these chair positions be extended so that both are not retiring during the same year. Council agreed with this idea and approved extending the term of the Public Affairs Chair to a four-year term. Council also added a new position to both Committees, that of Past Chair.

The ACE Committee also reported on the efforts of a subcommittee, chaired by Kevin Kregel, to develop a white paper detailing acceptable practices for models of exercise physiology. The study is supported by the NIH Office of Laboratory Animal Welfare. The ACE Committee Chair also raised the issue of the challenges being faced by departments using animals in teaching programs. The Council asked the ACE and Education Committees to study the problem and prepare a report.

The Animal Care and Experimentation Committee once again organized and presented a Public Affairs Symposium at EB 2003 entitled IACUC 101 For Scientists. This was a 4-hour IACUC training program open to all EB attendees. The goal was to provide scientists with training to improve their performance on and interaction with IACUCs.

The Communications Committee is in its final stage of development of the APS Timeline of Physiology. Once completed, the Communications office will distribute the timeline to scientific and general media. Copies will also be available in conference pressrooms. The Education department will use the timeline as a giveaway at several upcoming conferences including the National Association of Biology Teachers and the National Science Teachers Association. The timeline will also be on display at the APS booth at EB 2004. The Communications Committee requested funding to have 7000 copies of the timeline printed. Council approved the necessary funding for this project.

The Publications Committee continues to strive to make each individual APS journal the best in its field, and to provide the highest possible quality publications. The Journal Impact Factors made a strong showing again in 2002, with four of our journals (*PRV*, *AJP-Renal*, *Physiological Genomics*, and *AJP-Cell*) ranking in the top 10 Physiology journals. *Physiological Genomics* jumped from 3.352 to 4.667 in one year. The Committee reported that the first phase of the Legacy Content, going back to 1986, was put online in 2002, and the second phase, going back to 1966, is near completion.

The Career Opportunities in Physiology Committee reported that its session at EB 2003 was well attended. They requested that Council support a careers session at EB 2004. The theme will be how to develop and implement a proactive plan for a successful postdoctoral experience. Speakers will discuss how to formulate an individualized development plan with a mentor, how to tailor the postdoctoral experience to meet individual goals, how to develop teaching skills, and provide information on the new National Postdoctoral Association developed at the American Association of the Advancement of Science (AAAS). Council approved the necessary support for this session. The Committee also reported that the APS Summer Undergraduate Research program has gone very well. The Committee continues to receive more quality applications than can be funded. The Committee received 57 applications this year, which is an increase of 46% from last year. The Committee requested, and received, funding to support up to 12 Summer Undergraduate Research Program Fellowships for summer 2004. During the upcoming year, the Committee will be working on a Career Outreach Slide Presentation Package. The goal is to have power point presentation slides available to APS members. These slides will cover topics such as careers available to physiologists.

The Women In Physiology Committee reported that the first Bodil Schmidt-Nielsen Distinguished Mentor and Scientist Award will be presented at EB 2004. The awardee will be asked to attend the APS Women in Physiology Committee/ASPET Women in Pharmacology workshop at EB 2004, and to present a lecture at the meeting. The Committee requested that Council approve funding for a luncheon lecture by the Bodil Schmidt-Nielsen awardee. Since many mentors and mentees are geographically separated, the Committee said that the luncheon would provide a convenient venue for one-on-one meetings of mentors and mentees. Council approved the funding for the luncheon.

The Education Committee reported that their programs have been very successful over the past year, especially the "Explorations in Biomedicine"

and the "Frontiers in Physiology" programs. Over the next year, the Committee will continue to work on a series of web-based, self-directed mini-tutorials for graduate and postdoctoral students. The Committee also reported that it has completed the development of guidelines and procedures for the new David S. Bruce Awards for Excellence in Undergraduate Research. The first awards will be made at EB 2004. Up to four awards will be made to undergraduate students based on a submitted abstract and completion of the award application materials. The Chair also reported that the APS/ACDP Medical Objectives in Physiology would be used to develop learning objectives in pathophysiology. The Council asked the Education Committee to work with the ACDP to explore the development of undergraduate physiology programs at ACDP institutions.

Reports from the Awards, Committee on Committees, Finance, International Physiology, Joint Program, Liaison with Industry, Long Range Planning, Membership, Perkins Memorial Fellowship, Porter Physiology Development, Public Affairs, and Section Advisory Committees were also presented to Council.

For more information, see the Committee Reports section beginning on page 264. ❖

**Back row: John Williams, Curt Sigmund, JR Haywood, Peter Wagner. Middle row: Charles Tipton, D. Neil Granger, Virginia Miller, Helen Raybould, Robert Carroll. Front row: Kim Barrett, Jeff Sands, Barbara Horwitz, Susan Barman, Dale Benos.**

**Back row: William Talman, Raouf Khalil, Glenn Reinhart. Middle row: John Stallone, L. Gabriel Navar, Francis Belloni, Carol Leidtke. Front row: Pamela Gunter-Smith, Pat Preisig, Hector Rasgado-Flores, Andrea Gwosdow.**

## Williams Thanks APS Staff

APS President John A. Williams hosted a staff appreciation reception for the Society's employees. This year's reception was held in the Beaumont House on the FASEB campus. APS Executive Director Martin Frank, President Williams, and the rest of the APS Council thanked the staff for their efforts over the past year. Williams said that he, and the rest of Council, appreciates the work and efforts of the staff in making APS a quality organization. Many of the APS committee chairs also attended the reception and thanked the staff for all the assistance provided to the various committees.

**APS President John Williams and Executive Director Martin Frank present certificates of appreciation to Joelle Grossnickle, Coleen Kitaguchi, Michael Gentry, Ruth Freehling, Geraldine Marklin, Georgia Stine, and Maria Kurhmann.**

A major portion of the staff appreciation reception is the recognition of years of service to the Society. This year, Williams presented a 20-year certificate to Ruth A. Freehling (Copy Editor); a 15-year certificate to Maria E. Kuhrmann (Copy Editor); a 10-year certificate to Marsha L. Matyas (Education Officer); and 5-year certificates to Michael Gentry (Web Copy Editor), Joelle Grossnickle (Web Support Specialist/Copy Editor), Coleen Kitaguchi (System Support Specialist), Geraldine Marklin (Membership Services Assistant), Michael Quinn (Information Systems Manager), and Georgia Stine (Membership Services Assistant). On behalf of Council, Williams thanked the employees for their years of service. ❖

# New Regular Members

## *Transferred from Student Membership

**George Frank Alheid**
Northwestern Univ., IL
**Yassine Amrani**
Univ. of Pennsylvania
**Christopher D. Askew***
Univ. of Queensland, Australia
**David Mark Baekey***
Univ. of South Florida
**Maria L.M. Barreto-Chaves**
Univ. of Sao Paulo, Brazil
**James Chapman Beck**
New York Univ.
**Martha Elise Bickford**
Univ. of Louisville, KY
**Zekiye M. Bor-Kucukatay**
Audeniz Univ., Turkey
**Geoffrey M. Bove**
Beth Israel Deaconess Med. Ctr., MA
**Jeffrey John Brault**
Michigan State Univ.
**Jerome William Breslin***
Texas Univ., Austin
**Dean J. Calsbeek***
Univ.of Colorado
**Wellington V. Cardoso**
Boston Univ., MA
**Ben T. Chen***
Duke Univ., NC
**Weiliam Chen**
SUNY, Stony Brook
**Laura Conforti**
Univ. of Cincinnati, OH
**Estelle A. Cormet-Boyaka**
Univ. of Alabama, Birmingham
**Stuart Ian Cromarty**
Assumption College, MA
**Qunsheng Dai**
Duke Univ., NC
**Amie Jeanette Dirks***
Wingate Univ., NC
**Paul L. Dudas***
Yale Univ., CT
**Jeff G. Edwards***
Brown Univ., NJ
**Fergal Martin Grace**
Univ.of Glamorgan, UK
**Wesley Miles Granger**
Univ. of Alabama, Birmingham
**Theresa Joan Grove**
Florida State Univ.
**Amy Lynn Hakeman**
St. Ambrose Univ., IA
**Hiroshi Hibino**
Osaka Univ., Japan
**Yuh-Chin T. Huang**
US EPA, Chapel Hill, NC
**Barinder Kang**
UMDNJ, New Jersey Med. Sch.
**Charles F. Kearns**
Schering-Plough Res. Inst., NJ
**Selvi Krishnan**
Boston Univ., MA
**Osun Kwon**
Harbor, UCLA Med. Ctr., CA
**Lin Liu**
Oklahoma State Univ.
**Que Liu**
Cytokinetics Inc., CA
**Samantha Louey***
Oregon Health Sciences Univ.
**Leonard G. Meggs**
UMDNJ-New Jersey Med. Sch.
**Christian Meyer**
Carl T. Hayden VA Med. Center, AZ
**David James Mokler**
Univ. of New England, ME
**Gunhild M. Mueller**
Univ. of Pittsburgh, PA
**Jay S. Naik***
Univ. of New Mexico
**Peter Nadim Nassar***
Univ. of Pennsylvania
**Karl H. Obrietan**
Ohio State Univ.
**Giuseppe Piccoli**
Sloan-Kettering Cancer Ctr., NY
**Nuhan Purali**
Hacettepe Univ., Turkey
**Robert A. Rizza**
Mayo Clinic, MN
**Brian D. Roy**
Brock Univ., Canada
**Marc F. Schmidt**
Univ. of Pennsylvania
**Jo El Jean Schultz**
Univ. of Cincinnati, OH
**Theodore C. Simon**
Washington Univ.
**Daisheng Song**
Univ. of Alabama, Birmingham
**Yvonne N. Tallini***
Cornell Univ., NY
**Christie P. Thomas**
Univ. of Iowa
**Paul H. Tiesinga**
Univ. of North Carolina, Chapel Hill
**Jackson Pui Man Wai***
National Coll of PE & Sports, Taiwan
**Wei Wu***
Univ. of California, Riverside
**Xiangdong Wu**
Thomas Jefferson Univ., PA
**Yong Xia***
Ohio State Univ.
**Qing-Hua Zeng**
St. Louis Univ., MO
**Kechen Zhang**
Johns Hopkins Univ., MD

# New Student Members

**Arwa Abu-Khweek**
Univ. of Kentucky
**Adina M Badstibner**
Univ. of Kentucky
**Amanda Jo Baker**
Univ. of Kentucky
**Derin A. Balogun**
Univ. of Cambridge, UK
**Brad Jon Behnke**
Texas A&M Univ.
**Bradford C. Blunt**
Univ. of Tennessee
**Jennifer L. Bornkamp**
Schering Plough Res., NJ
**Mary A Bosserman**
Univ. of Kentucky
**Mehmet Bulbul**
Akdeniz Univ., Turkey
**Mamie D. Cotton**
Mississippi Valley State
**Theresa Currier-Thomas**
Univ. of Kentucky
**Elizabeth M. Dahly**
Univ. of Wisconsin, Madison
**Heather M. Davis**
Univ. of Kentucky
**Laurie M. Davis**
Univ. of Kentucky
**Gary Steven Devis**
Brunel Univ-UK

**Adrienne Ellis**
Univ. of Kentucky
**William T.L. Festuccia**
Univ. of Sao Paulo, Brazil
**Robert Frithiof**
Karolinska Inst., Sweden
**Srinivas Ghatta**
North Dakota State Univ.
**Kristi M. Green**
Univ. of Kentucky
**Gulay Hacloglu**
Akdeniz Univ., Turkey
**Kevin N. Hascup**
Univ. of Kentucky
**Sadie L. Hebert**
Univ. of Kentucky
**Emily L. Helfrich**
Univ. of Kentucky
**Erin M. James**
Univ. of Kentucky
**Dusan M. Jefinija**
Univ. of Kentucky
**Gayle L. Joseph**
Univ. of Kentucky
**Kyu-tae Kang**
Medical College of Georgia
**Gabriella Kekesi**
Univ. of Szeged, Hungary
**Olga A. Kooalenko**
Michigan Technol. Univ.
**Lydia E. Kuo**
Georgetown Univ., DC
**Oktay Kuru**
Akdeniz Univ., Turkey
**Narissara Lailerd**
Chaing Mai Univ., Thailand
**Scott E. Lankford**
Univ. of California, Davis
**Qinghang Liu**
Univ. of Tennessee
**Yitao Ma**
Univ. of Illinois, Chicago
**Hanna Maenpaa**
Univ. of Tampere, Finland
**Marika Mannerstrom**
Univ. of Tamperre, Finland
**Sarah B. Martin**
Univ. of Kentucky
**Hether M. Mattern**
Univ. of Missouri, Columbia
**Lamin H. Mbye**
Univ. of Kentucky
**Rob McCorkle**
Univ. of Kentucky
**Lisa A. McPhatter**
Duke Univ., NC
**Rebecca R. Murray**
Clayton Col. of Natural Hlth, AL
**Ondrej Nanka**
Charles Univ., Czech Republic
**Dan Ni**
Univ. of Kentucky
**Nicholas Noinaj**
Univ. of Kentucky
**Olga I. Ostrovskaya**
Bogomoletz Inst. of Physiology, Ukraine
**Rosemarie G. Ramos**
Univ. of Pittsburgh
**Don Wesley Reeder**
California State Univ., Northridge
**Jason Michael Samonds**
Vanderbilt Univ., TN
**Megan Leigh Sampley**
Univ. of Kentucky
**Melissa Rose Savia**
Univ. of Kentucky
**Rachel Marie Schowalter**
Univ. of Kentucky
**Jessica G. Sharpe**
East Carolina Univ., NC
**Rich Hay Singiser**
Univ. of Kentucky
**Parco Mingfai Siu**
West Virginia Univ.
**Alexander N. Slade**
SUNY-Stony Brook
**Melissa Anne Smith**
Univ. of Kentucky
**Divyamani Spinivasan**
Univ. of Kentucky
**Ravi Prakash Subramanian**
Univ. of Kentucky
**Chiranthani Sumanasekera**
Univ. of Kentucky
**Federico Jose Teran**
Tulane Univ., LA
**Nathan L. Vanderford**
Univ. of Kentucky
**Jakob L. Vingren**
Univ. of North Texas
**Marina Vukolova**
NIIOPP RAMS, Russia
**Louise M. Walsh**
Univ. of Massachusetts
**Ram Weiss**
Yale Univ., CT
**Justen D. Westervelt**
Tulane Univ., LA
**Michael E. Woodman**
Univ. of Kentucky
**Yigin Xiong**
Univ. of Kentucky
**Byron Yount**
Univ. of Central Florida
**Sara J. Yount**
Univ. of Kentucky

## New Affiliate Members

**Marwan Abou Gergi**
Univ. of Texas
Southwestern Med Ctr.

**Sean M. Collins**
Univ. of Massachusetts

**Jihan M. El-Hayek**
Univ. of Texas
Southwestern Med Ctr.

**Scott N. Keith**
St. Anthony Med Ctr., IN

## Moving?

If you have moved or changed your phone, fax or Email address, please notify the APS Membership Office at 301-634-7171 or Fax to 301-634-7241. Your membership information can also be changed by visiting the Members Only portion of the APS Website at http://www.the-aps.org.

# Citation Map on the HighWire Portal: Find the Best Articles on a New Topic—Fast!

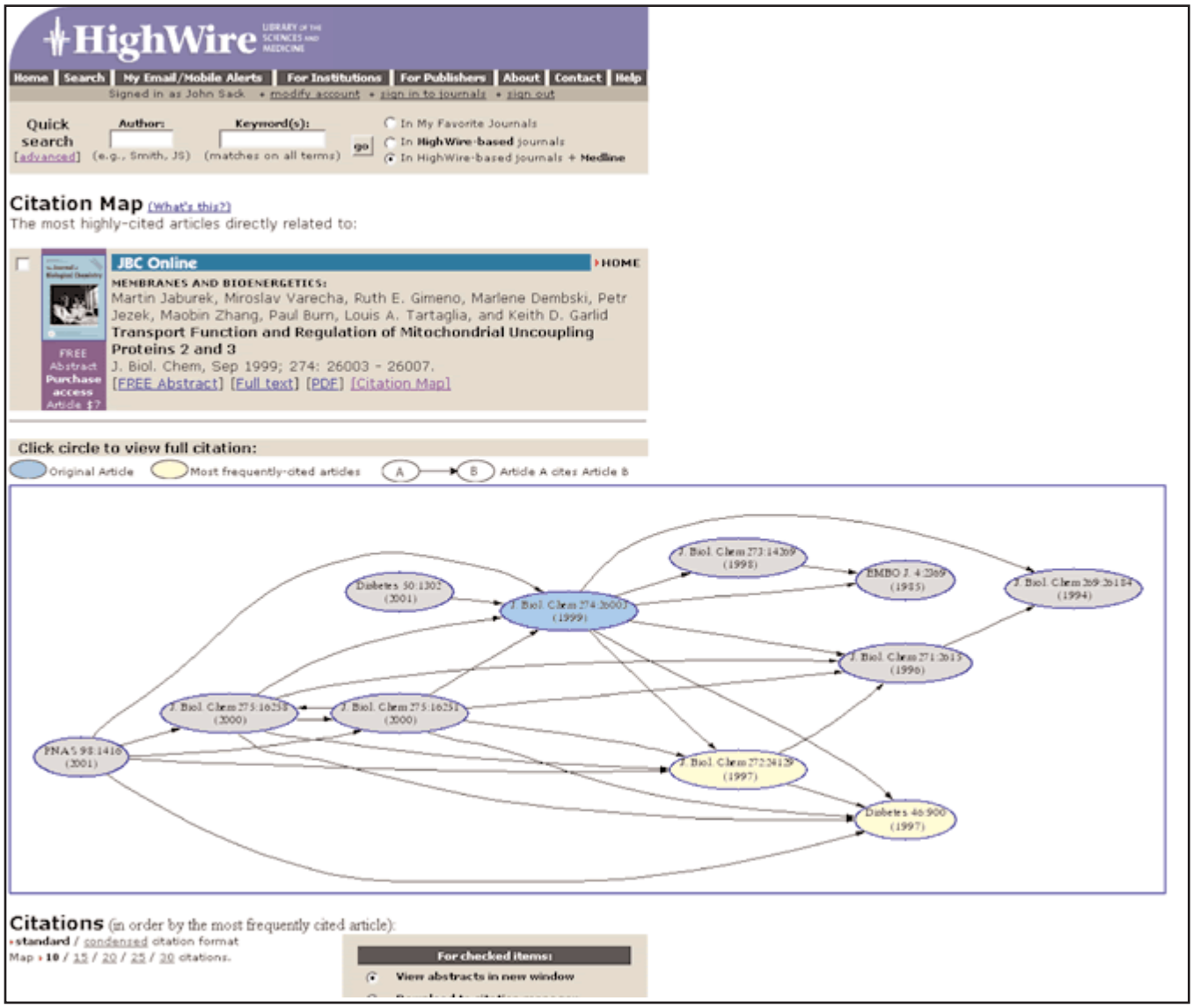
This is another article in the series, highlighting some of the most useful features available on the HighWire Library of the Sciences and Medicine. The portal site can be found at http://highwire.stanford.edu.

The portal, built by HighWire Press and providing access to the best of biomedical research, has a tool called "Citation Map," which can help you when you only have time to scan a few articles on an unfamiliar topic and want to know which are the best. Perhaps you are meeting a new colleague for the first time; perhaps you have encountered a new topic in refereeing an article; or a new topic in your general reading, in a conference, or in a lecture; and you want to know what is going on in this area that is new to you. Or perhaps you have to give a lecture or write a review article and want help selecting a bibliography.

Previously, the available tools were a keyword search (but this might return too many articles that are distantly related to a topic), an author search (which might return too few articles, narrowly focused on a single person's work), or a "related articles" search (which gives you related articles, but no sense of how important they are in the field).

The new Citation Map tool provides a way to identify articles that are directly related by citation to a given article and at the same time are highly cited themselves. It graphically displays the articles so you can see which articles cite which other articles. It sorts the related articles by frequency of citation on the topic and, thus, helps you prioritize your reading when you are unfamiliar with a field. It also shows you which authors and which

**Figure 1.**



journals appear most often. This information might, for example, lead you to evaluate other articles by a key author in the field.

You will find a hyperlink titled "Citation Map" on many items in a search result in the new portal. Click on the link to have the system compute a citation map starting from the particular article you've chosen.

Take a look at the example Citation Map shown for 1999 *JBC* article by Jaburek et al. (Figure 1). The top of the example repeats the full citation to the article. Then a map shows the most recent articles on the left (a *PNAS* article from 2001) and the oldest article on the right (*JBC* 1994); Jaburek et al. is in the middle. All articles shown are well-cited (Citation Map doesn't show all citations; that would be overwhelming); the yellow circles show articles that are the most highly cited within the group of related articles. Note that the map shows not only the articles cited by Jaburek but the articles that cite Jaburek. So you can look forward and backward in time, to see what "happened with" an article's work after it was published. In fact, this particular example shows seven generations of citations!

Obviously, the more recent an article, the fewer articles will have cited it. Because of the technology, articles whose full-text HTML is not online won't have citations from them and, because of the limits of online citation history, there is no record of many citations prior to 1994. However, you will be much more lucky with the APS journals' citations, since our full-text online archives (legacy) now go back to 1966 and within a year will include all of the APS-published articles. Remember, as an APS member, you can access all this wealth of information free of charge!

**Figure 2.**


By default, the map shows only the ten most highly cited articles related to the one you've chosen, but you can ask it to map up to 30 articles (the graphic map is hard to read above 20 articles). The list of citations is easy to read, no matter how many articles you ask for.

If you find it hard to read the graphic map's citations, just click on any circle, and a popup window will give you the full citation for that article. In addition, the citations themselves include a Citation Map hyperlink, so you can shift the focus of your map by remapping with the "central article" at a different focus. You can even mark a set of citations and download them to a citation manager. Next to the citation list (Figure 2), you also see the list of authors, and you might sometimes find it useful to explore the work of an author who is unfamiliar to you; clicking on an author's name will bring up a list of all of his or her articles in the porta—which includes over a million HighWire-hosted full-text articles and about 12 million Medline abstracts.

You might find it interesting to run a Citation Map on your own articles!

In summary, here's how it works:

*What is it?* Citation Map is a graphic representation of the articles citing or cited by your selected article. The map is based on the references found in the full-text articles of the HighWire-hosted journals. The initial number of citations viewed in the map is 10, but you can change this number if you desire.

*What is it for?* Develop reading lists to get up to speed on a new topic; generate bulk citation lists for import into

*(continued on page 262)*

*(continued from page 261)*
literature-management programs; assist in refereeing or writing a review article.

*What it does:* Given a starting reference, Citation Map finds all articles related by citations either citing the article or cited by the article. The result set is expanded outward from the starting article to make a collection of all the articles related by citation to the starting article. By noting the number of times each article in the collection is cited, the related papers with the greatest impact are graphed, along with the citing/cited-by relationships among the articles in the collection. This shows you the most important papers related to a starting article as well as temporal and "line-of-cite" relationships between these articles. ❖

## APStracts Being Replaced by Articles in PresS

In January 2004, APStracts will be replaced entirely with a link to the APS *Articles in PresS* (A*i*PS). APStracts has been a popular feature since 1994, when with the help of William Weems, it was started on the University of Texas, Houston, Gopher server and then moved to the World Wide Web when that was developed. APStracts is another example of APS's early vision for using technology to disseminate research.

Technology has allowed APS to move even further in the direction of online dissemination than we could have originally dreamed, and with the weekly online publication of newly-accepted research articles in all the journals, AiPS, it is no longer necessary to provide the separate APStracts. AiPS lists all online articles published weekly until they appear copy edited and formatted in a journal issue. Full-text is available to subscribers and APS members, but the abstracts in AiPS are free to all, just as APStracts have been.

Starting January 1, 2004, the APStracts page will redirect to *AiPS* instead of APStracts. Abstracts for the December 2003 issues will be the last to appear on the APStracts page. ❖

## Clarification

The article, "Peace, Love, and PLoS" (*1*) incorrectly implied that Dr. Patrick Brown's *Cell* article was published after the boycott deadline. It should be noted that the article was published at the time the advocates of the Public Library of Science were circulating its their boycott petition but prior to the implementation date for action, which was September 2001. *The Physiologist* regrets any misunderstanding caused by this statement.

1. Reich, Margaret. Peace, Love, and PLoS. *The Physiologist*; 46:4, 2003.

## 2003-2004 Porter Physiology Fellows Announced

The APS and Porter Physiology Development Committee congratulate the 2003-2004 APS Porter Physiology Fellows:

**Rashad Belin**
Univ. of Illinois, Chicago
**Adrienne Bratcher**
Univ. of Louisville School of Medicine
**Gary Morris**
Eastern Virginia Medical School
**Myla Patterson**
Meharry Medical College
**Vanessa Toney**
Brown Univ.
**Johanna Vallejo**
Univ. of Missouri, Columbia
**Claudio Villanueva**
J. David Gladstone Institutes, CA
**Elethia Woolfolk**
Meharry Medical College

The Porter Physiology Fellowships for minorities are 1-year fellowships that provide a stipend of $18,000. The fellowships 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 more information, see the APS website at http://www.the-aps.org/education/minority_prog/porterfell.htm or contact Melinda Lowy in the APS Education Office at education@the-aps.org or 301-634-7132. The deadline for 2004-2005 applications will be **January 15, 2004** and **June 15, 2004.** ❖

## 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, there are over 250 items catalogued in 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, which can be found on its Fact Sheet.

- *Human Physiology 801 - Endocrine Section* (Web site)

**Robert W. Gore**

- *Milk Secretion—A Transport Question* (exercise)

**Dee U. Silverthorn**

- *Double-Pulse Voltage-Clamp Experiments* (simulation)

**Michael Davis**

- *Biomedical Discovery Using Microarrays* (PowerPoint)

**David Murphy**

- *Glial/Neuronal Interactions in the Mammalian Brain* (PowerPoint)

**Glenn I. Hatton**

- *Smooth Muscle Physiology* (PowerPoint)

**R. Clinton Webb**

- *Regulation of Cardiac Performance* (PowerPoint)

**Donna H. Korzick**

- *Skeletal Muscle Physiology* (PowerPoint)

**Susan V. Brooks Herzog**

- *Exercise and the Integration of Muscle Systems* (PowerPoint)

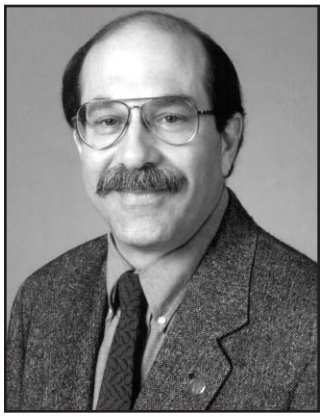
**Russell S. Richardson**

- *Transforming a Cookbook Lab* (exercise)

**Marsha Lakes Matyas**

The Physiologist
Vol. 46, No. 5, 2003

## Animal Care and Experimentation Committee



The Animal Care and Experimentation Committee (ACEC) is charged with overseeing all issues related to the procurement, use, and care of animals for research and teaching and with advising the APS Council of actions to be taken or programs to be developed. The ACEC has been particularly busy the past year dealing with issues related to the use of animals in medical and veterinary education. The committee has also developed new plans and maintained ongoing programs that support and defend the use of animals in physiology research and contribute to the APS Strategic Plan. An important goal of the Strategic Plan is to develop a dynamic advocacy program with strong member involvement to educate and inform the public, the government, and other key audiences about the importance of physiology and the critical role of animal research.

The most important issue addressed by the Committee this past year was the use of animals in medical and veterinary education. The use of dogs in basic science laboratory exercises at the UCSD School of Medicine was criticized earlier this year by animal rights groups such as the Physicians' Committee For Responsible Medicine (PCRM) and in editorials in the *San Diego Union-Tribune.* In response, APS published an article in the op-ed pages of the *San Diego Union-Tribune* ("UCSD Dog Labs Do Have Value"). This commentary, authored by APS President **Barbara Horwitz**, refuted arguments by animal rights groups such as the PCRM, who claim that the use of dogs and other animals in medical school teaching labs are obsolete exercises that ought to be eliminated. As a result of this and other recent incidents involving challenges to the use of animals in education, ACEC will begin groundwork this year on the development of guidelines for the use of animals in teaching. With approval from APS Council, this new APS Policy would provide schools and the public with the Society's perspective as to how such decisions should be made regarding the use of animals in education.

On the regulatory front, the USDA issued a proposal this year that would require maintenance of expanded animal health records under the Animal Welfare Act. The ACEC and APS took a leadership role in response by sending comments to the USDA, posting a Regulatory Action Alert on the Legislative Action Center on the APS Website, and working with numerous other organizations to develop their comments and mobilize their members. The APS letter was written up in a June 5, 2003 article in the *Washington Fax*. It is extremely important that the USDA receive comments from informed individual citizens (*i.e.,* members of APS) when such issues arise to counteract the well-developed input from the animal rights community. Thus, the ACEC encourages all APS members to become familiar with the Legislative Action Center on the APS Website, which greatly facilitates the ability of members to be heard in Washington.

A continuing success again organized by ACEC this year was the IACUC training program held at EB 2003 in San Diego, CA. This four-hour symposium was open to all EB attendees, and was entitled "IACUC 101 For Scientists." It was similar to the highly successful APS Public Affairs Symposium held last year at EB 2002. This year's symposium was underwritten by APS as well as ASPET, AAI, ASNS, AAA, FASEB, and the NIH Office of Laboratory Animal Welfare (OLAW). The goal of this course was to provide scientists with focused training to improve their performance on and interaction with IACUCs. The symposium was modeled after the "IACUC 101" program developed by a group of IACUC administrators, and included presentations by APS Councillor **J.R. Haywood** and ACEC Chairman **John N. Stallone**. Representatives from AAALAC, USDA, and NIH/OLAW again answered questions after each presentation. Comments received from oversight agency representatives and the audience again uniformly described the symposium as highly successful in elucidating the operation of the IACUC as well as the expectations of the regulatory agencies. The opportunity for direct interactions between investigators and regulatory representatives was also deemed highly valuable. Due to the continued success of this program, a similar symposium will be offered at EB 2004 in Washington, D.C.

The ACEC is continuing the development of IACUC guidelines for the assessment of pain and distress in animal models of exercise physiology. The level of awareness regarding these issues in the research community has gradually increased during the past 15 years as the IACUC protocol approval process has evolved. It is appropriate for the APS to provide guidance that will help IACUCs fulfill their oversight responsibility. At the moment there is relatively little documentation available to help IACUCs make determinations about animal models in certain areas of physiology. Physiologists need to be involved in developing that guidance as a way to avoid excessive regulation as well as identify effective and humane animal research models. Thus, upon the completion of this first resource, the ACEC intends to develop additional guidelines in other areas of physiology.

In the coming year, the ACEC will continue to work on ongoing concerns related to the use of animals in research. The committee will also work on new projects, including the development of guidelines for the use of animals in education, strengthening APS collaborations with state societies for biomedical research to enhance the society's effectiveness with congressional advocacy and public outreach, and counteracting the growing efforts of animal activists groups to undermine public support for health charities that fund animal research.

The ACEC again strongly urges APS members to become

involved individually by expressing their support for the use of animals in research and teaching and their opposition to excessive regulatory burden, to their state and national government leaders. The use of the APS "Legislative Action Center" in the Public Affairs pages of the APS website will greatly facilitate this process by enabling APS members to generate letters to their Senators and Representatives using the "Legislative Hot Zone" feature. It is crucial that individual members join with professional societies such as APS in making their voices heard if we are to preserve our privilege to use animals in research and teaching. ❖

*John N. Stallone, Chair*

- Council accepted the report of the Animal Care and Experimentation Committee.
- Council approved a motion to change the tenure of the ACE Committee Chair from 3 to 4 years.
- Council approved the creation of a new position—Past Chairperson—on the ACE Committee.
- Council approved a motion to charge the ACE Committee with assessing all existing materials and data for the use of animals in medical/veterinary education and work with the Education Committee to develop a white paper.

## Awards Committee

**General Information.** This year again, the majority of the Awards Committee's efforts have been related to reviewing applications for six awards: the APS Postdoctoral Fellowship in Physiological Genomics, the Research Career Enhancement Award, the Teaching Career Enhancement Award, the Arthur C. Guyton Award for Excellence in Integrative Physiology, the Shih-Chun Wang Young Investigator Award, and the Lazaro J. Mandel Young Investigator Award.

During the 2001-2002 year, the number of applications for the postdoctoral fellowship awards had declined, despite a fairly aggressive advertising campaign. This year that trend was reversed, and we received 35 applications, which is similar to past "good" years. The number of applications for the other awards has remained steady. Female award recipients still lag behind based on the ratio of female:male applicants for all awards. The Committee has not been able to determine why this is so, or come up with any feasible way to balance the gender distribution.

**Review Criteria.** We now have established review criteria for each of the awards. The criteria give a relative weighting to the various parts of the application (applicant, host, project, etc.). The Committee, especially new Committee members, found these guidelines very helpful for comparing competing applications. In the process of establishing these criteria, we identified some additional information that we would like to see included in the application.

**Postdoctoral Fellowship Program.** This year the APS Council asked us to evaluate the postdoctoral fellowship program. **Martin Frank** prepared a historical review of this program and sent out a survey to all past recipients of a Fellowship award. Review of the 14/17 surveys that were returned showed that: 1) most recipients used predominantly a systems approach to their graduate studies, but switched to a predominantly molecular approach for their postdoctoral work; 2) about 2/3 of the recipients are now employed in academia; and 3) in their academic position, four are assistant professors, two still postdocs, one a medical student, and the rest research scientists with various titles. Our evaluation of the program is that it is successful, needed, and should be continued. We identified a couple of issues that we asked Council to consider to improve the program.

**Bowditch Award Lecture.** This year Council also asked us to make a recommendation regarding the age limit for Bowditch Award recipients. The award is to be made to an outstanding "young" investigator, with "young" being defined by age. Since its inception, the age limit has increased from 35 to 42 years. The Committee's discussion was that there are outstanding investigators under the age of 42, but that the current philosophy is that a "junior" investigator is someone at the Assistant Professor level, and this can be someone in their mid-40's. Thus, we recommended setting the age limit at 45 years at the time of the award presentation.

**Young Investigator Awards.** For several reasons, the monetary value of the Young Investigator awards is different. The Committee feels that it would be better if the awards could be adjusted so that the monetary value of the award is the same for all three awards. We asked Council if it were possible to set a value for these awards.

**2003 Awardees**

***Postdoctoral Fellowship Awards in Physiological Genomics***

We received 35 applications and because of the current fiscal situation awarded only two postdoctoral fellowships. The Committee recommended that the awardees be Ryan Streeper, University of California San Francisco, San Francisco, CA, and Eric Lazartigues, University of Iowa College of Medicine, Iowa City, IA. Based on the new funding scale, these awards were a $32,000 stipend and $3,500 mini grant for the first year.

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

The RCEA and TCEA Awards are designed to enhance the career potential of regular APS members. The RCEA supports short-term visits to other laboratories in order to acquire new skills or attendance at a course directly related to a particular research methodology. The TCEA provides funds for the development of innovative and widely applicable programs for teaching physiology.

*(continued on page 266)*

*(continued from page 265)*

For the October, 2002 deadline, we received eight RCEA and three TCEA applications. We recommended funding five of the RCEA awards to: **Michael J. Fay**, Midwestern University, Downers Grove, IL; **Shakeeb H. Moosavi**, Harvard School of Public Health, Boston, MA; **Suzanne M. Schneider**, University of New Mexico, Albuquerque, NM; Ping **Ming Wang**, Georgia Institute of Technology, Atlanta, GA; and **Lei Xi**, Virginia Commonwealth University, Richmond, VA. We recommended funding one of the TCEA awards to **Corey L. Cleland**, James Madison University, Harrisonburg, VA.

For the April 15 deadline, we received seven RCEA and one TCEA applications. We recommended funding of four RCEA awards to: **Nancy L. Kanagy**, University of New Mexico School of Medicine, Albuquerque, NM; **Richard M. McAllister**, Kansas State University, Manhattan, KS; **Katherine Janet Rennie**, Colorado Health Science Center, Denver, CO; and **Steven J. Swoap**, Williams College, Williamstown, MA.

The Committee did not recommend funding the TCEA application.

***Young Investigator Awards***

The APS has three Young Investigator Awards: the Arthur C. Guyton Award for Excellence in Integrative Physiology, the Shih-Chun Wang Young Investigator Award, and the Lazaro J. Mandel Young Investigator Award.

The Arthur C. Guyton Award was established in 1993 and is awarded to an investigator who has demonstrated outstanding promise in research that utilizes quantitative and integrative approaches and feedback control system theory for the study of physiological function. The recipient cannot hold an academic rank higher than Assistant Professor. This year we received two applications for the award. The Committee recommended that the awardee be **John P. Collister**, University of Minnesota, Rochester, MN.

The Lazaro J. Mandel Award was established in 2000 in memory of Lazaro Mandel, Professor of Physiology at Duke University. The award is given to an individual demonstrating outstanding promise in epithelial or renal physiology, who holds an academic position no higher than Assistant Professor. We received five applications for the award this year, and recommend the awardee be **Lori A. Birder**, University of Pittsburgh School of Medicine, Pittsburgh, PA.

This year the Shih-Chun Wang Award was not available.

The Committee has worked hard this year, reviewing applications and selecting the best recipients, reviewing the postdoctoral fellowship program, establishing criteria that will ensure consistent reviews, and following the trends in total applications submitted and gender distribution. I would like to personally thank each Committee member for the time and effort they have put forth to ensure that we met our goals. ❖

*Pat Preisig, Chair*

- Council accepted the report of the Awards Committee.
- Council accepted a change to the wording clarifying the experimental approach that meets the criterion of the Postdoctoral Fellowship award.
- Council approved the requested changes to the Postdoctoral Fellowship program requiring that: the mentor/host be an APS member at the time the application is submitted, and remain a member for the duration of the award; encourage the recipient of the award to become an APS member; attempt to obtain financial support from Industry for the program.
- Council approved the motion requesting that two additional pieces of information be included on all 3 of the Young Investigator Award (Guyton, Wang, and Mandel) application forms.

## Career Opportunities in Physiology Committee

At the recent *Experimental Biology* meeting in San Diego, the Career Opportunities in Physiology Committee sponsored a Careers Symposium entitled "The Drug Discovery Process: Opportunities for Industry—Academia Collaboration." Four scientists from academia, the pharmaceutical industry, and the US Food & Drug Administration spoke to an audience of about 100 undergraduates, pre-doctoral students and postdoctoral fellows. They spoke about their experience in industry or in government or academia with regard to their interactions with the pharmaceutical industry. The session included an overview of the various steps in the drug development process. The speakers gave an overview of their jobs and responsibilities and also spoke about the personal factors that led them towards these positions. The program was well-received. The PowerPoints from the session are available on the Careers Web site (http://www.the-aps.org/careers/careers1/GradProf/symp2003.htm).

The APS Undergraduate Summer Research Fellow program is entering its fourth year. Last year's awardees attended the Experimental Biology meeting in San Diego, with several presenting posters or talks on their research from last summer. This year, we received another large number of excellent applications, and a new class of 12 awardees was granted research opportunities for this summer. Many of the fellows are leaning towards a career in research, and it is our hope that the research experience afforded them by this program will stimulate their interest and commitment to this path.

Our new APS Careers Brochure entered production during this past year. It is a handsome pamphlet that is informative for students between middle school and college, and for the general public. Copies of the brochure are available from the APS Education Office. A new Careers Poster, based on the brochure design, was also produced this year and will be distributed to undergraduate campuses this summer to encourage students to consider a career in physiology. The poster emphasizes the new Careers website as a valuable source of information.

This year, the Committee is focusing on developing an outreach presentation package that APS members can use to speak to school groups and the general public about physiology. The package will consist of one or more PowerPoint presentation files that would incorporate a variety of illustrations and informational slides about career opportunities in physiology and the importance of physiological research. The concept is that these files would contain slides appropriate for different age groups, so that individual APS members could select the items relevant for the specific topic and audience they were addressing. The package will also contain slide templates so that each member can add his or her own illustrations and text to fit the specific group that will be addressed. It is hoped that these will be made available to APS members via the APS Web site.

The Career Opportunities in Physiology Committee and the Education Office launched a major revision of the APS Careers Web site early this year as a resource for students (from middle school through graduate school) and recent graduates from physiology programs who are seeking to learn more about educational programs and career opportunities in the physiological sciences. APS members are encouraged to explore this site and to recommend it to their students, as well as use it for themselves. You can access the site from the APS home page (keep choosing the "Careers" option in the menus presented) or access the site directly at http://www.the-aps.org/careers/careers1/index.html.❖

*Francis L. Belloni, Chair*

- Council accepted the report of the Career Opportunities in Physiology Committee.
- Council approved the Careers in Physiology symposium at EB 2004.
- Council approved the Summer Undergraduate Research Fellowship Program for 2004 and agreed to fund up to 12 fellowships in 2004.
- Council approved funding for a fall Committee meeting in Bethesda, MD.

## Committee on Committees

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

This year, the Committee on Committees undertook a major overhaul of the way in which nominations are solicited and processed. Concerns had arisen that the process had become cumbersome and unfair. Moreover, because there was the widely-held impression that individuals needed to secure multiple nomination forms to have any hope of selection, some sections appeared to be disadvantaged in the nomination process, and at the very least, talented and well-qualified individuals were often unwilling to make the extraordinary effort needed to solicit large numbers of forms. Similarly, although the process generated reams of paper, which had to be duplicated and circulated to all committee members before the committee meeting held at Experimental Biology, often the additional nomination forms did not add significant additional insights into the candidate's qualifications for and commitment to the charge of the appointment sought. Likewise, the process appeared to reward numbers and candidates were not always the beneficiaries of an informed discussion due to the brevity of the actual face-to-face meeting at EB. Overall, it was the impression of the Committee on Committees that it was hampered in its charge to identify and nominate the best among our members for committee service.

To address these concerns, the Committee on Committees held a one-day retreat in July 2002 that was led by outgoing chair, **Hannah Carey**. At this meeting, the sectional representatives to the Committee on Committees made a commitment to the idea that their role was twofold—to identify and promote members of their section who might serve on committees, but then to set aside section affiliations to work with the committee as a whole to nominate the best-qualified individuals to serve the society, keeping in mind the desire to promote diversity and the involvement of younger members in the committee structure. To discharge this second role in a more informed way, the Committee on Committees designed two new forms to solicit nominations. The two-page Candidate Information form now includes information about prior activities relevant to the committee on which the individual wishes to serve, a statement of interest, information about prior APS service, and citations to two recent publications as well as

*(continued on page 268)*

(continued from page 267)
a statement of academic interests. The one-page Endorsement Form, on the other hand, is used by someone who knows the candidate, to comment on the ability of that individual to carry out committee responsibilities. In a major procedural shift, the Committee on Committees agreed that only one Endorsement Form would be accepted per nominee. Candidate Information forms would also be accepted without an endorsement, and then forwarded to the self-nominee's section to solicit endorsement from the section steering committee. All of the materials involved were made available electronically via the APS website, allowing electronic dissemination of the nominations to committee members. No nominations were removed from consideration ahead of the EB meeting, and the meeting of the Committee on Committees at EB was doubled in length to allow full discussion of all candidates. Finally, nominations received for a specific committee were forwarded to the chair of that committee prior to EB, for input as to each individual's suitability for service.

After this first year's experience with the new process, the Committee on Committees is very gratified with its apparent success. It was obvious at the meeting held at EB that members could provide a more informed perspective on candidates under consideration, and also that the information available allowed section representatives to support individuals from outside their section if they appeared to be a more-qualified candidate for a given committee opening. Committee members also commented how helpful it was to have input from committee chairs as to the characteristics that would make for an effective new member. Other than suggesting minor modifications to the Candidate Information form, and requesting that the nomination web page contain links to the charges for each of the committees with vacancies, the Committee on Committees recommended that the process continue essentially unchanged in 2004. There was, however, a substantial decline (185 to 76) in the absolute number of candidates brought forward for consideration. However, inspection has revealed that a large portion of this decline derived from the fact that the Committee on Committees will no longer hold over nominations from one year to the next, believing that those interested in service on committees should be required to indicate a continuing interest and to provide updated information about qualifications. Overall, the process as currently constituted is "self-driven," and the section representatives agreed to stress this message when communicating with their constituencies. The Committee on Committees is eager to consider the qualifications of all APS members with an interest in serving the Society, and hopes that many will consider applying in the coming year.

Based on the process described and the committee's lively deliberations at Experimental Biology, the Committee on Committees recommended individuals to fill vacancies on a range of APS standing committees, as follows:

| | |
|---|---|
| Animal Care and Experimentation | 2 plus chair |
| Awards | 2 |
| Career Opportunities in Physiology | 3 plus chair |
| Communications | 2 |
| Ray G. Daggs | 1 |
| Education | 2 plus chair recommendation |
| FASEB Publications & Communications | 1 |
| Finance | 1 |
| International Physiology | 1 |
| Long-Range Planning | 1 |
| Membership | 1 |
| Perkins Memorial Fellowship | 2 |
| Porter Physiology Development | 3 |
| Public Affairs | 2 plus co-chair |
| Publications | 1 |
| Senior Physiologist | 2 plus chair |
| Women in Physiology | 1 |

The Committee on Committees also recommended an individual to represent the APS on the AAMC Council of Academic Societies.

The Committee on Committees restated charge is to identify the best individuals to fill committee vacancies, regardless of sectional affiliation. However, all other things being equal, the committee seeks to instill diversity in the committee structure on the basis of section of membership, geography, gender and seniority. Thus, the APS members nominated to fill vacancies had the following sectional affiliations:

| | |
|---|---|
| Cardiovascular Section | 7 |
| Cell & Molecular Physiology Section | 7 |
| Central Nervous System Section | 2 |
| Comparative Physiology Section | 0 |
| Endocrinology & Metabolism Section | 1 |
| Environmental & Exercise Physiology Section | 6 |
| Gastrointestinal & Liver Physiology Section | 0 |
| Neural Control & Autonomic Regulation Section | 1 |
| Renal Section | 2 |
| Respiration Section | 1 |
| Teaching of Physiology Section | 3 |
| Water & Electrolyte Homeostasis Section | 3 |

There were eight members less than 45 years of age nominated for committee vacancies and 12 women nominated.

The membership is urged to consider serving the society as a member of one of its standing committees. Applications can be submitted via the APS website, and are due (with or without an accompanying endorsement form) by January 15, 2004, although earlier submissions are welcome. Applications received without an endorsement will be forwarded to the section of primary affiliation for support. Nominations are then reviewed by chairs of committees on which there are vacancies, and by the Committee on Committees as a whole. At their meeting at Experimental Biology, the Committee on Committees develops their recommendation for each committee vacancy, along with alternates, and submits this for approval by Council at their July meeting. Approved nominees begin their term of

appointment the following January. Those who are unsuccessful at securing a committee appointment initially are encouraged to re-submit their credentials for consideration for the same or another committee in the next cycle. ❖

*Kim E. Barrett, Chair*

- Council accepted the report of the Committee on Committees.
- Council approved the slate of nominees for committee vacancies with minor exceptions.

## Communications Committee

The 2000 Strategic Plan did not lay out specific goals for the Communications program, but it recommended communications aspects in a number of goals and objectives specified for other Society activities. It is within this framework that we have derived our main goal as a committee: to provide the public with more information about physiology and the APS through media and public outreach. Five objectives (implied but not stated in the strategic plan) are critical to achieving this goal:

**Objectives:**

To attract attention to APS programs and the science published in APS journals, and presented at APS meetings and conferences; to educate people about achievements in physiology and the contributions of the APS; to teach APS members how to communicate their work to the public and the media; to develop public outreach materials concerning physiology; to oversee APS-AAAS Mass Media Science and Engineering Fellowship.

In the following report, Communications activities have been divided and explained according to these objectives.

To meet its communication goals the APS engaged the services of public relations consultant Donna Krupa in 2000 and APS Communications Specialist Stacy Brooks in 2001. Krupa focuses on the APS journals and APS conferences, while Brooks focuses on internal awards programs, fellowships, committee issues, internal routing and agency support. An interdepartmental Communications team deals with day-to-day issues and consults the Communications Committee when its input is needed. The in-house team is comprised of Martin Frank, Marsha Matyas, Margaret Reich, Alice Ra'anan, Sue Sabur, Linda Allen, Stacy Brooks and Donna Krupa.

The Communications Committee is chaired by **Andrea Gwosdow**. The members of this six-person committee are Gwosdow, **Gregory Fink**, **Judith Neubauer**, **David Harder**, **Kawanza Griffin** and **Hannah Carey**.

**Objective 1. To attract attention to APS programs, science published in its journals, and presented at its meetings and conferences.**

*Journal Release Program.* The Communications Office publicizes the science published in APS journals through the "journal release program." Each month, abstracts are selected according to their newsworthiness. These abstracts are summarized and compiled into press releases that are sent out to science writers and media outlets. Since APS journal editors and peer reviewers have a first look at the scientific findings submitted to our journals, they have been asked to identify newsworthy articles as have the APS staff copy editors. APS journal supervisors review draft releases from their respective journals for flaws that may have occurred while synopsizing the full articles.

To date, featured journals have included:

*American Journal of Physiology*
- *Gastrointestinal and Liver Physiology*
- *Regulatory, Integrative and Comparative Physiology*
- *Endocrinology and Metabolism*
- *Heart and Circulatory Physiology*
- *Renal Physiology*
- *Lung Cellular and Molecular Physiology*

*Journal of Applied Physiology*
*Physiological Genomics*
*Advances in Physiology Education*
*Journal of Neurophysiology*

*Meetings and Conferences.* The Communications program also highlights research presented at APS-sponsored meetings and conferences. Krupa works with the conference organizers to identify abstracts likely to be of media interest. Press releases are developed for chosen abstracts and are then distributed to local and national media. For some of the smaller conferences, related journal article releases are distributed along with the conference releases to underscore the connection with APS.

This year, we have done media outreach for the following APS conferences: "The Power of Comparative Physiology: Evolution, Integration, and Application" (August 2002); Experimental Biology 2003.

*APS Awards Program Publicity.* APS provides hundreds of thousands of dollars in fellowships each year to programs that benefit scientists, students (kindergarten through postdoctoral levels), teachers and the lay public. These programs have the potential to draw positive attention to APS. Since June, we have highlighted several APS programs geared to students, the educational community and the discipline of physiology. Releases on APS programs are typically distributed locally to both the scientist's hometown media and their institutional press offices. The following programs have been highlighted: Lazaro J. Mendel Young Investigator Award; Giles F. Filley Memorial Awards; Arthur C. Guyton Award; Frontiers in Physiology, Summer Research Teachers Program; and 2003 Distinguished Lectureship Awards.

*(continued on page 270)*

(continued from page 269)

APS also promotes its annual elections by distributing a press release announcing its new President, President-Elect and Councillors.

*Measuring Results.* The APS now subscribes to a clipping service that searches newspapers, magazines, internet publications and other media outlets for articles that mention APS. The clips received enable us to track the source of APS media coverage, be it from Communications Office promotional efforts or from another source. The number of clips that each story receives also helps us gauge trends in media topics of interest as well.

**Objective 2. To educate people about achievements in physiology and the contributions of the APS.**

*Timeline of Physiology.* The APS Timeline of Physiology was originally created by Krupa as a general marketing tool for the media. The Communications Committee helped identify defining events and discoveries in the history of physiology. At EB 2002, APS members contributed nearly 50 suggestions for additional entries to be included on the timeline. The Communications Committee and Office reviewed all the suggestions and chose 25 major achievements to feature on the main timeline. The History of Physiology group reviewed and commented on the document following EB 2003. Some of their comments were incorporated into the final version. The timeline will be printed as a poster and will also be available electronically on the APS web site.

**Objective 3. To teach APS members to communicate their work to the public and the media.**

*Communications Symposium at EB 2003.* The APS Communications Committee hosted a symposium entitled "Making Science News" at EB 2003. Organized primarily by Gwosdow, Brooks and Krupa, the program was intended to acquaint scientists with the media and to demonstrate the steps involved in converting a research paper into a news story. The first part of the program featured reporters from newspaper, radio and television discussing the fundamentals of each medium and practical advice on presenting scientific information to journalists. In the second section, APS publicist Krupa led a workshop on how scientists can organize the components of one's research into a media-friendly format.

Gary Robbins, science writer for the *Orange County Register*; Erik Anderson, science reporter at KPBS San Diego; and Barbara Ware, formerly of FOX News in New York comprised the panel of journalists. They gave their insight into what makes science news and the best practices for getting scientific research covered.

The second part of the symposium was a workshop led by Krupa. She reviewed media basics including the different types of reporters and who should to receive information at different media outlets. Krupa also gave examples of the coverage the APS media relations program has yielded and how she frames stories in a way that will get the attention of a busy reporter on deadline.

Participants followed her through an exercise in messaging that converted their research into four media-friendly points. These points can easily worked into a press release. Finally, she reviewed "Interview Do's and Don'ts" to acquaint participants with what happens on an interview and the best ways to respond to reporter questions.

The Communications Committee was pleased with its first symposium and believes there is value in having a communications/public outreach presence more often than the one-every-three-year rotation (alternating between the Communications, Public Affairs and Animal Care and Experimentation Committees) that is currently allowed. The Public Affairs Committee has given its EB 2004 symposium slot to the Communications Committee. A similar symposium featuring DC-based science journalists and a 25-person, registration-only media workshop are planned as a follow-up.

**Objective 4. Develop public outreach materials concerning physiology.**

*Public Outreach "Tool Kit."* At the EB 2003 Communications Committee meeting, the group discussed grass roots outreach and the development of a public outreach "tool kit." This tool kit could include committee outreach write-ups along with links to other APS resources from the Careers and Education web pages (powerpoint slides, related presentation materials, etc.). It would also include links to state societies for biomedical research.

Gwosdow developed a sample how-to sheet entitled "Communicating with the Public: Parent-Teacher Organizations." The committee decided to research existing materials on the APS web site and link relevant pieces along with Gwosdow's sample. After evaluating whether members utilize this resource, the committee will decide whether to expand the tool kit for other audiences and topics.

Subsequent topics could include: how-to host a journalist at your lab, how-to arrange/go on a media outlet visit, how-to get involved in your state society for biomedical research, etc.

**Objective 5. Oversee APS-AAAS Mass Media Science and Engineering Fellowship**

*Mass Media Fellowship.* The Communications Committee oversees this program that encourages an exchange between science and journalism. This year, the committee evaluated 18 fellowship applications and recommended funding for Alison Burggren who will spend 10 weeks in the newsroom of the *Sacramento Bee* this summer.

2003 marks the fifth year of APS support of a Mass Media Fellow. Council has asked the Communications Office to perform a follow-up evaluation of the program. To do this, the communications office distributed a brief questionnaire to former APS fellows to solicit overall opinions on the program.

Of the six former fellows (APS-supported or APS student members), two responded. Both were very positive in their answers. Emily Singer, supported in 2002, said, "My summer at the *LA Times* was the best possible training I could get—what I learned there about the profession in three months rivals what I learned at UCSC in nine months (in a graduate level science writing program)." Singer is currently pursuing a career in science journalism and will

spend this summer as an intern at *New Scientist* magazine in London. Rachel Davis, supported by the APS in 2001, said of her mass media internship, "The fellowship has given me more confidence in my writing and has taught me good reporting skills. It also opened my eyes to the many ways one can enjoy writing, not only as full time writing job, but in many aspects of life and work. My life has certainly been enriched by this experience." Davis returned to the research realm and is now working as a lab manager at Rockefeller University.

The fellowship is now in its 28th year and boasts an alumni roster of more than 400 scientists. According to AAAS: "The program's impact extends beyond the 10 weeks Fellows spend at their summer sites. A significant number of program alumni have been encouraged by their fellowship experiences to pursue careers related to science journalism. Others working as scientists or engineers become more adept at describing scientific concepts to reporters who call their institutions for information. Some hire on as freelancers, or have otherwise incorporated new activities related to public understanding of science into their academic or professional work in science and engineering." ❖

*Andrea Gwosdow, Chair*

- Council accepted the report of the Communications Committee.
- Council approved funding to print a two-year supply of the timeline poster.

## Education Committee

The Education Committee promotes awareness, understanding, and education in physiology at all levels, and often works with other APS committees to achieve this goal. This past year has been particularly productive, with both new activities and a continuation of past successful projects.

**Graduate Education Professional Skills:** A working group representing the Education Committee, Careers Committee, Women in Physiology Committee, and Association of Chairs of Departments of Physiology, has drafted a set of skills that should be developed by trainees at the graduate, postdoctoral, and early career levels. The group is co-chaired by **Robert Carroll** (for APS) and **William H. Dantzler** (for ACDP), and includes **Francis L. Belloni** (APS Careers in Physiology Committee), **Vernon S. Bishop** (ACDP), **Carole M. Liedtke** (APS Women in Physiology Committee), and **William S. Spielman** (ACDP). In fall 2003, APS members will be invited to comment on the draft version of this project in the "Members Only" section of the APS web site.

**Student Member Listserv:** A listserv was developed in May 2003 and is being coordinated by the Education Office to provide information and discussion options for student members of the APS. The listserv allows student members to receive notices and information of special interest to them and to carry on discussions outside specific Section listservs. The listserv provides an added benefit for student members. For additional information, contact education@the-aps.org.

**APS Archive of Teaching Resources:** In its first full year of operation, the Archive has grown in both size and diversity of resources. About 60% of the Archives' 230+ resources are appropriate for use at the graduate and professional school levels. These resources include not only fully catalogued and searchable *Advances in Physiology Education* articles (N=140) but also graphics, simulations, webs, PowerPoint presentations, laboratory activities, and other resources contributed by individual physiology educators. In January 2003, the Education Office began tracking the Archives usage, as indicated by web statistics and by user registration. Total number of "hits," that is, pages accessed at the Archive website ranged from more than 75,000 in January to nearly 43,000 in March (Figure 1). Although this is the first year these data have been collected, other digital libraries (such as the American

*(continued on page 272)*

**Figure 1. Total hits of APS Archive web site, January-May, 2003.**

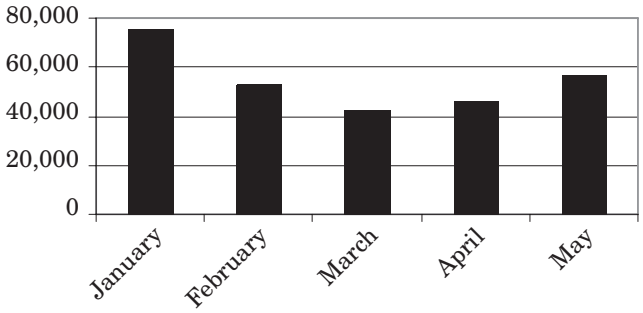
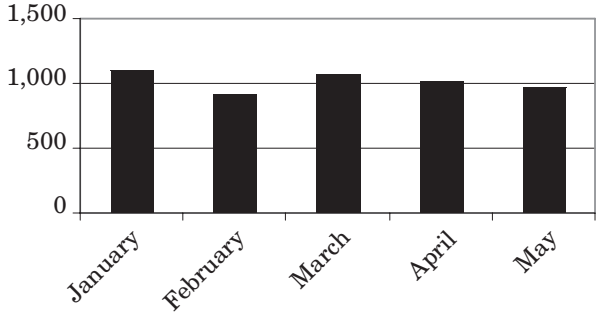



**Figure 2. Total unique users of APS Archive web site, January-May, 2003.**



(continued from page 271)
Society for Microbiology's MicrobeLibrary) experience heavier usage at the beginning and end of each semester, when faculty are preparing materials for the next course. The Archive usage stats will continue to be monitored by APS staff. It is encouraging to note, however, that the number of unique users who came to the Archive remained consistently high throughout the spring (Figure 2), ranging from 912 to 1,100. Furthermore, by April 2003, 730 individual users had registered and downloaded at least one resource from the Archive.

**Undergraduate Physiology Education**

*The Human Anatomy and Physiology Society (HAPS).* At the May 2003 HAPS meeting in Philadelphia, Withrow Gil Wier, Professor of Physiology, University of Maryland, spoke on "Secrets Of Muscle Physiology: What The Textbooks Don't Tell You." APS member and HAPS liaison, **Dee Silverthorn**, gave a report at the HAPS business meeting on joint APS-HAPS activities. Silverthorn also presented a hands-on workshop, along with Melinda Lowy and Marsha Matyas from the APS Education Office, on "How to Make a Good Lesson Even Better: Using the APS Archive of Teaching Resources to Enhance Your Teaching." The workshop drew a capacity wall-to-wall crowd of 42 participants.

*David Bruce Awards:* The Education Committee has completed the development of guidelines and procedures for the new David S. Bruce Awards for Excellence in Undergraduate Research. The awards will be made each year at the Experimental Biology meeting to up to four undergraduate students who have submitted both abstracts for the meeting and award application materials. **Jeff Osborn** will coordinate the judging of the submitted abstracts for EB 2004

**K-12 Science Education**

*APS Summer Research Program for Teachers.* The Summer Research Program continues to work with teachers from across the nation, engaging them in biomedical research; building connections at the local level between teachers, students, and researchers; improving the teaching methods and curricular materials used by the teachers; and deepening the understanding of both teachers and students of how biomedical research is done and how animals are used in research. The program, now in its 13th year, has funding from three NIH institutes: NCRR, NIGMS; and NIDDK, in addition to the support provided by the APS. In addition, **George Tempel**, at the Medical University of South Carolina (MUSC) coordinates the participation of two to four teachers annually in the program. These teachers are supported by a grant to MUSC from the National Science Foundation. In 2002, the overall program supported the participation of 20 teachers from 16 states in a very intensive, yearlong professional development program.

*EB Workshop for Teachers and Students:* Education Committee member **Walter Ward** coordinated the APS workshop for local high school teachers and students at EB 2003 in San Diego. The teachers and students attending had an opportunity to hear an APS 2003 Distinguished Lecturer, **John B. West**, describe physiology studies at the top of Mount Everest, interact with a career panel that included both an experienced physiologist (West) and two postdoctoral fellows **(Martin Farias** and **Ollie Kelly**), have lunch with an APS member and go on a tour of the exhibits and posters with a physiologist. In the afternoon APS members assisted as students explored the factors that affect blood flow and blood pressure via the "Elvis" experiments, while teachers explored two new inquiry-based labs (build a working model of the digestive system; experiment with mechanoreceptors for the sense of touch) developed by APS Summer Research Teachers.

*Local Outreach Team Workshops.* In January 2003, the APS K-12 Programs Coordinator Kathleen Kelly, past Summer Research Teacher **Sandi Mahl**, and experienced LOT leader, **C. Subah Packer** from Indiana University School of Medicine traveled to Lincoln, NE to conduct a training session for the newest APS Local Outreach Team, led by **Janet Steele** at the University of Nebraska at Kearney. Since their training session, the Nebraska LOT has already led two workshops in June for local middle and high school teachers.

*My Health, My World.* In 2003, the APS will complete its long-term collaboration with Baylor College of Medicine's elementary science and health education program. In 2002, the staff and Maryland teachers, home school educators, and daycare directors field-tested the final K-2 unit, "My World and Me." The "My Health" materials have been so successful that a major science supplier for K-12 schools, Carolina Biological Supply, is now assembling and selling both the printed materials and supply kits to allow teachers to more easily implement the hands-on activities.

*International Science and Engineering Fair (ISEF) Awards:* The Intel ISEF brings together over 1,200 students from 41 nations to compete for scholarships, tuition grants, internships, scientific field trips and the grand prize: a trip to attend the Nobel Prize Ceremonies in Stockholm, Sweden. The 2003 ISEF was held in Cleveland, OH in May. Special Awards were given by 93 scientific, professional, industrial, educational, and governmental organizations in the form of scholarships, tuition grants, summer internships, scientific field trips, and equipment grants. The APS participates as a Special Awards Sponsor for ISEF, recognizing outstanding high school research projects in the physiological sciences, including cellular physiology, animal physiology, and neurophysiology. Four students receive cash awards ($1,000 First Prize, $500 Honorable Mentions), T-shirts, and a year's subscription to *NIPS* and *The Physiologist*. APS is one of the only biomedical research organizations that gives awards to students.

The judging team was led by APS Education Committee member **William Jackson** and included APS members **Michael Romero** and **Ulrich Hopfer** from the Department of Physiology and Biophysics at Case Western Reserve University in Cleveland, OH. The judging team selected the following awardees: APS First Place Award of $1,000: **Irene Yuan Sun**, a senior at Ben Davis High

School in Indianapolis, IN. Sun's project, "Gene expression analysis of synovial cells in response to impulsive shock," also won a Second Place Grand Prize Award in the category of Medicine and Health. APS Second Place Award of $500: **Daniel Jacob Sachs** won with his project, "Simvastatin activation of ryanodine receptor-mediated calcium channels may promote myolysis." Sachs is a senior at John Jay High School in Katonah, NY. There was a tie for the APS Third Place Award of $500 between **Anila Madiraju**, a senior at Marianopolis College in Montreal, Quebec, Canada, and **Truc Thanh Pham**, a senior at Suncoast High School in Riviera Beach, FL. Both students will receive $500 from the APS. Madiraju also was awarded an Intel Young Scientist Scholarship, and her project, "Silencing Cancer with RNA," was selected as Best of Category in Medicine and Health. Pham's project, "Effect of age on B-cell responsiveness to stromal cell-derived factor-1 (SDF-1) and B-lymphocyte chemoattractant (BLC)" also was awarded a Fourth Place Grand Prize.

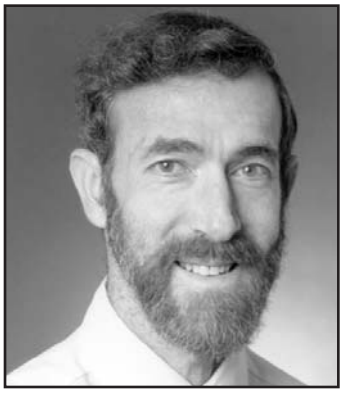
*Refresher Course (Morning) at EB meeting:* The Muscle Refresher Course at EB 2003 was organized by **George Ordway** and **Robert Hester**. The morning session was extremely well attended, attracting at least 250 attendees, most staying for the entire session. The majority of those attending were faculty at medical schools or colleges/universities who are currently teaching physiology. As has been done for the past three years, an afternoon workshop was held to expand on the topic of the morning session. The afternoon workshop was also coordinated by Ordway and Hester. This year's topic was human exercise and included hands-on demonstrations by a number of exhibitors (BIOPAC Systems, Inc, ADI Instruments (Powerlab), and iWORX). The workshop was highly successful, attracting 50 participants, the most since its inception. For 2004, the Refresher Course theme will be cell physiology. It will be organized by **Michael Romero** and **Jeff Freedman**. The afternoon session will again be devoted to laboratory instruction.

The Education Committee activities would be impossible without the expert leadership of Marsha Matyas and her staff in the APS Education Office. Many APS members interact with the Higher Education Coordinator, Melinda Lowy, as she directs programs related to graduate and medical education. Kathleen Kelly manages the Education Committee outreach activities in the K-12 environment, which increase the vitality and perception of physiology. Brooke Bruthers organizes the travel and a myriad of other essential functions for both the Committee and the Education Office. I invite you to visit the APS Education Office and its website (http://www.the-aps.org/education/index.htm) to learn more about the activities of the Education Committee. ❖

*Rob Carroll, Chair*

- Council accepted the report of the Education Committee.
- Council approved the requested funding for the continuation of the Summer Research Fellowship Program.
- Council approved posting a draft of the Professional Development Skills document on the "Members Only" section of the APS website for comments and suggestions from APS members.

## Finance Committee Report



During the Spring meeting of Council, the Finance Committee Chair reported that the Society's financial condition remains strong through sound management and investment practices. The Society's income has been growing slowly, but expenses are growing at a faster rate than revenue. During the spring meeting, the Committee reported to Council that the Three-Year Financial Forecast is showing a steady trend from $1 million in Net Revenue in 2000, to a projected $1 million in Net Expenses in 2006. In response to this trend and in accordance with the 2000 Strategic Plan, the Committee is continuing to investigate ways of increasing the flow of revenues to the Society through the development of new sources of income.

The need is tempered by the recognition that the Society does not have the clinical presence to command the attention of the most common sources of such funds, the pharmaceutical industry, in the same way as do the more clinically oriented societies. This, plus the obvious amount of time and effort that would be required to generate new funds suggested a limited move to fundraise should be advocated. Nevertheless, there seems to be enthusiasm for carefully targeted attempts to raise new funds.

Particular suggestions that were favored included:

Search for sponsors for the now large number of named lectureships. Only the Cannon lecture is supported by non-APS funds. It was felt that as a recurring event with a somewhat coherent theme in most cases, it might be possible to match such lectureships to specific companies on a multiyear basis and, thus, not be too labor intensive.

Search for a corporate sponsor for the annual publications dinner at EB.

Give serious thought to CME course appendages to EB or other meetings where registrants paid a fee that would more than cover expenses.

Have a mechanism (outside the EB Program Committee) for identifying symposia that might be attractive to specif-

*(continued on page 274)*

(continued from page 273)
ic companies who might then support them. This should include consideration of possible evening symposia at EB of a more translational/clinical nature, as done at other meetings.

The issue of how to better incent APS Conference organizers to take part of the fundraising burden remains an idea to be worked on. This is tempered by the trend of fewer APS Conference submissions. If we place a fundraising requirement on organizers, we might get even less submissions.

More grandiose ideas, especially those that would be labor-intensive, were not favored in the absence of a dedicated staff person to work on them. The already developed thrust in the area of planned giving/member donations is considered as in place.

At its business meeting last April, the Society announced a new APS Endowment fund. The Endowment was initiated with a $2.75 million investment from APS' reserves, and it will initially support existing award programs for the Porter Minority Development Program (budgeted at $40,000/year), Career Enhancement Awards (budgeted at $40,000/year), and the Undergraduate Summer Research Awards (budgeted at $30,000/year). The goal is for the APS Endowment to eventually raise another $7.25 million, with additional programs being funded as the Endowment increases. The new endowment will supplement $2.5 million in existing endowed funds increasing the total support for awards, grants, and fellowships from Society endowments to $5.25 million.

As directed by Council, the Society uses up to 4% of the value of its investments annually as operating income. Only that amount required to offset the cost of Society programs, other than the Journals Program, is withdrawn and the remainder continues in actively managed investment accounts. The Journals Program, by a 1995 Council mandate, is expected to generate a return of 10% annually. In the early 1990's, the reserves, which the Society depends on for approximately 7.5% of its operating revenue, almost doubled due to favorable market conditions. However, during the most recent three years, the down market has caused the Society's investments to decrease from $33 million at December 31, 1999, to $29 million at December 31, 2002. The recent market turnaround has increased the value of the Society's investments. As of June 30, 2003, the Society's reserves and APS Endowment have grown to a combined value of approximately $32 million.

**Society Budget**

The chair reviewed the 2002 budget versus actual income and expenses and presented the modified 2003 budget based on the 2002 results, as reviewed and approved by the Finance Committee at its Spring meeting. The Society employs a consolidated operating budget to manage overall operations. The consolidated budget is comprised of the individual budgets for the various cost centers; these include Publications, Membership and Meetings, Education, Public Affairs, Marketing, and the Executive, Information Technology, and Business Offices. For 2002, the year ended with income of $16,305,256 (including $1,327,285 allocated from the Society's investment income) and direct expenses of $14,437,156, plus general and administrative (G&A) costs of $1,603,041, for total expenses of $16,040,197. G&A costs (the sum of Executive, Information Technology, and Business Office expenses) are allocated to other Society offices based on each office's share of total salary expenses. Including the $1,327,285 investment income allocation, total operating revenue exceeded total operating expenses, resulting in an increase in net assets from operations of $265,059.

(continued on page 276)

**Table 1. A comparison of 2004 and 2003 domestic institutional prices.**

| Journal | 2004 | | | 2003 | | |
|---|---|---|---|---|---|---|
| | Print + Online | Print Only | Online Only | Print + Online | Print Only | Online Only |
| *AJP Consolidated* | $3,325 | $3,175 | $2,725 | $3,065 | $2,925 | $2,510 |
| *AJP-Cell Physiology* | 625 | 590 | 505 | 575 | 545 | 465 |
| *AJP-Endocrinology & Metabolism* | 430 | 410 | 355 | 395 | 380 | 325 |
| *AJP -Gastrointestinal & Liver Physiology* | 470 | 445 | 385 | 430 | 410 | 355 |
| *AJP-Lung Cellular & Molecular Physiology* | 420 | 400 | 340 | 385 | 370 | 315 |
| *AJP-Heart & Circulatory Physiology* | 865 | 820 | 705 | 795 | 755 | 650 |
| *AJP-Regulatory, Integrative & Comparative Physiology* | 590 | 570 | 490 | 545 | 525 | 450 |
| *AJP-Renal Physiology* | 430 | 410 | 355 | 395 | 380 | 325 |
| *Journal of Applied Physiology* | 1,050 | 1,010 | 865 | 970 | 930 | 795 |
| *Physiological Reviews* | 395 | 380 | 325 | 365 | 350 | 300 |
| *Journal of Neurophysiology* | 1,200 | 1,145 | 980 | 1,105 | 1,055 | 905 |
| *Physiological Genomics* | 245 | 235 | 205 | 225 | 215 | 190 |
| *News in Physiological Sciences* | 205 | 190 | 165 | 180 | 175 | 150 |
| *Advances in Physiological Education* | N/A | 45 | N/A | N/A | 40 | N/A |
| *The Physiologist* | N/A | 90 | N/A | N/A | 80 | N/A |

## APS Statement of Activities for the year ended December 31, 2002

| | Unrestricted | Temporarily Restricted | Permanently Restricted | Total |
|---|---|---|---|---|
| **Operating revenue:** | | | | |
| Subscriptions | $ 9,150,866 | $ - | $ - | $ 9,150,866 |
| Advertising and page charges | 2,017,229 | - | - | 2,017,229 |
| Reprints, and back issues | 1,037,323 | - | - | 1,037,323 |
| Grants | 753,737 | - | - | 753,737 |
| Conferences and meetings | 554,504 | - | - | 554,504 |
| Membership dues | 668,902 | - | - | 668,902 |
| Contributions | 249,430 | 211,508 | - | 460,938 |
| Manuscript handling fees | 301,932 | - | - | 301,932 |
| Other income | 177,008 | - | - | 177,008 |
| Net assets released from restrictions | 219,282 | (219,282) | - | - |
| Total Operating Revenue | 15,130,213 | (7,774) | - | 15,122,439 |
| **Operating expenses:** | | | | |
| Publications | 12,029,592 | - | - | 12,029,592 |
| Society general | 2,268,209 | - | - | 2,268,209 |
| Education | 533,768 | - | - | 533,768 |
| Marketing | 198,917 | - | - | 198,917 |
| Society programs | 1,299,227 | - | - | 1,299,227 |
| Total operating expenses | 16,329,713 | - | - | 16,329,713 |
| Operating change in net assets | (1,199,500) | (7,774) | - | (1,207,274) |
| Net realized loss on investments | (1,541,696) | - | - | (1,541,696) |
| Net unrealized loss on investments | (3,428,439) | - | - | (3,428,439) |
| Interest and dividends | 1,192,346 | - | - | 1,192,346 |
| Investment management fees | (372,545) | - | - | (372,545) |
| | | | - | |
| Total Investment Income | (4,150,334) | - | - | (4,150,334) |
| Change in net assets | (5,349,834) | (7,774) | - | (5,357,608) |
| Net assets, beginning of year | 35,641,103 | 851,527 | 12,500 | 36,505,130 |
| Net assets, end of year | $ 30,291,269 | $ 843,753 | $ 12,500 | $ 31,147,522 |

(continued from page 274)

The Council approved a 2003 budget of $16,589,350. After applying the entire investment allocation of $1,242,933 and the net revenue from Publications of $803,622, the budget showed Net Expenses of $207,297. Consideration was given to increasing the investment allocation from 4% of reserves to 5% in order to cover the deficit. Instead, Council authorized the Society's staff to find savings sufficient to cover the $207,297 deficit by year-end.

**Journal Subscription Pricing**

Council reviewed the Publications and Finance Committees' recommendations for 2004 journal subscription prices. It should be pointed out that journal publication is the major source of revenue for the Society and is key to its financial well-being. In 1995, the Council recommended that the journals' prices be set so as to generate a margin of approximately 10% to help defray the costs of the various Society programs. The Finance Committee recommended that 2004 subscription prices be raised by an overall rate of 8.5%. A comparison of 2004 and 2003 domestic institutional prices is shown in Table 1.

Nonmember individual subscription prices will continue to be 2/3 of the domestic institutional price. Beginning in 2002, APS members were provided online access to all journals at no cost.

**Society Reserves**

At its spring meeting, the Finance Committee reviewed the performance of the Society's investment managers. The investments are administered by four managers under the direction of our investment consultant, Smith Barney. As of December 31, 2002, the accounts had the following market values: Operating Reserve I $9,103,343, Operating Reserve II $8,644,731, Publication Reserve $8,839,259, Second Century Program Fund $2,449,470, Giles F. Filley Memorial Fund $706,259, Caroline tum Suden Fund $490,601, IUPS Fund $330,168, Perkins Memorial Fund $273,892, Shih-Chun Wang Fund $125,908, Rife/Guyton Fund $496,145, and the Lazaro Mandel Fund $123,635. The return on the managed accounts was –10.59% for the year ended December 31, 2002. The return on equities for 2002 was –24.73%, and the return on fixed income investments was 11.36%. The market value of the managed accounts at December 31, 2002 was $31,583,411.

Due to variable performance in the four managed accounts, each manager held between 24% and 26% of all invested assets. Based on a recommendation from the Finance Committee that was approved by Council, the accounts were rebalanced so that each of the four fund managers were allocated approximately 25% of all assets as of April 30th in accordance with the Society's investment strategy.

**2002 Audit**

The Finance Committee received the annual audit performed by Grant Thornton, LLP. In the opinion of the auditors, based on generally accepted accounting principles, the financial statements that follow present fairly the financial position of the Society as of December 31, 2002. ❖

*Peter D. Wagner, Chair*

● Council accepted the report of the Finance Committee.

## International Physiology Committee

The International Physiology Committee (IPC) of the American Physiological Society (APS) developed the "Latin American Initiative" project in the year 2000. The purpose of this Initiative is to strengthen the ties between the APS, the sister Physiological Societies of Latin America, and the physiologists working in the Americas. Today the

## APS Statement of Financial Position as of December 31, 2002

| ASSETS | | LIABILITIES AND NET ASSETS | |
|---|---|---|---|
| Cash and cash equivalents | $ 799,520 | Accounts payable and accrued expenses | $ 1,529,071 |
| Investments | 36,154,387 | Unearned revenue | |
| Accounts receivable | 479,231 | Subscriptions | 5,256,630 |
| Pledges receivable | 71,335 | Dues and other | 541,251 |
| Accrued interest receivable | 183,036 | Total liabilities | $ 7,326,952 |
| Advances to section editors | 570,779 | | |
| Prepaid expenses | 76,027 | Net Assets: | |
| Furniture, fixtures, and equipment | 140,159 | Unrestricted | $ 30,291,269 |
| | | Temporarily restricted | 843,753 |
| | | Permanently restricted | 12,500 |
| | | Total net assets | 31,147,522 |
| **Total assets** | **$ 38,474,474** | **Total liabilities and net assets** | **$ 38,474,474** |

Latin American Initiative constitutes the main focus of the IPC. Considering the awards for courses/symposia to be held during the next calendar year, the APS will have supported the realization of 16 courses/symposia in five Latin American countries including six courses in Argentina, four in Brazil, four in Mexico and one each in Venezuela and Guatemala.

The "Latin American Initiative" is now a well-known project in the Americas. This is reflected by the fact that the IPC now receives a large number of high quality applications. For this reason the challenge for the future is to expand the Initiative by securing new funds from additional sources than the APS. The IPC is hard at work looking for these new sources.

During 2003 the APS provided $5,000 to each of the following courses/symposia under the auspices of the "Latin American Initiative":

The International Training Postgraduate UNESCO Course: "Spectroscopic and Physiological Advances in Neurobiology." This course was organized by **Francisco Jose Barrantes** (Bahia Blanca, Argentina) and was held at the Institute of Bioquimica at the Universidad Nacional del Sur, Bahia Blanca, Argentina. The course consisted of six lectures held by scientist from Argentina, the US, Chile, Portugal and Germany. The course was attended on average by 15 graduate students, 10 PhD students, five postdoctoral students, five junior scientists and 12 senior scientists.

The workshop "Molecular Physiology of Vasoactive Peptides." This project was organized by **Adolfo de Bold** from the University of Ottawa, Canada and by the Heart Institute of the Argentinean Society for Clinical Investigation. The workshop was held in Mar del Plata, Argentina and consisted of 12 presentations by scientists from the US and Argentina. The audience was larger than 700 persons consisting of graduate students, medical students, basic scientists and clinicians.

The "Third International Symposium on Biochemical and Physiological Aspects of Muscle Research" was organized by **Hugo Gonzalez** (University of Maryland) and **Alicia Ortega** (National Autonomous University. Mexico). The course was held at the Faculty of Medicine of the National Autonomous University of Mexico City, Mexico. It consisted of 24 presentations by muscle research scientists from the US, Mexico, Germany, Hungary and Canada. The course attracted an audience of 225 persons including medical students, graduate students and basic scientists.

The Course "Biology of the Heart" which was organized by **Stephen Warburton** (New Mexico State University) and **Tobias Wang** (University of Aarhus, Denmark). This was a two-week, research-based course held at the Universidade Estadual Paulista, Department of Zoology, in Rio Claro, Brazil. The course was taught by 6 faculty members from Brazil, the US, England and Denmark and was attended by graduate students drawn from seven Universities across Brazil. ❖

*Hector Rasgodo-Flores, Chair*

- Council accepted the report of the International Physiology Committee.
- Council approved the requested funding for four new Latin American Initiative proposals for 2004.
- Council approved a motion for the International Physiology Committee to seek additional sources of funding for the Latin American Initiative.

## Joint Program Committee

**Experimental Biology 2003**

EB 2003 was held in San Diego, CA, April 11 through 15, 2003. All scientific and poster sessions were well-attended and overall enthusiasm for the meeting was high. EB 2003 featured two unopposed Techniques and Technology in Physiology Tutorial/Workshops on Friday and five "Cross-Sectional" Symposia.

As in past meetings, APS hosted six guest societies: The Microcirculatory Society, the Biomedical Engineering Society, the American Federation for Medical Research (AFMR), the Society for Experimental Biology and Medicine, and the Association of Latin American Physiological Societies.

Meeting attendance was excellent. Out of a total of 6,496 volunteered abstracts submitted, 2,521 (39%) were programmed by APS. The total meeting attendance was 12,734. This figure includes 9,800 registered scientists, 1,851 exhibitors, 94 high school students and teachers, 492 undergraduates and 497 guest and press registrants.

EB 2003 was the fifth year that the meeting was not organized around scientific themes. Themes were eliminated with the understanding that some other process could be employed to better facilitate "inter-Society" programming. However, it should be noted that a number of sections, cardiovascular (CV) in particular, has brought the issue back to the table to discuss. Their main concern is that a number of societies program posters in the area of cardiovascular research; therefore, a contiguous layout of CV posters on the exhibit hall floor may be more appealing. The obvious problems are logistics in programming across societies and different times for poster attendance. This is an issue that should continue to be discussed. In addition, efforts should continue to develop cooperative programs among societies. During EB 2003, APS and ASBMB cooperated to present two symposia on the "NHLBI Programs in Genomic Applications." Additionally, APS cosponsored a symposium organized by the American Society for Nutritional Sciences (ASNS) entitled "Glucagon-like Peptide 2: Function and Clinical Application."

*(continued on page 278)*

*(continued from page 277)*

EB 2003 marked the eighth Physiology InFocus program. Organized by the APS President **Barbara A. Horwitz**, the program topic "Physiological Implications of Oxidative and Nitrosative Stress" included four half-day symposia entitled, "General Overview and Disease Relevance," "Emerging Concepts in Oxidative and Nitrosative Signaling," "Cardiovascular Consequences of Oxidative/Nitrosative Stress," and "Pulmonary and Endocrine Consequences of Oxidative/Nitrosative Stress." Attendance was outstanding. The InFocus program was preceded by a workshop entitled, "Methods to Detect Oxidative and Nitrosative Stress," which was organized by **Matthew Grisham** and **Joey Granger**. The Physiology InFocus topic for EB 2004 will be organized by current President **John Williams** on the topic of "Large Scale Systems Biology."

EB 2003 was the fourth year to introduce two Techniques and Technology in Physiology Tutorial/Workshops. The first, on oxidative stress, is indicated above. The other tutorial was entitled, "Frontiers of *in vivo* Molecular Imaging: Crossroads Between Physiology and Pathology," and was organized by **Michael S. Goligorsky** and **Alan Verkman.** In addition, there were five "Cross-Sectional" Symposia developed to cut across sections: "AT-1 and AT-2 Receptors: Antagonists in Cellular Action?" "Lineage Specific Programming of Stem Cells into Tissues," "Mitochondrial Regulation of Cell Function," "Neuron- Glia Interactions in Nervous System Function," and "Peroxisome Proliferator-Activated Receptors (PPARs)."

**Experimental Biology 2004**

The Joint Program Committee (JPC) met during EB 2003 to begin, and again in June to finalize the program of symposia and featured topics for 2004.

The APS continues to be aware of the importance of including women and members of underrepresented minorities as well as junior scientists on the panels of invited speakers. By and large, the sessions scheduled this year showed this awareness. In addition, through the efforts of the Liaison with Industry Committee, the JPC understands the importance of including researchers from industry as speakers on symposia and featured topics. The Section Program Committees will be advised to remind applicants of these matters in considering participants for future proposals.

The 2004 Physiology InFocus program will include four sessions on the topic of Large Scale Systems Biology with sessions tentatively entitled, "Gene Expression: The Transcriptome," "Proteomics," "Large Scale Systems Biology," and "Applications of Systems Biology in Physiology and Disease." Two workshops in the same general research area are also planned entitled, "The Promised Land or Fatal Attraction? A Practical Overview of the Present and Future of Genetically Engineered Mice," and "Microarrays, Proteomics and Mass Spectrometry." Four cross-sectional symposia entitled, "Biological "Applications of Nanotechnology," "The Heme-Heme Oxygenase-Carbon Monoxide System and the Control of Cardiovascular and Renal Function," "The Mechanisms and Impact of Fetal Physiological Programming," and "Intracellular Trafficking of Membrane Proteins in Renal Epithelia," and two Translational Research symposia entitled, "Use of Mouse Models to Understand the Pathophysiology of Diabetes: Implications for Preventing Complications," and "Sympathetic-Adrenergic and Baroreflex Function with Aging," are also planned.

The 2003 meeting saw the implementation of the "meeting within a meeting" scheme on the general topic of Oxidative Stress. The 2004 meeting will expand on this to include "meetings within the meeting" on Aging, Diabetes, Stem Cells, Ion Channels, Oxidative Stress, Vascular Regulation and Intracellular Trafficking. These "themes" will be used for advertising the meeting. Moreover, we used these thematic areas to program the meeting, and guest societies, in particular, such as AFMR were very enthusiastic and also participated in our thematic program. As in past years, rooms and times were first selected for the lectures and InFocus sessions. Then, we programmed symposia and feature topics around these themes to ensure that an attendee wanting to see each session in a theme can do so without conflict. Unfortunately, we were unable to keep each theme in a specific room throughout the meeting as rooms of some sizes are in high demand. Finally, sections completed their programs in the remaining space.

A special program at EB 2004 will remember **Arthur Guyton**. This program, organized by **Joey Granger,** is entitled, "Arthur C. Guyton: The Man and His Science," and will feature **John Hall**, **Allen Cowley**, **L. Gabriel Navar**, and **Harris Granger** as speakers.

The 2004 Henry Pickering Bowditch Award lecture will be presented by **Robin Davisson** from the University of Iowa; the Walter B. Cannon Memorial Award lecture will be presented by **Christine Seidman** of the Harvard Medical School. The Walter C. Randall lecturer is not yet determined.

**APS Conferences**

By and large, this program, which was initiated in 1991, has been very successful and is improving. The Society is striving for a goal in which the vast majority of scientists will consider APS Conferences a premier meeting to attend. APS Council would like to increase the number of APS Conferences from two to four per year. The additional two conferences are to be organized on Physiological Genomics and Physiology and Medicine: Translational Research. The first Physiological Genomics conference was held in 2002 while the first Translational Research conference will be held in 2004. The APS Program Committee is soliciting ideas for future APS conferences in these two areas as well as other timely topics. One proposal on Phosphoinositides was evaluated but was not recommended for funding.

Scheduled APS Conferences include:

- 2003 APS Conference, September 19-14, Banff, Alberta, Canada, "Adrenal Steroid Hormone and Control of Extracellular Fluids: from Genetics to Physiology" organized by Daniela Rotin and Douglas Eaton.
- 2003 APS Physiological Genomics Conference, October 1-4, Augusta, GA "Understanding Renal and Cardiovascular Function through Physiological Function" organized by David Pollock, Jennifer Pollock, Elizabeth Nabel, Clinton

Webb, and Josephine Briggs.
● 2004 APS Translational Research Conference, September 8-11, Snowmass, CO "Immunological and Pathophysiological Mechanisms in Inflammatory Bowel Disease", organized by Matthew Grisham and Fabio Cominelli.
● 2004 APS Intersociety Meeting, October 6-9, Austin, TX, "Integrative Biology of Exercise", organized by Ronald Terjung, Chair. ❖

*Curt D. Sigmund, Chair*

● Council accepted the report of the Joint Program Committee.

## Liaison With Industry Committee

The Liaison With Industry Committee (LWIC) met at the Experimental Biology 2003 meeting in San Diego, CA. The committee is chaired by **Glenn Reinhart** and is composed of representatives from most of the active Society Sections, nominated to serve by their sections. The current committee membership is composed of **Robert McCall,** Neural Control and Autonomic Regulation; **Stephen Wood,** Comparative Physiology; **Jeffrey J. Zachwieja,** Environmental and Exercise Physiology; **Peter Morsing,** Renal; **Christine Schnackenburg,** Water and Electrolyte Homeostasis; **William Martin,** Central Nervous System; **Joshua C. Anthony,** Endocrinology and Metabolism; **Pamela I. Hornby,** Gastrointestinal; **Jodie Krontiris-Litowitz,** Teaching of Physiology; **Chahraz Montrose-Rafizadeh,** Cell and Molecular Physiology, and **JR Haywood**, APS Councillor.

**Workshop 2003:** At EB 2003, the committee sponsored a workshop titled: "Understanding and Applying Critical Translational Assays," organized and co-chaired by **Reinhart** and **Montrose-Rafizadeh**, held on the morning of April 13, 2003. Speakers were **Jan Van Oostrom**, **Jeffrey Waring** and **Phillip Iverson**. This is the third workshop sponsored by the Committee since its reorganization and we are pleased to report that attendance was excellent (near capacity much of the time).

**The Third Annual Physiologists in Industry Mixer** was held April 13 with record breaking attendance. Peak attendance was estimated at 50–60 and the room was filled to capacity. At its 2002 meeting the committee decided to increase publicity for the event in 2003 and, thanks to Linda Allen, timely promotional flyers and email notices were sent to those EB '03 registrants who identified themselves as working in Industry.

**Novel Disease Model Award:** The award typically recognizes one graduate student ($500) and one postdoctoral fellow ($800) submitting the best abstract describing a novel disease model. Five students and one postdoc applied (13 abstracts were received in 2001, six in 2002) and one student award was given. Due to the small applicant pool, plans to evaluate posters on site were tabled. Although the decline in applicants in not inconsistent with other APS awards, the LWIC will work to further publicize the award for 2004.

**Workshop 2004:** In June 2003, the APS Council Program Committee approved a workshop for EB 2004 entitled: "High Content Biology: Multiplexing in Cell Physiology," organized and chaired by Chahraz Montrose-Refizadeh.

**IUPS 2005:** Since the LWIC wishes to continue its annual tradition of sponsoring high quality workshops/symposia relevant to industry and academic physiologists alike, the committee has prepared a symposium on Metabolic Syndrome ("Metabolic Syndrome: From Clinical Insights to New Therapies") for IUPS '05. The symposia was organized by Christine Schnackenberg, has commitments from all four speakers and is comprised of international scientists of both genders.

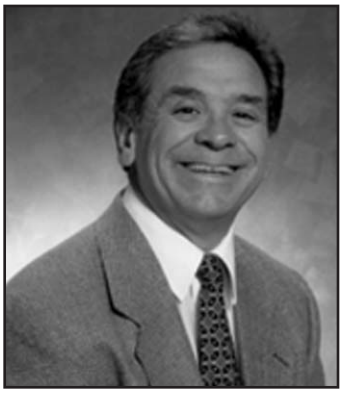
**Miscellaneous:** The LWIC agreed to endorse a symposium proposed by the Career Opportunities in Physiology Committee for EB 2004 focusing on achieving a successful postdoctoral experience. In addition, the committee worked with the Life Sciences Research Organization (LSRO) in an attempt to assess industry's need for well trained in vivo, integrative scientists. Under the guidance of LSRO a survey was drafted from the Chairmen of Physiology Department's survey and emailed to a number of investigators employed by numerous companies. Unfortunately, the response rate was low, timelines were tight and the data set obtained failed to clearly delineate any trends. As a result more surveys have been sent out and results are pending. ❖

*Glenn A. Reinhart, Chair*

● Council accepted the report of the Liaison with Industry Committee.
● Council agreed to fund the LWIC mixer at EB 2004.
● Council approved a motion ensuring adequate industry representation is present on the Animal Care and Experimentation Committee, Awards Committee and the Career Opportunities Committee as voting members.

*(continued on page 280)*

## Long Range Planning Committee



My tenure as Chair of this committee started this year and I had my first meeting during EB in April 2003. We were fortunate in having five of the eight committee members present and a lively discussion was held. Prior to the meeting in March, I sent a memorandum to all members of the committee greeting all members and asking for their input. I emphasized a number of issues but my overall message was that we are in an era where there are incredible opportunities to bring into the physiology fold the many scientists, including cell and molecular biologists, bioengineers, informatic and genomic investigators, who are interested in and are realizing the importance of resolving the physiological and mechanistic issues that are unfolding rapidly as information accumulates. It is vitally important that we be decisive and proactive as we help guide APS into the leadership position of these developing trends.

In my letter, I also encouraged all members of the Long Range Committee, whether they were able to attend the EB meeting, to send me their ideas so that we could discuss them at our meeting. I was pleased to receive several informal comments but I was also impressed by an excellent letter sent by **David Brooks**. Brooks pointed out several important issues. In particular, he raised the question of why physiology is not one of the more recognizable scientific disciplines among students. He pointed out the fact that a major impediment to achieving a high profile is the lack of visibility at the undergraduate level. Only a handful of universities and colleges offer undergraduate majors, or even minors, in physiology. He urged us to consider ways in which APS could encourage more undergraduate courses and majors in physiology.

The Committee meeting on April 12 was lively and productive. A considerable amount of time was devoted to discussion of the previous recommendations. We were in general agreement with them but had additional discussion on the issue of appropriate recognition for international members. APS has a responsibility to serve all of its members regardless of where they live and we should continue to investigate ways that we can serve our international constituency more effectively. Scientific and education oriented meetings outside the United States should be encouraged especially in the developing countries which would lead to an improvement of APS's global visibility. As indi-

**Table 1. International Participation at APS. (For the purpose of this chart, international signifies non-US and Canadian.**

| Activity | Year | | | | |
|---|---|---|---|---|---|
| Number of: | 1998 | 1999 | 2000 | 2001 | 2002 |
| international APS members. | * | * | 1,077 of 10,623 | 1,485 of 10,354 | 1,693 of 10,980 |
| international attendees at APS meetings.+ | 390 of 2,688 | 497 of 2,814 | 594 of 2,972 | 590 of 2,399 | 359 of 2,785 |
| APS papers published by international authors. | 1,099 of 3,872 | 1,111 of 3,689 | 1,176 of 4,030 | 1,201 of 4,403 | 1,512 of 3,914 |
| APS awards to international recipients. | 2 of 32 | 4 of 40 | 6 of 51 | 6 of 49 | 5 of 51 |
| international APS meetings. | 0 of 2 | 0 of 2 | 0 of 2 | 0 of 2 | 0 of 2 |
| international members of APS committees. | * | * | * | 4 of 186 | 6 of 192 |
| international editors-in-chief of APS journals. | 0 of 13 | 0 of 13 | 0 of 13 | 1 of 13 | 1 of 13 |
| international editorial board members. | * | * | * | 149 of 1,220 | 199 of 1,357 |

*Statistics not available.
+Meeting attendance at APS Conferences by non-US & Canadian attendees was not available for the years 1998 - 2000. Therefore, foreign participation at APS meetings for that period is represented by the ratio of abstracts from US and Canadian institutions vs. abstracts from other institutions.

cated in Table 1, there are substantial international members who serve on editorial boards. However, the number of international members who serve on APS committees is embarrassingly small and further efforts should be made to name international members to the various committees.

Further discussion related to the changes that have occurred in APS's financial position and to the letter provided by President Horwitz to the Committee. It seems clear that fiscal responsibility requires that council delineate our CORE mission and function more precisely and perhaps initiate efforts to ensure that APS remains in a fiscally sound foundation. Importantly, this may require that certain cost-benefit analysis be made of many current activities.

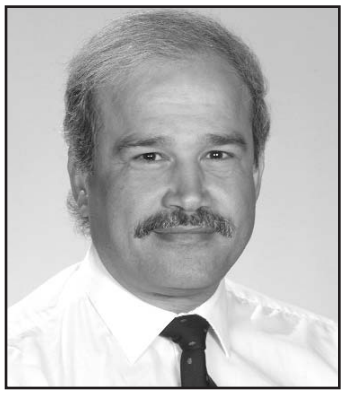
The fiscal concerns not withstanding, the issue raised by Brooks was discussed and it was agreed that we should and can do more to encourage the development of undergraduate majors in physiology. **Steve Hebert** discussed the program at Yale that has been very successful. Brooks also raised important concerns regarding the perception by members from industry that they are frequently overlooked for openings in APS Committees and editorial boards. It seems clear that we need to understand and define the concerns held by members from industry so that we can make all members feel that APS serves their needs. Perceptions may not always be correct but they do guide actions. We need to be sensitive about these concerns and make efforts to select more members from industry for APS Committees, reviewer lists, editorial boards and in other capacities.

In summary, I would say that we got off to a good start and that our committee is fully committed to carrying out its responsibilities and helping APS position itself in the most advantageous manner possible. Perhaps of greatest importance is that we need to increase our overall public and academic image, so that the noble and encompassing discipline of physiology is exposed to the public more frequently and more intensely. ❖

*L. Gabriel Navar, Chair*

● Council accepted the report of the Long Range Planning Committee.

## Membership Committee Report



2002 has been a very successful year in terms of recruitment of new members. From April 2002 to April 2003 a total of 917 regular members have been approved (approximately 9% increase over the previous year). Of the new members there was an increase in male members by 5.7%, and a greater increase in female members by 19%, suggesting that our recruiting efforts have been successful in attracting more female members. Among respondents, there was a significant increase in Asian (190%), Hispanic (157%), Black (176%), and American Indian members (300%), indicating that the society is reaching more members of all different racial backgrounds and heritage. The Society has also been very successful in attracting members of various age groups. In the last year, there was a 6.9% increase in members 60 years of age or older. Interestingly, there was 15.7% increase in members 20 to 29 years of age, indicating that the society has been very successful in attracting young members. The vast majority of members hold the PhD and/or MD; however, members with other degrees such as DVM, DM, MBBS, MSc, MA, and EdD are also represented. The new members represent a good cross-section of all academic positions and ranks including Professors, Research Scientists, Postdoctoral Fellows, and Research Fellows, as well as Chairpersons, Vice Presidents, Associate Deans, and Teachers.

The Membership Committee met in San Diego, CA at the April EB '03 meeting. The primary topic of discussion at the meeting was how the Committee might best serve the Society in light of duties that go beyond approval of membership applications. The Committee reviewed the membership application approval process to determine if any adjustments were necessary. It was agreed that the current mechanism is working well. The APS Council has previously accepted a recommendation put forth by the Membership Committee that the APS staff be allowed to approve all straight-forward membership applications and that final approval be granted via a Council email ballot on a monthly basis. This procedure has greatly expedited the membership application review and approval process.

One of the issues raised at the meeting was related to the qualifications of the applicants, particularly with regard to whether it is necessary for regular members to hold an advanced degree. Some applicants do not have an advanced degree, but have significant research experience and several publications in peer-reviewed journals. It was suggested to continue the policy of "having an advanced degree" as a requirement for regular membership. Applicants that do not hold an advanced degree, but have significant research experience may be considered as affiliate members or members under special consideration.

During the Committee meeting, **Martin Frank** raised an important point regarding student members and how to retain them as regular members of APS. Under the current policy, students have a free membership for the first year, but are then asked to pay $15 membership dues from year two onward. Data suggest that students accept the first year free membership, but do not maintain their membership afterwards. It was suggested that further data analysis might be needed to determine whether there is a certain demographic pattern for the students' decision not to maintain their membership. It was also suggested that a letter be written to the chairpersons to encourage them to take a more active role in informing the students of the advantages of maintaining their membership at APS.

*(continued on page 282)*

*(continued from page 281)*

Two points were raised regarding the membership dues. First, it was suggested to make sure that members receive several mailing notices for the annual dues before considering ending their membership. Some members may not have the time to respond promptly. Others may not have the financial resources at the time of the first notice, but may reconsider during the following notices. In relation to this point, it was suggested that members be allowed to pay the annual dues three years in advance, using the same practice already adopted by other societies such as the American Heart Association.

The meeting then focused on mechanisms that can be implemented to increase member involvement/retention. Below is an outline of the ideas discussed:

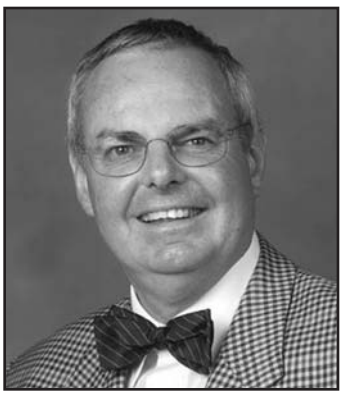
- Contact Chairs of Departments of Physiology at least once a year and give them a status report on APS membership and ask for their assistance in promoting the benefits of membership.
- Initiate and maintain contact with minority colleges to enhance the recruitment and the involvement of underrepresented groups in APS activities.
- Provide links on the APS web site to grants that are available for postdocs (the Society for Developmental Biology web site as an example).
- It is agreed that membership benefits provide the greatest incentive for membership. While member benefits have been increased (such as the online library of journals and free color prints) the Committee would like to see APS provide incentives for members 25 years or longer.
- Allow members to vote online.

In summary, this is a time of change for the Membership Committee. The duties related to review of applications has been streamlined, freeing up time for the Committee to focus on other important goals, especially those related to recruitment and retention. On behalf of the Committee members, I would like to say that we continue these important duties with great enthusiasm. ❖

*Raouf A. Khalil, Chair*

- Council accepted the report of the Membership Committee.

## Perkins Committee



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

Three fellowship awards were made in the past year: *1*) **Vera Farah** (Sao Paulo, Brazil) hosted in the laboratory of **Mariana Morris** (Wright State University, Dayton); *2*) **Maria Espelt** (Buenos Aires, Argentina) hosted in the laboratory of **Kevin Strange** (Vanderbilt University, Nashville); and *3*) **Guoji Wu** (Beijing, China) hosted in the laboratory of **Steve Perlmutter** (University of Washington, Seattle).

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

*Klaus W. Beyenbach, Chair*

- Council accepted the report of the Perkins Memorial Fund Committee.

## Porter Physiology Development Committee

The Porter Physiology Development Committee is pleased to provide this report of the Committee's activities during the year. The purpose of the Porter Physiology Development Program is to stimulate and support the development of minority students engaged in graduate study in physiology through the awarding of predoctoral fellowships. In addition, the program provides assistance in the improvement of underdeveloped American departments of physiology, particularly in those colleges and medical schools with predominantly minority enrollment. Duties of the Porter Physiology Development Program Committee are to: supervise administration of the Porter Physiology Development Fund; approve visiting scientists and professorships; approve teaching and training fellowships; recommend to the William Townsend Porter Foundation specific needs for laboratory and teaching equipment; counsel underdeveloped physiology departments on curriculum and other improvements; provide annual written reports to Council and the William Townsend Porter Foundation; rank applications of minority students to attend meetings of the Society, which are collated by the Executive Director and/or Education Officer; solicit outside funds for support of the program.

This report includes information on the financial status of the Porter Physiology Development Fund, travel applications reviewed and approved, Porter Fellowships reviewed

and approved, progress reports on current Porter Fellows, and a summary of the Committee's discussions during its conference call held in place of its normal annual meeting at Experimental Biology 2003.

On March 31, 2003, The Porter Physiology Development Committee Fund had a budget of $209,954. During 2002, the fund received the following contributions: $20,000 from Merck, $100,000 from the William Townsend Porter Foundation (including a one-time donation of $50,000), $40,000 from the APS, and $308 in private contributions in revenue. The Committee expresses its sincere appreciation for this continued support that makes the important work of the committee possible.

**Minority Travel Fellows Selection**

In January 2003, the Committee served as the review panel for the APS Minority Travel Fellowship Awards. Fifty-one (51) travel fellows were funded to attend Experimental Biology 2003 in San Diego. Fourteen (14) additional travel fellowships were awarded to attend various APS conferences. .

**Committee Meeting**

Due to travel conflicts for a number of committee members, the annual meeting of the Porter Physiology Development Committee was held via conference call rather than during EB2003. Participating in the conference call were: **Pamela Gunter-Smith** (Co-Chair), **H. Maurice Goodman** (Co-Chair), **Mouhamed Awayda**, **Sarah England**, **Rayna Gonzales**, **Cynthia Jackson**, **Irving Joshua**, **Terry Thrasher**, **Martin Frank** (APS, ex officio) and **Melinda Lowy** (APS, by invitation). Committee members not able to participate included **Susan Kandarian** and **Marsha Matyas** (APS, ex officio). The following agenda items were discussed during the call: implementation of action items approved by APS Council last year, the continuing need to investigate potential sources of new funding with the greater number of high-quality applications being received, possible revisions to the application form and development of review criteria, and review of fellowship applications.

**Porter Fellowships**

The Committee is pleased to report a significant increase in the number applications received. The number of new applications increased from nine for the January 2002 deadline to 12 for the January 2003 deadline, an increase of 33%. The number of new applications for the June deadline also rose substantially, from 4 in 2002 to 11 in 2003, an increase of 175%. Presently, funds are not sufficient to fund all meritorious applications. In addition, given the NIH recommendation of an increase in predoctoral stipends to $26,573 by 2006, the number of Porter fellowships available will decline if the Porter stipend level is to keep pace with these changes. Thus, there is an urgent need to raise additional funds to support Committee goals. Last year, Council approved an increase in APS contributions to the fund of $9,000 providing that the William Townsend Porter Foundation matched this amount. These funds were not distributed, however, as the foundation provided a one-time additional contribution of $50,000 rather than committing to a "matching" donation.

Presently, there are two application deadlines for Porter Fellowships, January 15th and June 15th. While both applications dates are open to predoctoral fellows requesting "new" funding, fellows requesting a second year of funding are required to submit renewal applications for the January cycle. The June 15th deadline serves predoctoral students who have an unanticipated need or incoming predoctoral students for the fall. As mentioned earlier, this year the Committee received substantially more new fellowship applications in both cycles than in previous years. When reviewing the funding available this year (enough for seven to eight fellowships because of the additional one-time Porter Foundation donation) and next year (enough for six fellowships), the Committee decided to award a total of seven fellowships this year, which will allow for seven fellowships to be awarded next year as well. One renewal application and two new applications were funded from the January 2003 pool of 12 applicants. Decisions for six additional new applications were deferred and four were not approved. The decision to defer a funding decision was made so that there would be sufficient funds available for awards for the June applicant pool. Deferred applicants were informed that their applications would be reviewed with the June applications. Four fellowships from the June pool will be awarded, including two possible renewal applications that were deferred from the January pool. This means potentially only two of the 11 new applications will be approved, leaving several meritorious applications not approved because of limited funding. In a similar vein, the designation of the Merck and Ison-Franklin fellows was also deferred to include the June 15th awardees.

The Committee has successfully reached its goal of increasing the applicant pool. However, the increased number of applications has raised additional challenges. The Committee recognizes the need to increase the amount of Porter Physiology Development funds to keep pace with current Committee goals. In addition, the Committee continues to consider whether it needs to rethink the Porter Fellowship application deadlines for the future.

**Review of Porter Fellowship applications**. The Porter Development Committee reviewed three renewal applications and 12 new applications from the January 15, 2003 application deadline. One of the renewal applicants was awarded a second-year fellowship; the other two were deferred to the June 15 deadline to allow them to present more complete applications. Two new fellowships were awarded and decisions for six were deferred until the June cycle.

**New Awardees**

**Johanna Vallejo,** third-year graduate student, Department of Medical Pharmacology and Physiology, University of Missouri at Columbia; Research mentor: **Christopher Hardin**; Dissertation project, "Functional role of caveolae in the compartmentation of carbohydrate metabolism;" **Claudio Villanueva**, second-year graduate student, Biomedical Sciences Graduate Program, University of California, San Francisco; Research Mentor: **Robert V. Farese, Jr.**; Dissertation project, "Mechanisms by which DGA1 deficiency alters energy metabolism;"

*(continued on page 284)*

(continued from page 283)

**Renewal Application Awardee**

**Rashad Belin,** fourth-year graduate student, Department of Physiology and Biophysics, University of Illinois at Chicago; Research mentor: **P. de Tombe**; Dissertation project, "Molecular mechanisms of depressed myofilament function in heart failure." Rashad has completed his course work and been cleared by his committee to proceed with his mid-thesis presentation later this year. He is expected to defend his thesis in about two years.

**Final Reports**

**Wendy Brisbon,** fourth-year graduate student, Department of Anatomy and Physiology, Meharry Medical College; Research Mentor: **John T. Clark**; Research area: Physiological effects of estrogen, particularly its involvement in the regulation of blood pressure in postmenopausal women. Brisbon finished her course work and successfully completed her dissertation research proposal and preliminary exams. She is expected to defend her dissertation by June 2005.

**Jorge Gonzalez-Perez,** third-year graduate student, Department of Pharmacology, University of Puerto Rico; Research Mentor: **Maria J. Crespo**; Dissertation title, "Effects of toremifene on the vascular status of ovariectomized rats." Gonzalez-Perez has passed his comprehensive exams and successfully presented his research proposal to his thesis committee. He continues to present his work at local meetings, the Experimental Biology meeting and the Society of Gynecological Investigation meeting. He also has submitted a paper for publication on his work.

**Becky Marquez,** fifth-year graduate student, Department of Physiology, Cornell University, Ithaca, NY; Research Mentor: **Susan Suarez**; Dissertation project, "Regulatory mechanisms of mammalian sperm motility." Marquez is working full-time on her research, collecting data for her dissertation. She has presented her work at the annual Cell Biology meeting and has a manuscript ready for submission. She recently received a two-year NIH fellowship.

**Carmen Padró,** fifth-year graduate student, Department of Physiology, University of Puerto Rico; Mentor: **Miguel Rivera**; Dissertation project, "K+ channel genes in chromosome 11 and genetic polymorphisms." The results of her work have been submitted for publication and presented at the American College of Sports Medicine annual meeting and the upcoming APS Physiological Genomics conference.

**Maurice Williams,** fifth-year graduate student, Department of Integrative Physiology, University of North Texas Health Science Center at Forth Worth, Fort Worth, TX; Mentor: **Patricia A Gwirtz**; Dissertation project, "Renal hypertension impairs coronary hyperemia during exercise in dogs." This spring Maurice successfully defended his dissertation proposal, officially qualifying him as a PhD candidate. He also completed a first-author manuscript that has been submitted for publication. He also made several presentations including a poster at the Annual Research Appreciation Day at the University of North Texas Health Science Center (where he was awarded fourth place out of 120 posters). Other poster and oral presentations have occurred at the annual meeting of the American College of Sports Medicine. In addition to his research activities, Williams is active locally as Treasurer of the UNTHSC Graduate Student Association and President of the Black Graduate Student Association. He also is a student member of the Diversity Task Force Committee and the McNair/Smart selection committee at UNTHSC. Nationally, Williams co-founded and is currently co-chair of the Minority Health and Interest Group of the American College of Sports Medicine.

**Porter Reception**

Council approved and provided funding for the Committee's recommendation for a reception for travel fellows and their mentors and past and current Porter Fellows. This recommendation was made with the goal of building stronger connections between minority students and the larger community of APS scientists, especially minority scientists. The reception was very successful with more than 125 people in attendance. Importantly, the reception continued for more than two hours as participants interacted and networked with one another. Given the success of the reception, the Porter Committee requests continued funding of this event.

**Goals for Next Year**

*Discuss/develop review criteria for Porter Physiology Predoctoral Applications:* The increase in the number of meritorious applications for a limited amount of funds has significantly increased competition for these awards. The development and articulation of a common set of factors to be considered in reviewing applications would be helpful in reaching a consensus regarding funding decisions.

*Re-examine the current activities of the Porter Physiology Development Committee with respect to the charge given to the Committee by APS:* Although eight duties are listed, currently the Committee primarily functions in reviewing and administering the minority predoctoral and travel fellowships. A review of Committee duties will provide an opportunity for the Committee to make recommendations to Council for possible revisions to its charge, perhaps removing some activities and expanding others. ❖

*Pamela J. Gunter-Smith, Co-Chair*

- Council accepted the report of the Porter Physiology Development Committee.
- Council approved the requested funding for APS awards for students at the Annual Biomedical Research Conference for Minority Students.
- Council approved funding for a reception for the Porter Fellows at EB 2004.

## Public Affairs Committee

The Public Affairs Committee advises the APS Council on policy issues and how best to address them. The Committee also informs Council of specific initiatives undertaken by the Committee itself. The Committee recognizes the importance of careful integration of its activities with the Animal Care and Experimentation Committee, the Communications Committee, and with the Science

Policy Committee of the FASEB. It has worked closely with these groups to achieve common goals. Likewise, the Public Affairs Committee works closely with the APS Office of Public Affairs both to coordinate activities and to more effectively communicate relevant issues to Council and, when appropriate, to the general membership.

The past year has seen many challenges. Our nation's efforts to combat terrorism and effect homeland security have contributed to a change in the focus of our governing bodies in their consideration of support for the biomedical sciences. APS and its Public Affairs Committee continue to work with elected representatives to assure their having all the information that they would need to realize how stagnant funding of NIH, VA, and NSF would have a negative short and long term impact on the health of research in our country. Funding issues, therefore, remain a major focus of the Public Affairs Committee, which seeks to extend the impact of its advocacy by making public advocacy by APS membership more easily accomplished.

In the past year a Legislative Action Center or LAC on the APS web site http://www.the-aps.org/pub_affairs/leg_act_cntr/index.htm has been further enhanced. It can now be used not only by APS members but also by non-members who wish to advocate for a research cause. The Public Affairs Committee and the Public Affairs Office of APS continually seek to improve that site and to make it increasingly more "user friendly."

The Public Affairs Committee has worked with officials at NIH in efforts to promote training and retention of scientists in integrative or systems physiology. APS advocacy is focused on following the "roadmap" for the NIH future as enunciated by NIH Director Elias Zerhouni. That roadmap calls for fostering multidisciplinary teams of scientists who can enhance the overall scientific product from NIH supported research. APS efforts have complimented those of other FASEB societies such as ASPET and AAA. That advocacy and collaboration with NIH continues as does an effort to promote appointment of APS members to NIH study sections that have been newly constituted to comply with recommendations of the Scientific Boundaries Panel Report. While the reorganization of IRG's and study sections is now approaching completion members of the Public Affairs Committee have received from the director of the Center for Scientific Review at NIH assurances that NIH will continue to seek input from the scientific community to further tailor the peer review process to the needs of that community. The goal is to have peer review closely track and respond to new scientific directions and emphases. Clearly, our ongoing attention to peer review is essential so that our input to NIH can be both timely and substantial.

The Society's influence is extended further by the active participation of the Chair of the Public Affairs Committee on the FASEB Science Policy Committee. Within the past year the Chair has participated in developing the FASEB's consensus on federal funding for the coming fiscal year, response to the federal initiative to openly share research results, response to OMB's efforts to create a "performance evaluation mechanisms," response to the changes in peer review being implemented by the Research Service of the Department of Veterans Affairs, and position on federal funding of stem cell research. The Science Policy Committee created a new subcommittee to focus on use of animals in experimentation and appointed the APS representative, the PA Committee Chair, to be a chair of that subcommittee.

It is increasingly clear that the Public Affairs Committee must maintain maximum flexibility to allow it to address the ever-changing needs of our Society. The Committee has extended its advocacy through members who focus on affairs that lie within their own areas of expertise and interest. With new members each year the Committee tends to redesign itself annually. Therefore, to promote continuity it has encouraged continued active involvement of members in an ad hoc capacity as their terms on the Committee expire. More and more such ad hoc members have taken on greater responsibility for critical public advocacy issues. ❖

*William T. Talman, Chair*

- Council accepted the report of the Public Affairs Committee.
- Council approved a motion to change the tenure of the Public Affairs Committee Chair from 3 to 4 years
- Council approved a motion to stagger the terms of the chairs of the Public Affairs and Animal Care and Experimentation Committees so that at no time would both chairs be incoming.
- Council approved the creation of a new position—Past Chairperson—on the PA Committee.
- Council approved the recommended changes to the Public Affairs Committee charge as defined in the APS Operational Guide.

## Publications Committee

### APS Journal Impact

The Journal Impact Factors made a strong showing again in 2002, with four of our journals (*PRV*, *AJP-Renal*, *Physiological Genomics*, and *AJP-Cell*) ranking in the top 10 Physiology journals. *Physiological Genomics* jumped from 3.352 to 4.667 in one year.

*(continued on page 286)*

(continued from page 285)

The Publications Committee requested that the APS Council write a letter to the leadership of ISI, asking them to develop measures of journal quality alternative to the Impact Factor, especially those that take longevity of articles into account. A letter was sent from the APS President, **Barbara Horwitz**.

*Reports—New Type of High-Impact Article.* A new category of papers called "Reports," developed to encourage the submission of high-impact articles, replaced "Rapid Communications" in 2002. Papers submitted to this category are designed to present the best original scientific research having broad significance, but are not designed to be short versions of regular full-length papers. Manuscripts judged lacking in originality, scientific importance, and broad interest are declined even if the experimental work is technically sound. These articles include a short abstract and introductory paragraph, and are limited to no more than three printed journal pages (~2,500 words). From January 1 to June 1, 2003, 69 "Reports" have been submitted and 26 have been published across all the journals.

*Improving citations.* Digital Object Identifiers (DOIs), the standard for tracking information on the Web, began appearing on all articles in 2002. Links to other journals in ISI's Web of Science were made to articles in our reference lists online. Also, the length of all article titles was extended to 160 characters to allow authors to write more descriptive titles and the length of all abstracts was extended to that allowed by Medline (250 words).

**Publication Efficiency**

*Articles in Press.* All original research journals, including *Journal of Neurophysiology* in July 2002, started publishing Articles in PresS, which allows online publication of manuscripts within a week of their acceptance. It was decided at the Spring 2003 Council Meeting to discontinue the still-popular APStracts feature on the Web, because Articles in PresS meets the same need with better functionality. Starting in 2004, users will be redirected to Articles in PresS from the APStracts page.

*S-Proof.* S-proofs remain a popular feature that helps speed production of individual articles. The authors receive an Email directing them to a secure site that allows them to view and download a pdf of their paper. They mark up the paper and return it to us via express mail. An upgraded version of the software was implemented in March 2003.

**Financial Stability and Increased Accessibility**

*Subscription Prices.* Subscription prices for 2004 were set with the same pricing model as last year, which unbundles prices so that subscribers can choose print only, print plus online, or online only. The Committee and Council approved a price increase of 8.5%, with increases in page charges to $70 per page and color charges to be increased to $300 from $250 per figure for non-members. We will charge authors $150 ($250 for *PRV* articles) for "toll-free links," which allow authors to put a link on their own web sites to their articles on the HW site. Visitors to the authors' web sites who click on the link can get to that author's article for free.

*Open Access.* The Committee also suggested and the Council approved that we employ an author-based payment option starting July 1 for *Physiological Genomics*, giving authors the following choice: paying $1,500 for published articles with open access to the public immediately upon publication; or paying nothing, with the article being published under subscription access.

*Legacy Content.* The first phase of Legacy Content, going back to 1986, was put online in 2002, and the second phase, to 1966, is almost complete. The Legacy Content, which will go back to 1898 by the end of 2004, is being sold as a product with a one-time price of $1,500 until the end of 2003. The price will increase to $2,000 in 2004.

*Archiving*. APS continues to be involved in two archiving initiatives developed at HighWire. LOCKSS is an archiving system that uses multiple electronic copies of the content to automatically back up and refresh any corrupted online content. It has received a grant from the Mellon Foundation, and has been spun off from HighWire. APS has volunteered to be one of the sites that monitors a cache of this system, and we are in the process of setting that up right now. The other archiving initiative is a prototype of a very large archive of digital content. Unlike LOCKSS, the content is protected by being hidden; this system is designed to preserve static copies of the content for a very long time.

**Reducing Member Costs**

APS members started receiving free online access to all journals in 2002. APS members continue to take increased advantage of the free color policy. In 2002, $315,000 of free color was given to members, up from $225,750 in 2001.

**Innovative Use of Electronic Publications**

*Supplemental Material.* Eighty-four data supplements total have been published as of June 1, 2003. Fifty percent of these were published in *Physiological Genomics*.

*HighWire Portal.* HighWire has redesigned their home page to be a portal to all the journal content on their site, called the HighWire Library of the Sciences and Medicine. It is the largest online collection of high impact science journals. An article appears in almost every issue of *The Physiologist* describing the features of the portal to readers.

*Classic Articles Collection.* As an outgrowth of the Legacy Content project, a Task Force was formed to develop a list of classic physiology articles from the APS original research journals. Chaired by **Hershel Raff** of the Publications Committee, the other members of the Task Force are **Christian Bauer**, **Dale Benos**, **Alfred Fishman**, **Gerhard Giebisch**, **Susan Hamilton**, **Eve Marder**, **Bodil M. Schmidt-Nielsen**, **Gary Sieck**, **Stanley Schultz**, **Daniel C. Tosteson**, and **John West**. A review of the list of articles is being done by the journal Editors, the History Book subcommittee, and the History of Physiology interest group. These articles will be made free online, and will be accompanied by editorials describing their significance. The goal is to have the collection finished in 2004, when all of the legacy content is online.

*Bundling Review Articles.* It is now possible to go to the journal home page and link to a table of contents of all review

articles in that journal across time, and a list of review articles across all the APS journals (except *NIPS* and *PRV*).

*STKE and SAGE.* APS continues to participate in AAAS's Knowledge Environments, allowing APS journal content to be part of the Signal Transduction Knowledge Environment (STKE) and giving our members the same AAAS membership discount to its subscriptions. APS also allows our journal content to be linked to the new Science of Aging Knowledge Environment (SAGE) at a pay-per-view price for non-subscribers.

**Translational Research**

*Call for Papers.* A Call for Papers on Translational Physiology has run since the June 2001 issues of all the APS research journals. The papers will be published as they are accepted under a special heading in the Journal it was submitted to. Across all the journals, 71 papers were submitted and 20 papers were published under the Translational Research heading in 2002. From January 1 to June 1, 2003, 35 have been submitted and 24 have been published.

*"Physiology in Medicine" (PIM).* An agreement was made in 2001 to publish the "Physiology in Medicine" series in *Annals of Internal Medicine*, with **D. Ausiello** as the Editor of the series, and Benos serving as Deputy Editor. So far, articles have been published on April 15 and June 17, 2003. We have posted pdfs of the *Annals* PIM articles on our web site (http://www.the-aps.org/publications/journals/pim/index.htm). The articles are freely accessible to all.

**Other Items of Significance**

*Editor Appointments*

**Marshall Montrose** will become Editor of *AJP-GI*, **Allen Cowley** will become Editor of *Physiological Genomics*, and **Walter Boron** will become Editor of *News in Physiological Sciences* in July 2003. The Editor of *AJP-Endocrinology* will be evaluated at the Fall 2003 meeting of the Publications Committee.

*Ethical Issues.* All of the following changes have been implemented as of the July issues of the journals:

*Conflict of Interest.* A check box has been added to the online submission form, for authors who need to be more explicit regarding disclosure. If the author checks the box, they will be sent a conflict of interest form to fill out.

*Editor-in-Chief Submitting Article to their own Journal.* Language has been added to the Information for Authors explaining that the Editor is blinded to the process. Language will be added to the Reviewer instructions and invitation letter discouraging reviewer conflicts (eg, recent collaboration with the author).

*Personal Communication.* A statement has been added to the Information for Authors that citation of Personal Communications should be discouraged, and if used, the author must have a letter granting permission from the communicant in his or her files to send to APS if requested.

*Bioterrorism Policy.* It was decided that rather than adopt a formal policy such as that adopted by *PNAS* and other journals, the Committee would raise the awareness of the Editors to the danger of allowing potential bioterrorism information to be published. If there is doubt, the Editor should contact the Publications Committee chair through the Director of Publications.

*Retraction Policy.* If a published article is retracted due to fraud or other reason, a Retraction statement will be published as a corrigenda, and the article will be tagged online as Retracted. ❖

*Dale Benos, Chair*

● Council accepted the report of the Publications Committee.

## Section Advisory Committee

The Section Advisory Committee (SAC) has held two meetings in the past year in which all 12 sections were represented. **Celia Sladek** chaired the first meeting that was held in Bethesda in December. A major objective of this meeting was to update section chairs on the procedures to be used for programming at the 2005 International Union of Physiological Sciences meeting, to be held in conjunction with Experimental Biology (EB) Meeting in San Diego, CA. Following this meeting, section Chairs met as the Nominating Committee to select candidates for President-elect and Council.

**Susan M. Barman** assumed the role of SAC Chair on January 1, 2003. SAC met separately and in joint-session with Council at EB 2003 in San Diego. A synopsis of SAC's major activities is reported here.

**SAC Responsibilities**

According to the APS Bylaws, one of the duties of SAC is to interact with the Long-Range Planning Committee (LRPC). In an effort to strengthen the relationship between the two committees, SAC has proposed that APS Council designate a LRPC member to serve as a liaison to SAC and vice versa. This change should promote more effective information transfer regarding future plans that impact on the membership. It is expected that the LRPC member would be able to directly inform SAC of how specific strategic plan initiatives are progressing, and the SAC member would be able to inform the LRPC of any concerns from the sections that relate to the ongoing and planned activities of the Society.

In accordance with the Section Operating Procedures, most of the sections have a journal representative on their steering committee. While in some cases this has been useful, in other cases the addition of this representative to the steering committee has not had any obvious benefit to the functions of the section. SAC members discussed ways in which the relationship between Section Steering Committees and Publications could be strengthened. One, the journals could advertise symposia or conferences of interest to the section by including "banners" when one accesses the journal online. Two, the journal representative

*(continued on page 288)*

(continued from page 287)
could take a more active role in programming for the section. If the journal representative identifies a topic that seems to attract a lot of manuscript submissions, they might organize a Featured Topic or Symposia that highlights the topic. Potentially, this topic could be a focus of a later issue of the journal.

All SAC members recently received a copy of the *Handbook for Sections of the American Physiological Society*. They have been advised to check the "Statement of Organization and Procedures" for their particular section and to make certain it is current. In some cases, these documents have not been updated in over 10 years.

**Annual Section Reports**

During the SAC meeting, each section Chair was asked to report what they considered to be their section's biggest success and failure in the past year. Among the positive outcomes: several sections have been able to obtain financial support for their activities and awards, and others have seen an increase in the number of applications by qualified individuals for their awards. Interestingly, the opposite was expressed by other sections. Specifically, there was a desire (but limited success at best) in getting support from individuals, businesses, or drug firms, etc to help support section activities and awards. Also, some sections are concerned by the fact that only trainee level individuals apply for applying for the Society-sponsored Young Investigator Awards. Another area that is a recurring concern for many sections is the inability to get members of their section to be willing to serve on APS committees or to submit ideas for programming at EB.

**Section Awards**

In the past two years, there has been an attempt to prevent an individual from receiving more than one abstract-based APS award for attendance at EB meetings. For EB 2003, six applicants received more than one award. Although this is an improvement from two years ago, there is still a need to work on this plan which was proposed in an effort to spread the numerous awards available to as many student/fellows as possible. The ability to prevent multiple awards going to the same individual is dependent on all sections following a particular schedule for selecting their award recipients. There was agreement at our meeting that the schedule used for EB 2003 should be used again in 2004 in hopes that continuity in the plan will make compliance more feasible.

At the SAC meeting, several section Chairs voiced a concern about the confusion resulting from multiple awards being termed "Young Investigator Award." Thus, SAC made a proposal to Council to change the name of the Society-sponsored Young Investigator Award to the Research Recognition Award. APS Council unanimously approved this request. Arrangements will be made to change the information on the APS Award pages so this will become effective for EB 2004.

Several SAC members reported that no applications were received for their section New Investigator Award. This award recognizes outstanding independent investigators in the early stages of their career who have made meritorious contributions to the area represented by the APS section to which they apply. In part, the lack of applications might have been due to the late notice regarding the availability of the award. Efforts will be made to draw awareness of this opportunity for EB 2004.

**Trainee Members of Section Steering Committees**

All section Chairs have complied with the request to have a trainee member (student or postdoctoral fellow) serve on their section steering committee. In accordance with the 2000 APS Strategic Plan, these 12 individuals will comprise a new Trainee Advisory Committee, whose purpose will be to facilitate the role of the Society in addressing needs of the young membership. Most sections have included one of the student/postdoctoral section award winners to serve in this capacity for a two to three year appointment. Some sections have also allowed this individual to organize a Featured Topic Session during their last year on the committee.

**Renaming of sections**

*Gastrointestinal Physiology Section*: This section has had to compete with the American Gastroenterological Association and American Association for the Study of Liver Diseases for submission of abstracts as meeting times for EB and these organizations are approximately one month apart. This situation has led to a decline in EB attendance by investigators who work in the fields of gastrointestinal and liver physiology and pathophysiology. In an effort to reverse this trend, members of the GI Section voted in favor of a proposal to change their name to Gastrointestinal and Liver Physiology Section. Council subsequently approved this name change.

*Comparative Physiology Section*: Many Comparative Section members recently participated in a straw poll to re-examine the image and name of the section. The outcome was a strong sentiment to include the words "Integrative" and "Evolutionary" in their section name in an effort to more accurately describe the group interest. Section members voted in favor of a plan to change the name to "Comparative, Integrative, and Evolutionary Physiology." At the Spring Council meeting, a modification of the proposal was recommended. Specifically, Council suggested that the section be re-named "Comparative and Evolutionary Physiology" in an effort to better represent the scope of the section, to broaden its appeal, and to encourage comparative scientists who are not presently APS members to join the Society and become involved in the section's activities. The Comparative Section Steering Committee will continue to discuss the matter with their membership before making a final decision regarding the proposed name change.

**Proposal to revise the format of Poster Sessions at EB Meetings**

In his address at EB 2003, NIH Director Adam Zerhouni noted the steps that NIH has taken to advance biomedical sciences, and he challenged the research community to become a proactive partner in this effort. Specifically, he pointed out that two of the greatest challenges that we face are to break down the existing barriers that inhibit cross fertilization between disciplines and to actively foster the next generation of biomedical researchers. EB meetings were ini-

tially designed to foster interdisciplinary interactions and nurture young scientists. However, the current format for poster sessions fails to meet this challenge. Specifically, since each Society independently arranges their posters, it is often done in a manner that fails to promote interactions of scientists with different backgrounds. SAC has requested that Council consider a plan to re-organize poster sessions in the following manner. Posters from abstracts submitted to different Societies would first be grouped by a general topic (e.g., cardiovascular, neuroscience, endocrinology), but within each category they would remain grouped by the Society. For instance, cardiovascular biology posters might be in row A and start with APS posters followed by ASPET posters, etc. Major benefits of this new format are that it would: *1*) help break down barriers that inhibit cross fertilization between disciplines, *2*) promote interdisciplinary research, and *3*) address some of the concerns raised by several young physiologists that the current format of EB meetings is not conducive to gaining new insight. Implementing this new format will require *1*) that all participating Societies buy into the plan, *2*) a small group of individuals to coordinate the project, and *3*) development of a method to evaluate the success/failure of the new format.

**Getting Involved in APS Section Activities**

APS members are encouraged to become active participants in their Section activities. Each APS member can select one primary affiliation and as many secondary affiliations as fit their interests. For those who are interested in becoming more involved in sectional activities, you can contact SAC members at: . For further information on the 12 Sections, go to http://www.the-aps.org/sect_groups.htm. ❖

*Susan M. Barman, Chair*

- Council accepted the report of the Section Advisory Committee.
- Council approved a motion to have the SAC chair serve on the Long Range Planning Committee as an ex officio member.

## Senior Physiologists Committee

With the increasing life time of US population, in 2002 the sum of the 80- and 90-years old APS members passed the number of the 70-years old members. To a certain extent this made the work of the Senior Physiologists Committee easier. The main job of the Committee is to collect letters for *The Physiologist* and thereby decreasing the gap between younger and older physiologists. A survey by members of the Senior Physiologists Committee at their own Institution showed that graduate students, postdoctoral fellows, and assistant professors read the letters of Senior Physiologists extensively; also established scientists find pleasure in reading these letters because of the interesting stories they contain. One would expect that everybody in the 70 - 90 years group would be glad to submit letters, but this is not so. The 70-years old members frequently pull out from writing letters, because their age is their "personal business." I spent several hours to convince these members (many of them are my friends) that it is their moral duty to support this unique drive of APS, but failed. Accordingly, the Senior Physiologists Committee depends more and more on the services of the 80-90 old generation and we are glad to hear their statement "aging makes me wiser."

The Committee greets the 70-, 80-, and 90-year old members by using either APS format letters on APS letterheads and envelopes, or using personal letters, or the special artistic cards of APS. In 2002, 194 letters were sent out and 28 answers were received. Thus, four to five letters from Senior Physiologists were published per issue of *The Physiologist*.

The Senior Physiologists Committee also reviews applications for the Senior Physiologists Award (G. Edgar Folk Jr. Senior Physiologist grant), $500, mainly supporting research or meeting attendance. One application was received and approved. ❖

*Michael Bárány, Chair*

- Council accepted the report of the Senior Physiologists Committee.

## Women in Physiology Committee

The Women in Physiology Committee has actively pursued new and diverse activities to fulfill its charge to mentor young scientists and provide incentives to them to present their work at APS meetings. APS Council approved a proposal from the Women in Physiology Committee to establish a Distinguished Mentor and Scientist Award named after former APS President **Bodil Schmidt-Nielsen**. The award recognizes Schmidt-Nielsen, the first woman President of the Society and a distinguished physiologist who has made significant contributions in her field. The award honors a member of the APS, of either gender, who is judged to have made significant contributions to physiological research and demonstrated dedication and commitment to excellence in training of young physiologists. The award will carry a $1,000 cash

*(continued on page 290)*

*(continued from page 289)*

prize and a commemorative plaque to be presented at the Experimental Biology meeting. The awardee will present a lecture on mentoring at a luncheon held during the EB meeting from 11:30 am to 12:30 pm.

The Women in Physiology Committee is very pleased that the APS Mentoring Program is available to both female and male young scientists. This program is designed to provide advice, encouragement, support and networking opportunities for young scientists who are currently in training or have just started a new position in academe or industry. The APS Education Office has completely revised the APS Mentoring Program website, which is interactive and has many sources of information for young scientists at the formative stages of their careers as well as for senior physiologist mentors in the program. To assist APS Education Office in the matching of mentor and mentee, Women in Physiology committee members will review requests for a mentor and make recommendations on the pairing of mentor and mentee. The goal of the Women in Physiology Committee is to match mentor-mentees as soon as possible, thus, enhancing the value of the mentor-mentee relationship. This approach should also provide encouragement to mentor-mentees to meet directly at the Fall APS conferences and EB meeting. Student members of the APS should be encouraged to visit the APS Mentoring Program website and to join this program. We noted that requests for mentors are submitted year round from students of both genders. The Committee also highly commends Marsha Matyas and Melinda Lowy for their exceptional efforts in redesigning the website. Society members are encouraged to participate in the program as either mentor or mentee; applications are available from the Society's Education Officer, Marsha Matyas, and on the program website at http://www.the-aps.org/education/mentoringprogram.

The Women in Physiology once again planned and co-sponsored a workshop with ASPET Women in Pharmacology at EB '03 on "Presentation Skills." Two representatives from the Women in Physiology Committee (**Carole Liedtke** and **Sinya Benyajati**) and one from the Committee on Women in Pharmacology (**Joan Lakoski**) served as co-organizers. The workshop was designed to provide training for mentors and mentees of both genders on best practices for oral and poster presentations, interviewing skills and sharing science with the public. An audience of over 250 young and more senior scientists were able to gain valuable insight on the basics of presentation skills through oral presentations, case studies and a handout distributed at the session. Plans are underway to make the slides used by the panelists as well as the handout material available on the APS and ASPET websites. The Women in Physiology Committee has already taken the lead in planning and co-sponsoring a workshop with the ASPET Committee on Women in Pharmacology at EB '04 on "Life After the PhD: Finding a Postdoctoral Fellowship."

The committee has the pleasure of serving as the review panel for the Caroline tum Suden/Frances Hellebrandt Professional Opportunity Awards. These awards provide monetary ($500) prizes and complimentary registration for 36 graduate students and postdoctoral fellows (of either gender) who give presentations at the EB meeting. The committee critically reviews abstracts submitted to EB and a supporting letter from the applicant in its selection process. Society members are strongly encouraged to remind their trainees of this opportunity.

As committee chair, Liedtke serves as the APS representative to the selection committee for this FASEB Excellence in Science Award. This prestigious award carries a $10,000 cash prize (supported by Eli Lily) and the opportunity to present a plenary talk at a FASEB-sponsored meeting. For EB '03, the recipient was **Joan Sietz**, Department of Physiology and Biophysics, Howard Hughes Medical Institute, Yale University, an ASBMB member. The committee encourages all APS members to identify potential candidates for this prestigious award and, as one small step in this direction, to nominate women to give Distinguished Lectures organized by the various sections of APS. Less than 10% of the Distinguished Lecturers since 1995 have been women.

One of the charges to the Women in Physiology Committee is to encourage women to be active members of the APS. Serving on APS committees and APS Section Steering Committees are two avenues for fulfilling this leadership function. The committee is delighted that this year **Helen Raybould** joins two women currently serving on APS Council, **Kim Barrett** and **Virginia Miller**. Former Chair of the Women in Physiology Committee, **Susan M. Barman**, and current Chair, **Carole M. Liedtke**, published an update of the history of APS in the February, 2002 issue of *The Physiologist*. The article entitled "Growing Participation of Women in Physiology: 1987-2002" focused on the increasing role of women in the activities and governance of the APS. We are particularly grateful for the invaluable assistance of Linda Allen, Linda Dresser, Melinda Lowy and Margaret Reich for helping gather data for the article.

At its summer meeting, APS Council approved a motion to develop a set of core competencies, which all postdoctoral and graduate student trainees should learn. The Chairs of the Education, Women in Physiology, and Career Opportunities Committees and three representatives of the Association of Chairs of Departments of Physiology formed a task force to prepare a draft of the Professional Skills. The draft has been reviewed by members of the Education, Women in Physiology, and Career Opportunities Committees and presented to the Task Force for concluding discussion and revision. The work of this committee was considerably eased by the excellent assistance from the APS Education Office, in particular Lowy and Matyas. ❖

*Carole M. Liedtke, Chair*

- Council accepted the report of the Women in Physiology Committee.
- Council approved the funding for a lunch and lecture by the Bodil Schmidt-Nielsen Distinguished Mentor and Scientist Awardee at EB 2004.

The Physiologist
Vol. 45, No. 5, 2003

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

**Christine Seidman**
Harvard Medical School

*"Human Genetics: New Clues For Physiology and Pathology"*

SATURDAY, APRIL 17, 5:45 PM

HENRY PICKERING BOWDITCH AWARD LECTURE

**Robin L. Davisson**
Univ. of Iowa

*"Unraveling Cardiovascular Disease Through Physiological Genomics"*

SUNDAY, APRIL 18, 5:45 PM

CARL W. GOTTSCHALK DISTINGUISHED LECTURESHIP OF THE RENAL SECTION

**Thomas Jentsch**
Hamburg Univ., Germany

*"Chloride Transport in the Kidney: Insights From Mouse Models and Human Disease"*

SUNDAY, APRIL 18, 8:00 AM

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

**Jerome Dempsey**
Univ. of Wisconsin, Madison

*"Crossing the Apneic Threshold: Causes and Consequences"*

SUNDAY, APRIL 18, 10:30 AM

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

**Cliff Saper**
Harvard Medical School

*"A Hypothalamic Integrator for Circadian Regulation"*

SUNDAY, APRIL 18, 2:00 PM

CLAUDE BERNARD DISTINGUISHED LECTURESHIP OF THE TEACHING OF PHYSIOLOGY SECTION

**Harold Modell**
Physiology Education Research Consortium, Seattle, WA

*"Evolution of an Educator: Lessons Learned and Challenges Ahead"*

SUNDAY, APRIL 18, 3:15 PM

HUGH DAVSON DISTINGUISHED LECTURESHIP OF THE CELL AND MOLECULAR PHYSIOLOGY SECTION

**Peter Agre**
Johns Hopkins Univ.

*"Aquaporin Water Channels at the Convergence of Physiology and Medicine"*

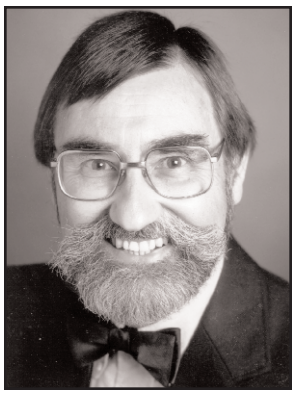
MONDAY, APRIL 19, 8:00 AM

ROBERT M. BERNE DISTINGUISHED LECTURESHIP OF THE CARDIOVASCULAR SECTION

**Gary Owens**
Univ. of Virginia

*"Molecular Regulation of Smooth Muscle Differentiation in Development and Disease"*

MONDAY, APRIL 19, 10:30 AM

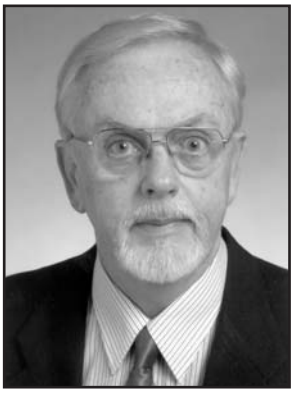


August Krogh Distinguished Lectureship of the Comparative Physiology Section

**William Dantzler**
Univ. of Arizona

*"A Vertebrate Renal Odyssey—Organic Solute Excretion and Water Conservation in Reptiles, Birds and Mammals"*

Monday April 19, 2:00 PM



Solomon A. Berson Distinguished Lectureship of the Endocrinology and Metabolism Section

**Bert O'Malley**
Baylor College of Medicine

*"Signalling Through the Steroid Receptor Coactivators"*

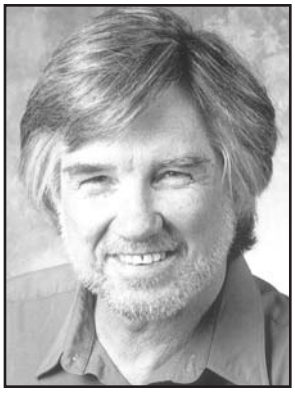
Monday, April 19, 2:00 PM

Horace W. Davenport Distinguished Lectureship of the Gastrointestinal Section

**John Forte**
Univ. of California, Berkeley

*"The Gastric Hydrogen Ion Cycle"*

Monday, April 19, 3:15 PM

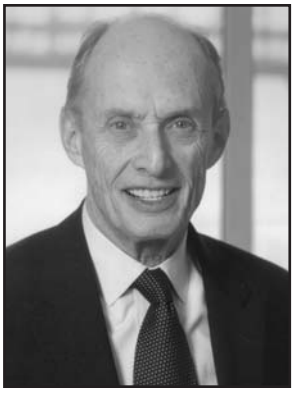


Edward F. Adolph Distinguished Lectureship of the Environmental and Exercise Physiology Section

**Reggie Edgerton**
Univ. of California, Los Angeles

*"Learning and Memory in the Spinal Cord"*

Tuesday, April 20, 8:00 AM



Joseph Erlanger Distinguished Lectureship of the Central Nervous System Section

**Paul Greengard**
Rockefeller Univ., NY

*"Signal Integration in the Central Nervous System"*

Tuesday, April 20, 10:30 AM

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

**Christopher Wilcox**
Georgetown Univ.

*"Oxidative Stress and Functional NO Deficiency in the Kidney: A Critical Link to Hypertension?"*

Tuesday, April 20, 2:00 PM

**Experimental Biology 2004**
**Abstract Submission Deadline**
**November 12, 2003**

# April 17-21, 2004
# Washington, DC

**Workshops and Special Symposia**

## Nutrient Sensing and the Metabolic Syndrome of Aging

American Federation for Medical Research

**Nir Barzilai**

N. Barzilai, M. Brownlee, M. Hawkins, L. Rossetti

The "metabolic syndrome of aging" in this program refers to a constellation of metabolic defects including insulin resistance, abdominal obesity, dyslipidemia, hypertension and increased circulating levels of pro-thrombotic and pro-inflammatory peptides. This syndrome is an important risk factor for cardiovascular disease and other age-related diseases, with significant impact on all-cause mortality. We hypothesize that aging is characterized by a decline in hypothalamic function leading to a relative or absolute increase in energy intake, increased fat mass and impaired regulation of fat distribution. We propose that the resulting increases in nutrient availability, total adiposity and abdominal fat distribution contribute both independently and cooperatively to the metabolic syndrome of aging. The hexosamine biosynthetic pathway (HBP) may provide a unifying role as a 'nutrient-sensing' pathway, since its activation by nutrient excess results in functional alterations of key intracellular proteins by glycosylation. Activation of the HBP in fat and endothelial cells induces the expression of pro-thrombotic and pro-inflammatory peptides, which may contribute to insulin resistance and endothelial dysfunction. Increased fat mass, and selective increases in the metabolically dangerous abdominal fat, would, therefore, potentiate the above process. The goals of this symposium are: to demonstrate that excess nutrients can initiate the key components of the metabolic syndrome of aging; to implicate specific nutrient-sensing pathways in the pathophysiolgy of this syndrome; and to discuss new therapeutic approaches for the protection from age-related diseases. These lectures will be given by a team of investigators at the Albert Einstein College of Medicine. This symposium will span the full spectrum from cell biology to in vivo animal physiology to "translational" studies in humans.

## Peer-Review and Publication in the APS Journals

APS Publications Committee

**Dale Benos**

D.Benos, M. Reich, A. Trudgett, G. Ebner

## Biological Applications of Nanotechnology

APS Cross Sectional Symposium

**Jahar Bhattacharya**

T. Vo-Dinh, B.F. Erlanger, E.Ruoslahti, D.Cheresh

Although the development of nanoscale devices, or nanotechnology, has revolutionized the material sciences, the biomedical application of nanotechnology is in its incipience. The promise of nanotechnology lies in that nanoscale devices hold much potential for providing new scientific paradigms and investigative strategies in biomedical research. The goal of this symposium is to draw attention to these issues in the context of novel nanotechnological approaches that have already been developed in cells and tissues. The speakers, who have all agreed to come, have developed pioneering nanotechnological applications, including the use of nanofibers for optical bioanalysis in living cells, fullerenes for intracellular delivery of antibodies, nanoparticles for tumor therapy and nanocrystals for targeted drug delivery. These outstandingly novel issues will be presented for the very first time in a symposium format. Each presentation will be followed by discussion. We expect the symposium to be of widespread interest.

## The SAGA of Fever

APS History Section

**Clark M. Blatteis**

E.Atkins, C.A. Dinarello, A.S. Milton, P.A. Mackowiack

Although fever has been recognized as a sign of illness for thousands of years, the first mechanistic concept of fever originated more recently, with Hippocrates ("blood, phlegm, black bile, and yellow bile") who postulated that fever results from an excess of yellow bile. His view predominated largely unchanged until the Middle Ages, when demons were added to the mix. It was not until the 19th century that more rational explanations began to be proffered, particularly after Claude Bernard showed that body heat is generated by metabolic processes. But it was not until the 20th century that it was appreciated that fever is a defensive response of hosts invaded by infectious microorganisms. After that, our understanding of the mechanisms that underlie the febrile response grew exponentially. This progress was highlighted by several seminal discoveries along the way. This symposium is privileged to present four of the most notable contributors to those advances who will personally review their travails on the road to solving one of nature's oldest and still incompletely resolved scientific enigmas.

## Development of Arterial Oxygen Chemoreception in Mammals: Bench to Bedside

**APS Hypoxia Group**

**John L. Carroll**

J. L. Carroll, E. Gauda, D.Gozal, C. Gaultier

The carotid chemoreceptors are the main sensors of arterial oxygen (O2) in mammals. In neonates but not adults, carotid denervation leads to high mortality rates and abnormalities of respiratory control, suggesting a vulnerable period during mammalian postnatal maturation during which the CB is important for survival and/or normal maturation of breathing control. Despite their importance, the carotid chemoreceptors have low sensitivity to hypoxia at birth and become more sensitive over the first few days or weeks of life; a process termed "resetting."

Although mechanism(s) underlying arterial chemoreceptor resetting remain unknown, a considerable amount of interesting new research has started to converge on a plausible theory for the increase in O2 sensitivity after birth. This is a fascinating area that is of interest to all researchers studying hypoxia, hyperoxia, O2 sensing mechanisms and development of respiratory control. The developmental model can yield insight, not only into development, but also into basic mechanisms of O2 sensing in general. The proposed symposium spans the gamut from molecular/cellular level, to central neural pathways of chemoreceptor afferents, to clinical breathing control and clinical disorders such as sudden infant death syndrome.

## Polycystic Kidney Disease: From Bench to Bedside

APS Renal Section

**Arlene B. Chapman**

R. Sanford, W. Guggino, J. Zhou, S. Somlo

Significant advances have been made with regard to the understanding of the molecular mechanisms responsible for the development of epithelial cyst formation in polycystic kidney disease. These discoveries have been through the efforts of investigators from a variety of backgrounds requiring multidisciplinary approaches to the investigation of the functions of the PKD1 and PKD2 gene protein products and the understanding of pathogenic pathways in renal cystic disorders. In this forum we will review the clinical feature of polycystic kidney disease, the location, function, trafficking, and signaling of polycystin 1 and 2, the protein products of the PKD1 and PKD2 genes. Evidence for regulation by the polycystins of ion channels, calcium and G protein signaling will be discussed. The importance of epithelial ciliary abnormalities in polycystic disorders and their potential primary role for cyst formation will be reviewed. The use of PKD1 and PKD2 genetically engineered animal models to understand disease mechanisms and polycystin function will be presented.

## Control of Blood Flow in the 21st Century-More Questions Than Answers

APS Cardiovascular Section

**William Chilian**

W. Chillian, D. Gutterman, D.G. Harrison, R. Busse, D. Merkus, R.J. Bache

The control of blood flow at the local level is an enigma: it is essential to the survival of organ systems that depend on a continual supply of oxygen for function-brain and heart-but in the 21st Century these regulatory mechanisms are poorly understood. The goal of this symposium is to gather esteemed scientists who are known for their work on vascular control, and who study the control of vasomotor tone by using vertically integrated approaches. Chilian, one of the session chairs, will introduce the problem and discuss some of the recent approaches that are being used to study this problem. Gutterman will present his work that shows the control of tone in human resistance arteries is not always best extrapolated from animal studies, and even a response such as dilation to adenosine is transduced by a different set of signaling molecules than in animal models. David Harrison will discuss the role of oxidant stress in modulating vasoactive reaction in blood vessels, and will describe experiments using conditional knock-outs to study vasoactive events. Rudi Busse will summarize recent work showing the importance of the cytochrome P450 system in the production of epoxyeicosotrienoic acids, and how dominant/negative viruses and anti-sense approaches allowed understanding of this problem. Merkus will discuss the problem some vasoactive mechanisms by which parenchymal cells communicate with both vascular myocytes and the endothelium. Merkus will discuss factors that influence the production of constrictors and dilators by cardiac myocytes and how alterations in the balance of this production impacts significantly on coronary vasomotor tone. And finally, Bache will summarize the content, and discuss how to put together such information into an integrated scheme. This symposium should draw an audience from the CV Section, the Microcirculatory Society, NAVBO, and the cardiovascular interest groups of ASPET. There has not been a symposium dedicated specifically to vascular control at EB since 1996. In that symposium, the attendance was over 300 people, and we believe latest insights into vascular control are an important topic.

## Mitochondrial Function in Aging and Disease

APS Cell and Molecular Physiology Section

**Kevin E. Conley**

G.A. Cortopassi, M. Harper, C. Leeuwenburgh, G. I. Shulman, D.J. Marcinek

The decline in mitochondrial function is a key part of aging and a number of diseases. This functional loss means a reduced capacity for oxidative ATP synthesis and increase susceptibility to apoptosis and cell death. This symposium asks what is the basis of the loss of function and what aspects of aging and disease cause a functional decline. The goal is to identify the role of genetics, disease damage and secondary disease effects on the loss of mitochondrial function. First, we ask what role damage to the mitochondrial genome plays in mitochondrial neurodegenerative diseases (e.g., Friedriech's ataxia) that develop with age (Cortopassi). The loss of motor control due to mitochondrial defects in nerves will serve as an example of the role of gene mutations and damage in the functional decline. Second, the mitochondrial damage resulting from aging vs. oxidative stress will be presented. The goal of the second two talks is to separate the normal decline with aging (Harper) from the pathological damage that occurs with oxidative stress and other noxious factors (Leeuwenburgh). In specific, the role of oxidative damage in apoptosis will be presented. Third, many diseases have secondary effects on mitochondria that reduce function. These secondary effects will be explored by focusing on the role of mitochondrial function in insulin resistance in diabetes (Shulman). Finally, new, non-invasive approaches for measuring mitochondrial function in vivo will be presented as an important future direction for investigating the time course and extent of mitochondrial changes with aging and disease.

## The Role of Integrins in Vascular Cell Signaling and Regulation of Vascular Tone and Permeability

APS Cell and Molecular Physiology Section

**Michael J. Davis**
G.A. Meininger, J. Bhattacharya, S. Chien, G. E. Davis

Integrins are a large family of membrane-spanning glycoproteins that link the extracellular matrix (ECM) to the cytoskeleton. Integrins mediate both "inside-out" and "outside-in" signaling by virtue of their role in the organization and assembly of cytoskeletal signaling complexes within the focal adhesion. These complexes contain a large number of cytoskeletal proteins, adaptor proteins and protein tyrosine kinases that, when assembled or rearranged, initiate downstream signaling cascades. Integrin interactions with soluble and insoluble ECM ligands can trigger these intracellular signaling events but, in addition, integrins provide paths for preferential transduction of mechanical force across the plasma membrane. The role of integrins in the adherence, differentiation, migration and growth of cells in the cardiovascular system, e.g. in angiogenesis, is well known. But recently, there is emerging evidence that integrins also play an important role in the acute regulation of vascular tone and vascular permeability under both physiological and pathophysiological conditions. The premise of this symposium is to highlight and discuss the evidence for these previously unappreciated roles for integrins in blood vessels.

The symposium will begin with a brief introduction by the Davis, to the concept of integrin-mediated mechanotransduction and signaling in the vasculature. Meininger will then present evidence that soluble integrin ligands can acutely regulate vascular tone, and discuss recently developed methods for measuring integrin-specific mechanotransduction in vascular cells using atomic force microscopy. Bhattacharya will focus on the role of integrins in regulating the endothelial permeability barrier in lung capillaries. Chien will discuss the role of integrins in the mechanotransduction of shear stress to endothelium. Finally, Davis will introduce novel ideas about how breakdown of the ECM, as occurs in vascular remodeling, ischemic injury and a number of other pathological conditions, can expose cryptic sites in ECM proteins (matricryptins), allowing them to play a role in the acute regulation of vascular tone. It is anticipated that presentation and discussion of these new roles for integrins in vascular endothelium and smooth muscle will be a topic of great interest to members of the APS and other societies and will stimulate new avenues of cardiovascular research.

## Functional Connections Among Ponto-medullary Respiratory Neurons

APS Respiration Section

**James Duffin**
J. Duffin, B.G. Lindsey, H. Nimaru, J.F.R. Paton

The primary function of the central respiratory system of the medulla and pons is to provide the automatic rhythm that drives respiratory muscles controlling lung ventilation and upper airway patency, as well as integrate a hierarchy of signal inputs as part of feedback control. Although much progress has been made in investigating hypotheses about how respiratory rhythm is generated, and several models have emerged in recent years incorporating pacemaker hypothesis, we have reached the point where we must still admit that network interconnections have a vital role to play. To quote from the 2003 *Annual Review of Neuroscience* article by Feldman, Mitchell and Nattie: "As yet, we do not understand the neural mechanisms that underlie rhythm generation-they are up for grabs." Connections among the network of neurons involved are difficult to ascertain, but are slowly being revealed, and the four eminent speakers of this proposed symposium represent a cross-section of the approaches used and will both summarize recent achievements and review past knowledge. Duffin will act as chairman for the symposium and also provide an introductory overview of the interconnections among medullary respiratory neurons in decerebrate rats in-vivo that may contribute to rhythm generation and shaping the output to spinal and hypoglossal respiratory motoneurons. Lindsey will then present findings from multi-site recordings in vivo anaesthetized/decerebrate cats, and provide direct evidence for the presence of network "modules" (multiple correlations) in the respiratory brainstem. Onimaru will follow this theme discussing findings using optical recording methods in the in-vitro neonatal rat brainstem spinal cord preparation as well as the presenting electrophysiological data highlighting the importance of the opioid resistant pre-inspiratory neurons in rhythm generation. Finally using the working heart-brainstem preparation, Paton will survey the connections from somatic afferent inputs to the ponto-medullary respiratory network. In summary, these four speakers will present an up-to-date view of what is known about the interconnections among ponto-medullary respiratory neurons from markedly different viewpoints provided by experiments in several different preparations.

## Neural Control of Venous Capacitance Function in Health and Disease

APS Neural Control and Autonimc Regulation Section

**Gregory D. Fink**
J. V. Tyberg, A. Shoukas, C.C. Pang, G.D. Fink

This symposium will address the question of regulation of vascular capacitance affects overall control of the circulation. Systemic vascular capacitance is largely determined by the properties of small veins, particularly those in the splanchnic organs. Passive changes in vein diameter can strongly affect vascular capacitance, but this symposium will focus on active changes in venous smooth muscle activity. This topic has received relatively little attention in recent years, despite evidence that abnormal vascular capacitance regulation participates in the etiology of orthostatic disorders, dialysis-related hypotension, chronic fatigue syndrome, heart failure, hypertension and other important clinical problems. Tyberg will begin the symposium with an explication of his novel approach to under-

standing the interrelationships between venous capacitance, venous return and cardiac output. Shoukas will show how changes in vascular capacitance are key determinants of the overall circulatory response to activation of the arterial baroreflexes. Both of these presentations will emphasize quantitative and model-based approaches to the topic. Venous smooth muscle activity can be significantly modified by drugs and hormones with important consequences for regulation of vascular capacitance. Pang will discuss how autonomic and other drugs modify venous smooth muscle tone as assessed using drug induced changes in mean circulatory filling pressure in the intact animal. Finally, Fink will illustrate fundamental differences in the way sympathetic nerves control venous versus arterial smooth muscle, and possible implications of these difference for understanding the etiology of hypertension and other cardiovascular diseases. A major purpose of this symposium is to reemphasize the importance of venous capacitance regulation as a way of identifying new strategies for treating cardiovascular disease.

## Breathing and Walking Following Spinal Injury

APS Respiration Section
**David D. Fuller and Francis J. Golder**
V. R. Edgerton, G.D. Muir, C.B. Mantilla, D. D. Fuller, K. D. Nantwi

Appropriate induction of plasticity in spinal neurons and networks can partially restore motor function following spinal cord injury (SCI). Plasticity may be induced by specific training paradigms, pharmacological treatments, or spontaneous mechanisms activated following injury. The aim of this symposium is to bring together leaders in the study of SCI, plasticity and breathing with investigators examining similar issues with respect to locomotion. The objective is to determine if similar experimental approaches can be used, and if the underlying physiological principles are similar between respiratory- and locomotor-related spinal cord plasticity following SCI. The first two speakers will address the more established topic of plasticity and locomotion after SCI. The featured speaker, Edgerton, will discuss potential mechanisms by which locomotor training improves post-SCI motor performance. Muir will then discuss how spinal plasticity enables compensatory locomotor adjustments following cervical and thoracic SCI. The next three speakers will build upon the theme of spinal plasticity but will shift the focus to respiratory control following SCI. Mantilla will discuss the role of neurotrophins in phrenic motoneuron plasticity. Fuller will discuss how two separate paradigms can "train" respiratory neural pathways and thus strengthen spinal synaptic pathways to phrenic motoneurons. Finally, Nantwi will focus on pharmacological approaches aimed at improving respiratory motor output following cervical SCI.

## Insulin-independent Exercise Signaling Pathways

APS Muscle Biology Group
**Laurie J. Goodyear**
Speakers: TBA

## Guyton Memorial - Arthur C. Guyton: The Man and His Science

APS Special Symposium
**Joey P. Granger**
J. Hall, A. Cowley, G. Navar, H. Granger

## Neuroendocrine Modulation and Adaptative Responses to Stress

Association of Latin American Physiological Societies
**Rosalinda Guevara-Guzman**
J. Antunes-Rodrigues, C. Rodriguez-Franci, J.Antunes-Rodrigues, R. Guevara-Guzman

The noradrenergic control of prolactinsecretion in the female rat. Prolactin secretion is deeply influenced by estrogens and stress. The noroendocrine response to osmotic stimulation. The interaction of neurohypophyseal hormones like oxcytocin is involved in the hydromeneral balnce through direct natriuretic effect. Adaptive responses in receptor binding induced by eplileptic seizures in immature rats.

## Making Science News: A Journalists Roundtable

APS Communications Committee
**Andrea Gwosdow**
Speakers: TBA

Mapping the genome…hypertension…heart disease - the list of recent news stories written on science-based issues goes on and on. These articles are part of a growing niche in the media for science and health news. Journalists are eager to report on new research in the life sciences. Many reporters have a moderate knowledge of the sciences and some even have subscriptions to scientific journals. They are becoming more receptive to scientific information, especially that which affects human health and personal quality of life. A growing number of reporters have become proactive in their approach, contacting scientists to explore new research on the horizon.

What does this mean to APS members? This ever-expanding interest in scientific news is an opportunity to assist in public understanding of and garner public support for scientific and biomedical research. Not only are there many more occasions to publicize scientific studies, but there is also a higher probability that scientists will be called upon by the media to explain these studies. Helping scientists to take advantage of these opportunities is the aim of the EB 2004 Symposium organized by the APS Communications Committee.

The symposium, entitled, "Making Science News," will feature a panel of three journalists (from TV, newspaper and radio) who will offer their insight into what makes science news and the best practices for getting scientific research covered.

The journalist panel will be followed by an intimate media workshop led by medical publicist Donna Krupa, discussing how scientists can work with the media. Participants will also engage in hands-on exercises that focus on the best ways to present scientific research to reporters.

The goal of this symposium is to familiarize scientists with how the media works. By preparing scientists to sculpt clear, media-ready messages, the scientific community assists in bringing accurate information to the public. The symposium is open to all and will be held in the Convention Center Room 140A on Saturday, April 17, 2003 from 2-5 p.m.

## Claudin Expression and Function in the Kidney

APS Renal Section

**Raymond C. Harris**

A.S. Yu, R. Lifton, A. B. Singh, L. Gonzalez-Mariscal

A fundamental function of the polarized epithelia is to maintain separation between apical and basolateral compartments and to regulate the exchange of substances between them. This regulation requires a barrier property, and tight junctions (TJs), a belt of anatomizing strands of proteins and lipids around the lateral membrane of epithelial cell create this barrier. Along the length of the mammalian nephron, functional tight junction characteristics are remarkably varied. Claudins have recently been identified as the integral structural and functional transmembrane proteins of tight junctions, and their functional importance has been demonstrated by identification of claudin gene mutations that eliminate tight junctions in myelin and the testis, abolish Mg2+ reabsorption in the kidney, and cause autosomal recessive deafness. To date 24 members of this family have been identified that encode proteins that range from ~20 to 27 kDa. However, each claudin exhibits a distinct tissue-specific pattern of expression. Recent studies have begun to identify the distribution pattern of the claudins in different nephron segments and to examine their function in regulation of paracellular ionic flux. The goal of the proposed symposium is to review the current state of knowledge about claudin expression and function in the mammalian kidney.

## Strategies for the Prevention of Alcohol-Mediated Tissue Injury

American Federation for Medical Research

**Michael Hart**

A. Banan, L.A. Brown, D. Guidot, C.M. Hart, J. Sisson

Although chronic alcohol ingestion injures specific target tissues including the liver, recent evidence demonstrates that chronic alcohol ingestion also predisposes non-traditional tissue targets such as the lung and intestinal epithelium to injury. Chronic alcohol ingestion predisposes to lung injury through alterations in pulmonary epithelial and endothelial function. Chronic alcohol ingestion perturbs gut epithelial function by similar mechanisms. The presenters in this symposium will highlight recent advances in the understanding of mechanisms by which chronic alcohol ingestion mediates epithelial and endothelial cell dysfunction in vitro and in vivo. The roles of alcohol-induced depletion of cellular glutathione, stimulation of reactive species, and activation of angiotensin II and transforming growth factor beta signaling will be discussed. Finally, clinically relevant strategies that prevent tissue and organ dysfunction will be reviewed, and the potential for these interventions as future strategies in the prevention or treatment of alcohol-related disease will be discussed.

## The State of the Progenitor: A Comprehensive Stem Cell Research Update

American Federation for Medical Research

**Meredith Hawkins**

D.A. Prentice, S. Gupta, R. Burt, N. Cameron

The pluripotent nature of "stem cells" offers tremendous promise for cell therapy approaches to many debilitating diseases. Notwithstanding, this area of science is in its infancy. Embryonic, fetal and adult stem cells all carry unique possibilities alongside sizeable risks and limitations. Furthermore, the potential use of human fetal and embryonic cells opens vast bioethical minefields, which must be treaded cautiously. This symposium will combine overviews of the scientific and bioethical issues with up-to-the-minute scientific presentations demonstrating significant advances in using both fetal/embryonic and adult stem cells to treat important clinical conditions. Prentice and Cameron, in reviewing the relevant science and bioethics, will draw upon considerable experience in presenting these challenging topics to high-profile audiences, including Congress and many Parliaments, as well as diverse scientific audiences. Gupta and Burt will present specific applications of fetal/embryonic and adult stem cell research in the treatment of such debilitating diseases as liver failure, diabetes mellitus, multiple sclerosis and systemic lupus erythematosis.

## A Bioinformatics How-To for the Wet-Lab Physiologist

APS Physiological Genomics Group

**Howard Jacob**

C. Kendziorski, E. Green, A. Kwitek, T. Paterson

Understanding the mechanisms of complex systems biology is greatly facilitated by merging computational approaches with good systems biology. Bioinformatic tools and databases for genomic information offer comprehensive information that can facilitate the better understanding of disease mechanisms; however, knowing where to go to find publicly available information as well as how to best utilize the data to better direct physiological research can be daunting. This symposium serves to give instruction on the applications of bioinformatics tools and databases to address physiological genomics. Subjects to be discussed include: integrating information from the public databases, analyzing large scale microarray data, using comparative genomics for understanding human pathophysiology, and using in silico methods to predict clinical outcomes of treatment.

## The Promised Land or Fatal Attraction? A Practical Overview of the Present and Future of Genetically Engineered Mice

APS Workshop

**Donald E. Kohan**

E.H. Leiter, C.D. Sigmund, A.A. Mills, A. Nagy, W.C. Skarnes

Genetically engineered mice are important tools in studying development, physiology, pharmacology, microbiology, immunology, biochemistry, molecular biology and disease processes. Recent discoveries in hypertension, diabetes, neural development, cancer, angiogenesis and other areas could only have been made using genetically engineered mice. The techniques employed in these mouse models are increasingly diverse and complex. Improved transgene expression, inducible transgene activation, cell-specific gene targeting, and mutagenesis of the mouse genome have created possibilities for understanding normal and pathologic processes heretofore impossible. With the addition of these valuable tools in the researcher's armamentarium, several problems have arisen. Many may be unaware of the possibilities. For others, the potentially bewildering array of techniques is intimidating. Conversely, the relative novice, attracted by the power of these tools, may have unrealistic expectations, unaware of the pitfalls and complications. Even for those not considering using these techniques themselves, it is important to understand their appropriate application.

As genetically engineered mice gain increasingly popularity and as powerful new techniques are introduced, it is important that scientists understand what these techniques are and how they can be successfully employed. Equally as important, scientists must have a reality check - what can go wrong and how much time and effort is required. Thus, each speaker will give a brief overview of the technique in their area of expertise, discuss an example of its successful use, describe problems and pitfalls, and close with a figure illustrating the time, effort and cost involved in their project. A short but relevant bibliography and list of potential contacts will be placed on the screen at the end of the session. The first speaker will be Leiter from Jackson Labs who will introduce the critical concept of considering the effect of genetic background on phenotype - an area often overlooked. He will relate this to his experiences studying diabetic mouse models. Sigmund at the University of Iowa will discuss new techniques for improving reliability of transgene expression in traditional transgenic mouse models, including BAC clones and insulator elements. He will draw on his experiences in studying the renin-angiotensin system. Third, Mills from Cold Spring Harbor Labs will review inducible gene systems, including the newly described lac operon system. Nagy from Toronto will review the Cre-lox system, which he has extensively used in developmental studies. Lastly, Skarnes from UC Berkeley will discuss the tantalizing prospect of developing libraries of mice that contain mutations in every gene, focusing on gene trap mutagenesis and studies on mouse development.

## New Genomic Technologies for Systems Biology

APS Physiological Genomics Group

**Anne Kwitek**

A. Pack, M. Michalkiewicz, M. Gould, B. Davidson

The substantial success of the genomic era has provided the infrastructure to identify all genes in human and other model organisms. These data, made publicly available to all, are leading the way to the critical question of what is gene function and how does it relate to the pathology of disease. Part of the complication of understanding gene function, particularly in relation to complex disease, is being able to study its effect in whole animal systems. This symposium focuses on how new genomic technologies are being applied within whole animal physiology to determine the functional role of genes in disease. Approaches to be addressed are microarray, BAC transgenics a novel method of gene knockout, and in vivo siRNA studies.

## Physical Activity: A Drive for Central Neural Plasticity

APS Environmental & Exercise Physiology Section

**Jeffery Kramer and Tony Waldrop**

N. Berchtold, H. vanPraag, J. Kramer, F. Gomez-Pinilla

The impact that physical activity plays in reshaping the anatomical, molecular, cellular, electrophysiological and molecular profile of various regions of the brain has garnered significantly more attention in recent years. This broad area of research spans several fields of study including, but not limited to, cognitive psychology, learning and memory, aging, development, physical rehabilitation and autonomic neuroscience. The fact that a single, yet complex stimulus, such as physical activity, positively impacts multiple neural systems provides a unique opportunity to compare and contrast the multiple effects of physical activity on neural function. Also, it allows us to better understand neurophysiological mechanisms by which physical activity can increase health.

As such, the purpose of this symposium is to present contemporary research on the ability of physical activity to change central neural function at the molecular, cellular and systems levels. Particular attention will be paid to focusing on recent research advances in the field of neurogenesis, trophic factor expression, autonomic regulation and rehabilitation.

## Mediators of Liver Inflammation

APS Gastrointetinal & Liver Section

**Alex B. Lentsch**

P. Kubes, M. Clemens, T. Billiar, H. Jaeschke

This symposium will broadly address the topic of liver dysfunction induced by a variety of causes including sepsis, trauma/hemorrhage, and ischemia/reperfusion. The session will provide the audience with a comprehensive discussion of important mediators of the hepatic inflammatory response, ranging from cell surface-expressed adhesion molecules to secreted proteins to oxygen metabolites, and their roles in the induction and propagation of liver inflammation and injury. By its nature, the symposium will also provide a dis-

cussion of the clinical relevance of these topics and how therapeutic targets are identified.

## Use of Mouse Models to Understand the Pathophysiology of Diabetes: Implications for Preventing Complications

APS Translational Research Group

**Derek Le Roith**

A. Domenico, B. B. Kahn, C. Ronald Kahn, M. J. Birnhaum

Type 2 diabetes is an extremely common disorder. It is usually associated with insulin resistance and the multiple metabolic syndrome, the features of which lead to the commonly seen diabetic complications including micro-and macro-vascular disease. Recently, much progress in our understanding of the pathophysiology of the disorder has been made by the study of genetically manipulated mouse models.

This symposium will present the latest models that have been produced and their insights into the beta cell dysfunction and insulin resistance--the two defects found in this disorder. Associated abnormalities that affect the disease such as glucotoxicity and lipotoxicity will be addressed as well as the progression to diabetic complications with the emphasis on how manipulations of these associated conditions can be prevented.

## Life After the PhD: Finding a Postdoctoral Fellowship

APS Women in Physiology Committee

**Carol Liedtke & Kathleen Berecek**

K. Berecek, L. Nisenbaum, A.Grippo, D. Korzick

The Women in Physiology is very pleased to jointly sponsor a workshop at EB 2004 on "The Next Step: Postdoctoral Fellowship" with the ASPET Women in Pharmacology Committee. APS Co-chairs Carole M. Liedtke and Kathleen Berecek will coordinate planning with ASPET Women in Pharmacology Chair Joan Lakoski. The workshop is targeted to young scientists of both genders interested in learning skills for their future careers. The workshop will present information for guiding young trainees on looking for and selecting a postdoctoral fellowship. One goal of the workshop is to define what a postdoc is and to identify various types of postdoctoral positions available. The format of the workshop is to present four topics in 10-15 minute talks followed by a breakout session. Panelists will include, but not be limited to, APS and ASPET women who have positions in academia and industry/government in order to create an awareness of successful role models in various scientific/research settings. The panel will include APS members Kathy Berecek (what is a postdoc), Donna Korzick (Interview and Follow-Up) and Laura Nisenbaum (What types of postdoctoral positions are available). The fourth speaker, Angela Grippo, is just starting her postdoctoral fellowship and will talk about resources for finding a postdoctoral position. The breakout session is planned to promote active participation of the audience and young scientists in best practices for each topic. The workshop offers a venue for networking between junior and more senior scientists. The workshop also fulfills a charge to the Women in Physiology Committee to distribute information to young scientists regarding strategies for a successful career in science. In addition, it fulfills a charge to coordinate activities with other such groups in FASEB.

## Do Baroreflexes Play a Role in Long-Term Control of Arterial Pressure?

APS Water & Electrolyte Homeostasis Section

**Thomas E. Lohmeier**

T.E. Lohmeier, S.C. Malpas, J.W. Osborn, T.N. Thrasher

There is considerable evidence that the sympathetic nervous system plays an important role in the pathogenesis of hypertension (and heart failure). However, the factors that chronically influence sympathetic activity and the precise mechanisms that mediate neurally induced hypertension are unclear. In large part, this has been due to technical limitations that prevent assessment of sympathetic function under chronic conditions. An area of long-standing interest, but one of considerable uncertainty, relates to the potential impact of baroreflexes on sympathetic activity and arterial pressure in chronic hypertension. Clearly, baroreflex function is often impaired in chronic hypertension, but whether baroreflex dysfunction contributes to increased sympathetic activity and the severity of hypertension is unresolved.

As baroreflexes reset in the direction of the prevailing level of arterial pressure, a popular notion is that they play little role in long-term regulation of arterial pressure. Consequently, one contention is that baroreflexes have little impact on the severity of hypertension. On the other hand, recent studies in chronically instrumented animals using novel experimental approaches have clearly demonstrated that baroreflexes are chronically activated in hypertension. However, the quantitative importance of baroreflexes in attenuating the severity of different forms of hypertension and the mechanisms whereby suppression of sympathetic activity chronically reduces arterial pressure are unclear. Recent studies in chronically instrumented animals indicate that baroreflexes chronically suppress renal sympathetic activity and promote sodium excretion in hypertension. As alterations in renal excretory function play a critical role in long-term regulation of arterial pressure, these studies suggest that baroreflex suppression of renal sympathetic nerve activity may be an important mechanism for attenuating the severity of hypertension. While inconsistent with this hypothesis, another possibility is that reductions in sympathetic activity to non-renal vascular beds also contributes to the chronic blood pressure lowering effects of baroreflex activation. This symposium will present experimental evidence relating to these fundamental hypotheses.

The speakers and Chairs of this symposium are researchers expert in chronic experimental paradigms and in integrative CV physiology. A goal will be to identify the important questions that will drive research in the area. The speakers will provide their own perspective as to whether baroreflexes play a role in long-term control of

arterial pressure and, if so, how this response is achieved.

This symposium will be of interest to both basic scientists and clinicians interested in the determinants of sympathetic activity, particularly in the disease states of hypertension and heart failure, and the neuroendocrine mechanisms whereby alterations in sympathetic activity alter renal excretory function and arterial pressure. A particularly important aim of this symposium will be to focus on the impact of neuroendocrine mechanisms on renal excretory function and how alterations in baroreflex activity lead to chronic changes in arterial pressure. This important topic has not been specifically covered at previous meetings. Neural mechanisms in cardiovascular regulation, including the role of baroreflexes, are covered in regular EB meetings and at FASEB summer conferences, but the focus is on short-term control of blood pressure. As such, the information from these meetings may or may not be relevant to mechanisms of long-term blood pressure control.

## Store-Operated Calcium Channels and Control of Muscle Contraction

APS Muscle Biology Group

**Jianjie Ma**

Speakers: TBA

## Stem Cells and Progenitors Cells: Biology, Physiology, and Therapeutic Applications

APS Cardiovascular Section

**Keith March**

D.J. Prockop, K. March, P. Anversa, L. J. Field, G. Schatteman

The purpose of this symposium is to present the latest knowledge regarding stem and progenitor cell biology, physiology, and applications. March and Prockop will lead and chair the symposium. Prockop is one pioneers in the area of stem cell biology (a member of the National Academy of Sciences) and will summarize recent knowledge about the types of mesenchymal stem cells, and the potential each type has for differentiation into various somatic cells.

March is a leading investigator in the area of endothelial progenitor cells and will discuss the role that these cells play in angiogenesis. Anversa, who has implemented therapies to amplify endogenous stem cells activity and function, will deliver a talk aimed at showing transdifferentiation of stem cells into various somatic cell types. This symposium will be attractive to all levels of scientists from a variety of sections, e.g., Cell, Cardiovascular, Renal, as well as scientists from other member EB Societies, e.g., NAVBO, ASPET, ASIP, MCS, and AAA.

## Remodeling of Adult Tissues: Beneficial Adaptation, Disease and the Engineering of Reparative Medicine

Biomedical Engineering Society

**Andrew McCulloch and Rakesh Jain**

M. Simons, R. Jain, J. Hubbell, A. McCulloch

This session will explore how integration of the new knowledge of assembly events at both the molecular scale and the multicellular scale (discussed in Sessions 1 and 2) is producing new understanding of beneficial remodeling in normal adaptations to environmental stresses, of disease states, and to harnessing of the adaptive processes for rational design of reparative medicine strategies. Specific examples will include therapeutic angiogenesis in the heart (where multicell and multisignal approaches are now replacing single growth factor strategies), heart adaptation, neural repair after stroke, and skeletal tissue repair in ligament and cartilage.

## Integrated Control of Lung Fluid Balance

APS Respiration Section

**Dolly Mehta and Asrar B. Malik**

A.B. Malik, J. Bhattacharya, D. Mehta, M.A. Matthay

The pathophysiologic mechanisms leading to pulmonary edema such as “high-permeability” type of pulmonary edema and alveolar fluid accumulation remain unclear. The basis of resolution of tissue edema also remains poorly understood. Given the vast surface area of pulmonary microcirculation and its close association with gas-exchanging alveolar epithelial barrier, integrity of both microvessel and alveolar epithelial barriers will determine lung fluid balance. Disruption of either barrier results in leakage of fluid and macromolecules into the interstitium and alveolar space. This condition is clinically manifested as high permeability, protein-rich pulmonary edema. Although many recent studies have emphasized mechanisms of endothelial and epithelial alterations at the cellular level often using cell culture systems, the integrated picture of how barriers are disrupted and how tissue fluid can be resolved needs to be highlighted, hence, the purpose of this symposium. In this symposium, the four talks will address at the integrated systems level the control of fluid homeostasis and the signaling mechanisms involved. The emphasis will be on recent studies made in the intact lung so as to provide a picture of integrated aspects of lung fluid balance. These topics will include: mechanosensitive-regulation of lung fluid balance, role of Rho activation in regulating pulmonary vascular permeability, role of adherens junction in vivo, and mechanisms of active fluid clearance from lung. Bhattacharya will address the role of lung capillary pressure in the generation of pro-inflammatory response. He will also describe how Ca2+ signaling, expression of adhesive proteins and cell-cell junction proteins as induced by pressure elevation regulate lung-fluid balance. Mehta will describe her recent findings addressing the role of Rho-induced cytoskeletal changes in regulating endothelial barrier function in vivo. Since active ion transport is the primary mechanism responsible for the removal of fluid from distal air spaces of lung, Matthay, will outline the role of cAMP signaling regulating the rate of alveolar fluid clearance, including the role of hormonal factors, cytokines, and growth factors. Malik will address the role of adherens junctions in the regulation of pulmonary microvessel permeability in vivo.

## High Content Biology: Multiplexing in Cell Physiology

APS Liason with Industry Committee

**Chahrzad Montrose-Rafizadeh**
A.F. Hoffman, E.R. Mardis, P. Tagari, R. Zivin

Use of High Content Biology has allowed simultaneous analysis of multiple endpoints within the cells and biochemically, giving a strong edge in rebuilding of complex pathways involved in signal transduction, protein translocation and cellular responses to exogenous stimuli. This symposium will allow the audience to gain further understanding of High Content Biology and the application in Cell Physiology and Disease states. The topics will cover the analysis of patterns of cellular phosphorylation, cell-based imaging of GPCR signaling, mutational profiling of human genome sequences, and microarray analysis and translocation of proteins in erythropoeitin receptor signal transduction.

## Effects of Aging on Vascular Function-Human to Cell

APS Cardiovascular Section

**Judy Mueller-Delp**
M.J. Joyner, J.M. Delp, E. Wilson, T. M. Hagen, C. Patterson

Aging is considered an independent risk factor for the development of atherosclerosis and other vascular pathologies. Additionally, vascular dysfunction and insufficiencies associated with aging are now thought to contribute to the pathogenesis of such varying diseases as Alzheimer's and dementia, skeletal muscle atrophy and coronary dysfunction. While individual aspects of alterations in vascular function in the aged have been presented in other forums, for this symposium we would like to address alteration in vascular function with the normal aging process. The symposium will emphasize our current knowledge from non-invasive human investigations, functional investigations of changes in isolated microvessel, comparison of extracellular matrix-integrin expression in conduit and resistance arteries and the relationship of these structural changes to function and cellular changes in both endothelial cells and smooth muscle cells that alter function.

The symposium will begin with an introduction to changes in human vascular function with aging presented by Joyner. Delp will then present functional data comparing endothelial-dependent functional changes in skeletal muscle microvasculature in aged rats as compared to young controls. Wilson will present data relating changes in extracellular matrix-integrin expression and functional alterations in both conduit and resistance vessels. Hagen and Patterson will then present alterations in cellular function in endothelial and vascular smooth muscle cells, respectively. Presentation of this comprehensive series of talks regarding alterations in vascular function with aging will be of interest to members of the APS and other societies and will bring together the field from non-invasive human studies to specific cellular pathways.

## Non-Invasive Body Composition Analysis in Small Animals

APS Comparative Physiology Section

**Tim R. Nagy and John R. Speakman**
J.P. Hayes, C. Selman, D. Gallagher

Many studies in comparative physiology require knowledge of the body composition of animals under study, since this is often used as a proxy for animal fitness. There are two methods available for this work: chemical analysis, which results in the death of the subject animal, but is very accurate and precise, and non-invasive approaches in which the subject lives, but accuracy and precision are lower. Given the increasing ethical dimension in all scientific work the impetus is to adopt non-invasive methods --- but this requires a rigorous assessment of the errors involved in the measurements and whether the resultant data are of practical use in the particular context. Indeed, the question arises as to whether it is ethically more sound to use a non-invasive approach that is scientifically useless. In this symposium speakers will provide backgrounds on five separate non-invasive approaches and evaluate for each the theoretical basis of the methodology and the accuracy and precision of the methods compared with the gold standard approach of chemical analysis. Although we consider this symposium will be of primary interest to comparative field biologists, the need in the post genomics era to obtain rapid phenotypes for animals means that the topic will also be of interest to those scientists who run laboratories where small rodents are routinely evaluated for body composition.

## The Heme-Heme Oxygenase-Carbon Monoxide System and the Control of Cardiovascular and Renal Function

APS Cross Sectional Symposium

**Alberto Nasjletti and Nader Abraham**
N.G. Abraham, R. Wang, M. Perrella, R. Johnson, W. Wang

Heme availability is a determinant of the expression/activity of a large number of hemoprotein relevant to the control of cardiovascular and renal functions, e.g., soluable guanylate cyclase, cytochrome P450 oxygenases, cyclooxygenases, etc. Moreover, products of heme metabolism by heme oxygenase are known to mediate antioxidative functions (e.g., biliverdin and bilirubin) and influence vasomotor tone and ion transport (e.g., carbon monoxide). Accordingly, over the past decade the heme-heme oxygenase-carbon monoxide system has emerged as an important player in the control of cardiovascular and renal function in both health and disease. The proposed symposium will highlight for the first time this emerging area of research in a meeting of the American Physiological Society. Abraham will discuss the regulatory aspects of heme oxygenase expression and carbon monoxide production, and describe critical interactions with other vasoregulatory systems, viz., cytochrome P450-derived eicosanoids, prostaglandins and nitric oxide and cyclic GMP. Dr. Wang will relate the vasoregulatory actions of carbon monoxide to the stimulation of KCa channels in vascular smooth

muscle. Perella will discuss the role of heme oxygenase expression in the development of Goldblatt hypertension and associated renal function disturbances. Johnson will discuss the role of heme oxygenase-derived carbon monoxide in the central control of blood pressure and baroreflex function. Wang will discuss the role of heme oxygenase-derived carbon monoxide in the regulation of ion transport activity in the loop of Henle of the kidney and its impact on renal excretory function. This symposium will highlight an emerging area of research and will be of interest to APS members in the renal, cardiovascular and water and electrolyte sections.

## Microarrays, Proteomics and Mass Spectrometry

APS Workshop
**Susan Olds**
Speakers: TBA

## Mechanisms of Hyperglycemia in Diabetes II

American Federation for Medical Research
**Jerry Rabzuik**
Speakers: TBA

Although chronic alcohol ingestion injures specific target tissues including the liver, recent evidence demonstrates that chronic alcohol ingestion also predisposes non-traditional tissue targets such as the lung and intestinal epithelium to injury. Chronic alcohol ingestion predisposes to lung injury through alterations in pulmonary epithelial and endothelial function. Chronic alcohol ingestion perturbs gut epithelial function by similar mechanisms. The presenters in this symposium will highlight recent advances in the understanding of mechanisms by which chronic alcohol ingestion mediates epithelial and endothelial cell dysfunction in vitro and in vivo. The roles of alcohol-induced depletion of cellular glutathione, stimulation of reactive species, and activation of angiotensin II and transforming growth factor beta signaling will be discussed. Finally, clinically relevant strategies that prevent tissue and organ dysfunction will be reviewed, and the potential for these interventions as future strategies in the prevention or treatment of alcohol-related disease will be discussed.

## Redox Control of Skeletal Muscle Adaptation to Exercise and Inactivity

APS Environmental & Exercise Physiology Section
**Scott Powers and Mike Reid**
S.K. Powers, J.G. Tidball, M.B. Reid, M. Jackson

Redox control and inflammatory processes are important aspects of skeletal muscle biology. Indeed, both redox factors and cytokines play important roles in many aspects of muscle biology including regulation of muscle force production and control of gene expression in response to altered activity patterns and muscle injury. This symposium will address several key aspects of the role that redox balance and inflammation play in skeletal muscle adaptation. First, Powers will provide a tutorial overview of the role that redox balance and cytokines in skeletal muscle adaptation to increased and decreased contractile activity. Second, Tidball will discuss the position of inflamatory processes in skeletal muscle remodeling during unloading. Reid will then address the topic of exercise-induced control of muscle proteolysis involving the ubiquitin-proteasome system. Finally, Jackson will discuss the role of free radicals in skeletal muscle injury and apoptosis.

## Cellular Homeostasis

APS Education Committee
**Michael F. Romero**
S. Wright, W.F. Boron

The APS Education Committee Refresher Course has proven a valuable asset to the APS membership. We recently completed a series of what most physiologists would consider the major organ systems. However, the face of biology and physiology is ever changing. An area of physiology frequently underrepresented in core medical school and graduate school curricula is "Cellular Physiology." To limit this topic, we have chosen to begin a two-part series with "Cellular Homeostasis." Cellular homeostasis will present and discuss methods for teaching and presenting basic cell physiology processes common to all cells: (1) development of cellular membrane potential, (2) cell transporters & channels, (3) cell volume regulation and (4) cell pH regulation. These fundamental topics are the building blocks of general physiology.

## Cold Ischemic Injury of Organs for Transplantation: Devastation, Mechanisms and Prevention

American Federation of Medical Research
**Abdulla Salahudeen**
A.K. Salahudeen, K.B. Storey, H. Rabb, U. Rauen, F.J. van der Woud

Cadaver organs are routinely cold stored while awaiting transplantation. The average cold ischemia time (CIT) for kidney in US is still 18-24 hours according to the latest United Network of Organs Sharing (UNOS) data. Such extended CIT is detrimental to the allografts and recipients in the short term. Recent UNOS data analysis from our group shows that extended CIT is also detrimental to the long-term survival of renal allograft. So, if cold storage is bad, can we do away with cold storage? The short answer is, not for now. For one, cold storage allows better tissue matching, which confers some survival advantage. Whether such advantage off sets the negative effect of cold ischemia is however, debatable. Now that cold storage is here to stay for now, more needs to be done to protect the organs against cold ischemic injury. Cold storage injury is potentially "intervenable" as most organ retrievals are carried out as an elective procedure, thus, providing opportunity to precondition or pretreat the organs prior to cold ischemia. As it stands, the "art" of cold storage is pretty much stuck in the 1980s when Belzar and Southard introduced the University of Wisconsin solution. The good news is that a number of groups have been working on understanding the molecular and cellular mechanisms of cold ischemic injury.

However, to best of my knowledge, few meetings, including Transplantation Conferences, have recognized or addressed this in any serious way. The objective will be to recognize cold ischemic injury as an important mediator of short- and probably long-term allograft damage and attrition so the clinicians and scientists can discuss possible ways to limit this form of injury in the light of newer cellular and molecular mechanisms.

## Planning a Successful Postdoctoral Experience: A Proactive Approach

APS Careers Committee

**Deborah A. Scheuer**

P. Clifford, J. Johnson

A positive and successful postdoctoral experience is an essential component of the career development path taken by most physiologists. However, graduate students and postdoctoral fellows often fail to take a proactive role to obtain necessary skills and experiences required to prepare them for a successful career in industry, academics, government or other setting. The purpose of this symposium is to advise graduate students and current postdoctoral fellows as to: *1*) how to work with their mentor to design an individual development plan for their training period; *2*) what skills should be developed during postdoctoral training and how to tailor their training to best prepare them to attain their individualized career goals; *3*) how to obtain training in teaching, since such experience is generally difficult to obtain as a postdoctoral fellow, yet is expected by individuals and committees hiring for academic positions and is viewed very favorably by other prospective employers as well; *4*) how to get involved in the newly organized National Postdoctoral Association.

A speaker who is an expert in the subject matter will cover each of the above topics. Time for questions and discussion will be provided. The issues addressed are currently of great interest to graduate students, postdoctoral fellow and mentors, and it is anticipated that the proposed symposium would attract a lot of participants.

## Presidential Symposium—Molecular Genetics Approaches to Microvascular Research

The Microcirculatory Society

**Geert W. Schmid-Schonbein**

A.Green, M. Suematsu, M. Kashiba, K. Ley, P. Davies

This symposium will present a series of case studies of important physiological problems in which molecular genetics approaches are integrated into microvascular research. The integration of cell, tissue and organ models that have been manipulated and analyzed with molecular genetics approaches and are subject to direct in vivo observations is at the frontiers of the field. This symposium serves to highlight the power of the combined approaches for workers in microcirculation. The symposium will serve to present several approaches that point to future directions in this interdisciplinary field.

## Physiological Cross-Talk-Non-Hemostatic Physiological Effects of Hemostatis-Related Components

Society for Experimental Biology and Medicine

**Bradford S. Schwartz**

D.J. Loskutoff, D.A. Lawrence, S.R. Coughlin, J. Ware

Hemostasis involves multiple enzymes, proteins and cellular components that control blood clot formation and breakdown with precise narrow limits. Experiments in transgenic animal models and various in vitro systems reveal that many hemostatic components are essential participants in a variety of physiological and developmental processes. Evidence suggests that tissue remodeling and repair, brain development and function, obesity and hyperinsulinemia, inflammation, apoptosis, growth factor activation, and vescicular trafficking of secretory components are among the processes which require specific molecules classically considered as participants in hemostasis. The purpose of this symposium will be to highlight alternative physiological roles of hemostasis-related components.

## The Mechanisms and Impact of Fetal Physiological Programming

APS Cross Sectional Symposium

**Jeffrey Schwartz**

W. Reik, L.D. Longo, J.A. Owens, R.M. Carey

The concept of fetal programming, whereby alterations in the gestational environment from the pre-embryonic period until birth can lead to subtle permanent changes in the developing regulatory mechanisms, has recently become an area of keen interest, provocative discussion and intense research among a diverse group of physiologists. The center of gravity, it is fair to say, has evolved from descriptions of the impact of programming and the establishing of cause-effect relationships to delineation of specific mechanisms by which the prenatal physiological changes occur. Scientists in virtually all disciplines of physiology are currently focusing research efforts at levels from the epigenetic to the whole animal. Interestingly, the research has become bi-directional. Whereas it was once driven by fetal physiologists with an interest in the impact of developmental changes, many researchers are now investigating how programming might have contributed to the function of the regulatory systems they have been studying in adult systems. As the field of physiological programming has evolved and expanded, so too has the presentation of research in the area. Numerous conferences have been held with audiences composed primarily of researchers whose primary focus was programming itself who presented evidence of the phenomenon. A featured topics session at EB2002 represented shift to a much broader audience, who were presented with results from a variety of studies on the mechanisms of cardiovascular programming.

The interest generated in fetal programming among the wider population of physiologists, who study regulatory mechanisms from a variety of perspectives, suggests that the time is now propitious for a symposium with the aim of relating the concept of fetal programming to regulatory ele-

ments of cellular, endocrine, cardiovascular and renal physiology, as well as others. Thus, it would not be a symposium to describe or debate the existence of programming. Rather, the speakers would articulate the impact of the developmental changes, both mechanistically (how it happens) and functionally (what long term physiological changes might or might not be attributable to programming), as understood in the areas in which they are expert. Reik of the Babraham Institute, Cambridge, England will address functional physiological aspects of genetic imprinting, such as its role in placental growth and nutrient transfer, and of epigenetic reprogramming in early development and its relevance to cloning and stem cell biology. Longo of the Center for Perinatal Biology at Loma Linda University will relate research on fetuses subjected to high-altitude long-term hypoxia, in terms of the permanent anatomical, biochemical and functional changes that are part of fetal programming. Owens of the University of Adelaide, Australia will place in perspective the changes in the maternal environment that alter endocrine and metabolic regulatory systems, the mechanisms by which the alterations occur and the long term consequences on growth and metabolism. Carey of the University of Virginia will examine current understanding of cardiovascular and renal regulatory mechanisms, in light of changes that are potentially the result of fetal programming. This spectrum of scientific approaches and research perspectives represented by the four presentations assures a most thought-provoking and forward-focused session of interest to the members of numerous sections of the APS including Cardiovascular, Cell & Molecular, Endocrinology & Metabolism, Renal, Respiration, Water & Electrolyte Homeostasis and Hypoxia.

## Sympathetic-Adrenergic and Baroreflex Function with Aging

APS Translational Research Group

**Douglas R. Seals**

D.R. Seals, F. Dinenno, M. Esler, M. Chapleau

This session will focus on the key physiological changes that occur in sympathetic nervous system-adrenergic and baroreflex function with aging. The symposium will: *1*) establish changes in sympathetic nervous system behavior and its arterial consequences (e.g., changes in peripheral blood flow/vascular conductance, adrenergic tissue responsiveness, arterial hypertrophy), and baroreflex function with aging in humans; and *2*) using an integrative (translational) approach, draw from both the literature in humans and experimental animals to provide insight into the physiological mechanisms underlying these age-associated changes. Investigators and students from physiology, pharmacology, clinical sciences, gerontology/geriatric medicine, nutritional sciences, and exercise science will have interest in this symposium. The autonomic nervous system (ANS) plays a key role in preserving organismic homeostasis. The sympathetic nervous system (SNS) and the baroreflexes are important "tools" by which the central nervous system uses the ANS to maintain homeostasis. For over 25 years we have known that the SNS becomes tonically, progressively and markedly activated with aging in humans. Despite this, scientists and clinicians have little understanding of the tissue/organ-specific changes that occur in SNS activity with human aging, the teleology of this SNS activation, the underlying mechanisms mediating this activation, and the adrenergic-cardiovascular consequences of this long-term activation. Moreover, the distinct differences between changes in sympathetic-adrenergic function with primary (physiological) aging versus aging in the presence of chronic cardiovascular and metabolic diseases are not well appreciated.

Similarly, although there is evidence for impaired baroreflex function with aging dating back to the 1970's, the experimental evidence is confusing and controversial. Some findings support reductions in baroreflex control of the circulation with aging, whereas other data indicate preserved baroreflex function with advancing age. The physiological mechanisms responsible for any changes observed in baroreflex function with aging also are poorly understood.

The importance of understanding these changes in sympathetic-cardiovascular and baroreflex function with aging lies in part in the related clinical implications. Aging in humans is associated with a dramatic increase in the prevalence of a number of cardiovascular diseases. Indeed, cardiovascular diseases are responsible for ~50% of all deaths in the US and industrialized nations. Sympathetic nervous system activation, impaired cardiac and peripheral adrenergic function, and reduced baroreflex circulatory control are fundamental features of a number of cardiovascular disorders including coronary artery disease, congestive heart failure, essential hypertension, and type 2 diabetes (an newly recognized and serious cardiovascular disease). As such, these ANS changes may play an important mechanistic role in the etiology of age-associated cardiovascular disease and the resulting morbidity and mortality. The proposed symposium will comprehensively address these important issues concerning changes sympathetic-adrenergic and baroreflex control with physiological and pathophysiological aging.

## Collaboration: The Cornerstone of Science, Learning, and Change

APS Teaching of Physiology Section

**Whitney M. Schlegel**

W.M. Schlegel, D.E. Lemons, N. Trueblood, A. Haramati

This session will explore our current understanding and application of collaborative learning in higher education, working with the premise that knowledge is not a quantifiable mass of information to be transmitted but rather a socially constituted process of making meaning with constantly changing and interacting contexts. Collaboration is the cornerstone of science, health care, and life within our global society. How can we craft a learning environment to facilitate peer collaboration, foster student-faculty interaction and enhance student learning? Four speakers will discuss collaborative learning strategies, the varied applica-

tions of this learning model and the challenges of applying this model in varied learning environments. Presentation of these different strategies will extend our understanding of the possibilities and offer guidance to faculty who wish to establish effective collaborative learning classrooms. Schlegel will present a model for incorporating peer team learning into the undergraduate physiology classroom and her research addressing how students learn in groups and what students know and don't know about working collaboratively. Lemons will present the Peer-Led Team Learning [PLTL] model. This model engages teams of students in learning guided by a peer leader, permitting faculty to serve as facilitators, and creating a community of scholars. Trueblood engages undergraduate student teams in research projects and in an inquiry-based physiology laboratory, where the emphasis is on student directed discovery of the scientific process and the use of this process for the acquisition of new knowledge. Lastly, Haramati will discuss the small group tutorials and problem-solving workshops he has introduced into the medical physiology curriculum and how these have improved student attitudes and learning as well as fostered greater faculty-student interaction. In addition Haramati will discuss the collaborative, interdisciplinary efforts by faculty to reform the basic science curriculum by engaging students in collaborative and experiential learning of alternative and complementary medicine and how this collaboration is addressing the demand for more patient-centered medical care. Collaborative learning methods provide a supportive and student-centered learning environment. Facilitating the learning of content through collaboration provides students with a model with which to acquire and apply new knowledge long after they leave our classrooms.

## Assembly of Tissues: Coordinating Cell Interactions in Large, Multicellular Systems

Biomedical Engineering Society

**Thomas C. Skalak and Robert Tranquillo**

S.M. Peirce, R. Tranquillo, M. Krasnow, G.M. Odell

This session will address the interaction of cell-cell and cell-matrix interactions at the tissue scale. Most tissue assembly and reparative medicine processes involve multicellular interactions in large aggregates of thousands of cells. Patterning and eventual function of the tissue system emerges from the interplay of epigenetic and genetic controls, including mechanical and biochemical cues. A central problem of the post-genomic and proteomic era will be to engineer understanding of how local (cellular) signalling events are integrated into functional tissue assembly. A variety of methods to develop rational, quantitative models for these processes will be explored, including computational automata for tissue assembly, field-based models of cell-matrix traction, diffusible molecular signals over short and long-range, and cell-cell contact signaling events.

## The TRP Superfamily of Cation Channels: Emerging Roles in Epithelial Physiology

APS Epithelia Transport Group

**Peter R. Smith**

C. Montell, M. Zhu, D. Cohen, M. Hediger

The TRP (transient receptor potential) superfamily of cation channels function in a diversity of physiological processes ranging from temperature and pain perception to cell death. Although members of the TRP superfamily show significant homology and structural similarities (six transmembrane domains), they vary dramatically in their ion selectivity and modes of activation. Remarkably, several members of the superfamily are chanzymes, channels with enzymes linked to the C termini of the ion channel domain. Based upon a recent unification of the nomenclature, the > 20 members of this novel superfamily are grouped into three subfamilies: TRPC, TRPV and TRPM. Although the TRP channels are best known for their roles in signal transduction in sensory cells and store dependent Ca2+ influx in non-excitable cells, the roles for TRP channels in epithelial physiology are rapidly emerging. TRPV4, which is predominantly expressed in the distal nephron and gated by changes in hypotonicity and cell volume, has been proposed to function as an osmosensor. TRPV5 and TRPV6 have been identified as epithelial Ca2+ channels functioning in intestinal and renal Ca2+ reabsorption. Mutations in TRPM, a chanzyme, have been linked to familial hypomagnesemia with secondary hypocalcemia, an autosomal recessive disease associated with a defect in intestinal and renal Mg2+ absorption.

This symposium will provide an overview of the TRP channel superfamily and highlight the emerging roles of these diverse channels in epithelial physiology.

## The Maternal-Fetal Dialogue

APS Endocrinology & Metabolism Section

**Michael Soares**

J.C. Cross, J.W. Pollard, C.R. Medleson, M. J. Soares

Successful pregnancy is dependent upon the establishment of a dialogue between the mother and the fetus. Central to the development of this bi-directional communication is the differentiation of specialized maternal and extraembryonic tissues. In species with hemochorial placentation these structures include the deciduum and the placenta. Both tissues produce cytokines and hormones enabling the embryo/fetus to prosper in the maternal reproductive tract. The proposed symposium will include discussions on: *1*) the organization of the maternal-fetal interface; *2*) the nature of signaling molecules regulating pregnancy; *3*) cytokine coordinated uteroplacental responses to infection, and *4*) placental endocrine responses to hypoxia. The symposium addresses in vitro and in vivo systems and both rodent and primate experimental models. Genetic, immunologic, and endocrine perspectives will be presented. The presentations will provide insights into the etiology of early pregnancy loss, intrauterine growth restriction, and various disorders of pregnancy, and directions for future research.

## Stem Cells of the Developing and Adult Lung

APS Respiration Section

**Claudette M. St. Croix and Barry R. Stripp**

B.R. Stripp, J. Whitsett, B. Hogan, J.F. Engelhardt, S.D. Reynolds, T.Cheng, Z. Borok

Despite considerable interest in the areas of lung development and in remodeling of the adult lung following injury, there is little information linking these two processes. In each case, multipotent cells contribute either to establishment or regeneration of the airway epithelium. However, mechanisms regulating lineage restriction, be they intrinsic or extrinsic, remain controversial and may differ between development and repair in adulthood. This symposium will include state-of-the-art presentations outlining lineage specification and pattern formation signals that function to modulate lung development as well as discussions of stem cells, their supportive microenvironments, and the molecular mechanisms contributing to their maintenance in the mature lung. Whitsett will present analysis of lineage specification in the developing foregut endoderm. These studies indicate early lineage restriction of endodermal progenitors for the peripheral epithelium. In contrast, Hogan will present analysis of signal transduction pathways necessary for mesenchymal patterning of the epithelial compartment along the proximal-distal axis. These studies suggest that extrinsic factors regulate lineage restriction and patterning in the developing lung. Engelhardt will present characterization of stem cells within the tracheal epithelium and identification of signal transduction pathways necessary for establishment and maintenance of the submucosal gland epithelium. Reynolds will discuss niche responsible for maintenance of adult stem cell populations. These studies suggest that stem cells with similar molecular properties are maintained within distinct microenvironments along the proximal distal axis of the lung. Finally, Cheng will discuss mechanisms regulating the balance between stem cell maintenance and generation of progenitor cells within the hematopoietic system. These studies indicate a critical role for the cycle regulatory molecules p21, p17, and p18 in this process. It is anticipated that this symposium will identify gaps in our knowledge of lineage specification and the contribution that lineage restriction makes towards lung homeostasis in heath and disease.

## IACUC 101 for Scientists

Experimental Biology Symposium

**John Stallone**

A half-day symposium on the workings of the Institutional Animal Care and Use Committee (IACUC) will be presented on Saturday, April 17 from 11-3. This program, organized by the American Physiological Society Animal Care and Experimentation Committee, is a condensed version of the popular "IACUC 101" program. It is intended to help research scientists understand the roles and responsibilities of the IACUC and will give special attention to compliance issues most pertinent to academic institutions. This session will provide information useful to scientists who serve on IACUCs as well as those whose protocols require IACUC review. Along with the formal presentations, there will also be opportunities to raise questions with representatives of USDA, OLAW, and AAALAC. *Note:* There is no charge for this session, but seating is limited so you must register to attend. Visit http://www.the-aps.org/pa/IACUC/eb04.htm for program and registration information.

## Cardiac Fibrosis-Good, Bad or Dead

APS Cardiovascular Section

**Suresh C. Tyagi**

P.A. Lucchesi, F.J. Villarreal, J.S. Janicki

Cardiac fibrosis is manifested in many cardiac abnormalities, and despite significant strides made toward the understanding of mechanism of fibrosis, the molecular mechanism of development of cardiac fibrosis, whether it is good, bad or dead, remains unclear. During fibrosis and cardiac remodeling, inflammation and oxidative stress are elevated. The role of inflammation, cytokines, growth factors and neurohumoral in oxidative stress or vise versa is a controversial issue. It is clear, however, that most of the silent and ubiquitous injury to a tissue is due, in part, to oxyradicals generated by inflammatory and or mitochondrial NADPH oxidase, masking the activity of superoxide dismutase and catalase. Oxidative stress instigates decreases in endothelial nitric oxide (eNO), and activates latent resident matrix metalloproteinase, as well as increases the levels of cytokines, growth factors, and neurohormones. This starts a vicious cycle of oxidative stress in which neurohormones such angiotensin II increases further oxidative stress by decreasing the levels of bradykinin and prostaglandins. This symposium will define the role of nitric oxide in matrix remodeling and cardiac fibrosis by linking NO to remodeling, structure and function.

## Metalloprotienase and Diabetes

APS Renal Section

**Suresh C. Tyagi**

M.R. Hayden, S. Tyagi, D. Lovett, Z.Galis

Accumulation of excessive extracellular matrix (ECM) impairs cardiac muscle contraction and relaxation, vascular distensibility, and renal function. In particular, the increased matrix accumulation leads to cardiovascular and renal dysfunction in diabetes, left ventricle hypertrophy (LVH), and hypertension. It is unclear, however, whether the matrix accumulation is due to an imbalance between the levels of matrix metalloproteinases (MMPs) and their target inhibitors (TIMPs). Although MMPs play a significant role in remodeling the connective tissue in cardiovascular-renal injury, the role of MMP and TIMPs in excessive matrix deposition in diabetes, LVH, and hypertension is unclear. It is possible that during diabetes matrix accumulation between the tubular-interstitium interferes with salt and water resorption and leads to hypertension. This comprehensive and translational symposia will focus on the role of metalloproteinases in cardiac hypertrophy and fibrosis, vascular remodeling and glomerular, vascular and

tubulointerstitial disease in hypertension and diabetes. This symposium will assemble the premiere investigators, working on metalloproteinases in heart, kidney and vessel, together and will impart on the mechanism of cardiovascular and renal remodeling in diabetes and hypertension.

## Self-Assembly and Remodeling in Complex Living Systems: Co-Regulation of Biological Function by Mechanical and Biochemical Cues

Biomedical Engineering Society

**Viola Vogel and Brian Helmke**

E. Evans, V. Vogel, R. Keller, L. Davidson, B.Helmke

## Interaction of Physiological Mechanisms in Control of Muscle Glucose Uptake

APS Endocrinology & Metabolism Section

**David H. Wasserman and Maureen Charron**

D.H. Wasserman, E. Barrett, M. Charron, P. Fueger

Muscle glucose uptake requires three steps. These are glucose delivery to muscle, membrane transport into muscle, and intracellular phosphorylation within muscle. Muscle glucose delivery is determined by muscle blood flow and capillary recruitment. Membrane transport is determined by plasma membrane glucose transporter number and intrinsic activity. The capacity to phosphorylate glucose is determined by hexokinase (HK) II activity, cellular hexokinase II compartmentalization, and the concentration of the hexokinase II inhibitor glucose 6-phosphate. Muscle glucose uptake is regulated by and insulin resistance is due to an alteration in one or more of these steps. Each one of these steps has been studied in isolation and there is a considerable amount known about how they are regulated independently. The importance of these processes, however, rest with the effectiveness with which these diverse mechanisms are integrated in vivo. This symposium will focus on recent research highlighting the functional significance of the individual steps that comprise muscle glucose uptake during the fasted state, with exercise, and during insulin stimulation.

## Intracellular Trafficking of Membrane Proteins in Renal Epithelia

APS Cross Sectional Symposium

**Paul A. Welling and Michael Caplan**

M. Caplan, P.A. Welling, O. Weisz, E. Rodriguez-Boulan

Exciting new and emerging discoveries in the "Intracellular trafficking" field are providing fresh insights into our understanding of the cellular organization and regulation of transporters and channels in renal epithelia. Polarized trafficking mechanisms, involving cargo-dependent sorting operations, vectorial delivery and membrane-specific fusion and retention, give rise to membrane asymmetry, the key underpinning of vectorial transport in epithelia. These trafficking processes are also engaged to modulate the surface expression of transport proteins and thereby alter their function in concert with physiological demands. It has becoming increasingly evident that defects in these intracellular trafficking processes can lead to renal disease, further underscoring relevance. The molecular mechanisms involved in these processes have recently been the target of extensive study, revealing trafficking signals and the intracellular machinery that act on them. Combined with advances in live-cell fluorescent microscopy, permitting direct visualization of trafficking processes, fundamental mechanistic insights into these once-elusive trafficking phenomena are emerging.

Accordingly, it is timely for a symposium that will provide effective communication, free discussion and debate of the latest advances in this rapidly evolving and important area of physiology. To do so, this symposium will highlight late breaking and emerging discoveries, including *1*) the identification and mechanisms of novel sorting and retention machinery (Caplan and Welling); *2*) emerging regulatory mechanisms (Caplan, Weisz, Welling), and *3*) three-dimensional analysis of post-Golgi carrier exocytosis in epithelial cells by live-cell fluorescent microscopy (Rodriguez-Boulan). Speakers were specifically chosen because of their recent ground-breaking work in this area. In addition, each has an excellent reputation as being an organized, informative and engaging lecturer.

Considering the relevance to physiology and disease as well as to cellular and molecular biology, we feel that the symposium will be of interest to a wide audience. Because it should be of particular interest to the Renal and Epithelial Transport Community, we propose that Renal and Epithelial Transport sections jointly sponsored by the symposium.

## Physiology InFocus: Large Scales Systems Biology

**John A. Williams**

Session I: Gene Expression Transcriptome
Session II: Proteomics
Session III: Large Scale Systems Biology
Session IV: Applications of Systems Biology in Physiology and Disease
Chairs and Speakers: TBA

## Physiology of the Intrinsic Lymph Pump

APS Cardiovascular Section

**David Zawieja and Anatoliy A. Gashev**

A.A. Gashev, N.G. McHale, P.von der Weid, D.C. Zawieja, C.M. Quick

The lymphatic system has important roles in fluid and macromolecular homeostasis, lipid absorption, metastasis, lymphocyte trafficking and immune function. It accomplishes these tasks in the face of unfavorable fluid-pressure and molecular-concentration gradients through the use of valved vessels, and extrinsic and intrinsic pumps. The intrinsic lymph pump utilizes strong, rapid, phasic contractions of lymphatic muscle to generate the pressures that open and close the appropriate valves and propel fluid down the lymphatic tree. While aspects of the intrinsic lymph pump have been studied since the 1960s, basic concepts that define the physiological roles of the intrinsic

lymph pump and the cellular mechanisms that drive it are poorly understood. This symposium seeks to address investigations of many of these concepts.

The symposium will begin with an introduction to the concept of the intrinsic lymph pump, presented by Gashev. His focus will be on the mechanisms that regulate/modulate the intrinsic lymph pumps and its regional functional variability. The following three speakers will then describe the cellular mechanisms responsible for the intrinsic lymph pump contractile activity. McHale will present data regarding the characterization of the cellular pacemakers of the intrinsic lymph pump. von der Weid will discuss the role of lymphatic ion channels in the regulation of the intrinsic lymph pump function. Zawieja will then describe evidence of the lymphatic muscle contractile apparatus and its unusual structure and capabilities. Finally, Quick will describe mathematical models that integrate information from cellular and tissue studies and allows overview of the physiological and pathological implications of intrinsic lymph pump function. Presentation and discussion of these historically underrepresented topics will be of interest to the members of APS and other societies and will help stimulate research into lymphatic contractile function.

### Biophysical Studies of Membrane Trafficking

APS Central Nervous Section
**David Zenisek**
Speakers: TBA

## "IACUC 101" for Scientists

A half-day symposium on the workings of the Institutional Animal Care and Use Committee (IACUC) will be presented on Saturday, April 17 from 11-3.

This program, organized by the American Physiological Society Animal Care and Experimentation Committee, is a condensed version of the popular "IACUC 101" program. It is intended to help research scientists understand the roles and responsibilities of the IACUC and will give special attention to compliance issues most pertinent to academic institutions. This session will provide information useful to scientists who serve on IACUCs as well as those whose protocols require IACUC review. Along with the formal presentations, there will also be opportunities to raise questions with representatives of USDA, OLAW, and AAALAC.

Note: There is no charge for this session, but seating is limited so you must register to attend. Visit http://www.the-aps.org/pa/IACUC/eb04.htm for program and registration information. ❖

## Section-Sponsored Featured Topics

*Graduate Highlights in Respiration Physiology*
**Jahar Bhattacharya**
*Capacitative Calcium Entry*
**Pam Bounelis and Richard B. Marchase**
*Non-traditional Arachidonic Acid Signaling in Arteries*
**Robert Bryan**
*Mechanisms of Vascular Dysfunction in Insulin Resistance*
**Dave Busija**
*Wigger's Award Featured Topic: Load Regulation of Cardiac Properties*
**George Cooper, IV**
*Oxygen Sensing by Neural Tissues*
**Jay B. Dean**
*Dysautonomics: Clinical Disorders of the Autonomic Nervous System*
**D. Goldstein**
*Novel Concepts in the Logical Regulation of Vascular Tone*
**Travis Hein**
*AstraZeneca Young Investigator Session: Renal Hemodynamics*
**John Imig**
*Stress, Mood and Autonomic Function*
**Alan Kim Johnson and Angela J. Grippo**
*Control of Muscle Blood Flow During Exercise*
**Michael Joyner and Larry Sinoway**
*Insect Models of Epithelial Tissue Transport*
**Karl Karnaky**
*Specturm of Ion Channels in Alveloar Epithelial Cells: Implications in Alveolar Fluid Balance and Cell Volume Regulation*
**Kwang-Jin Kim**
*Membrane Traffic in Epithelial Cells*
**Kevin L. Kirk**
*Adaptation to Exercise Stresses: Mechanisms of Protection*
**Timothy Koh**
*Cell-Cell Contacts in Regulating Lung Function*
**Michael Koval**
*Molecular Physiology of Oxygen Homeostasis: Oxygen-Dependent Hydroxylation*
**Sukhamay Lahiri**
*Vacuolar Type H + - ATPases: Structure and Cellular Function in Mammalian Cells*
**Raul Martinez-Zaguilan**
*The Respiratory-Sympathetic Dance: Who Leads and Who Follows*
**Steve Mifflin**
*Cardiovascular and Respiratory Constraints on Exercise*
**Suzanne Munns**
*Epithelial Na and K Channels*
**Scott M. O'Grady and James D. Stockand**
*Berne Lecture Featured Topic: Molecular Control of Smooth Muscle Differentiation in Vascular Development and Disease*
**Gary Owens**
*Rho and Rho Associate Kinase Pathways*
**Richard J. Paul**
*Inflammatory Mediators and Cardio-Renal Pathophysiology*
**Jennifer Pollock**
*Regulation of Intestinal Ion and Vitamin Transporters During Development*
**Mrinalini C. Rao**
*Muscle Fatigue*
**Jean-Marc Renaud**
*Vascular Communication and Coordinated Blood Distribution*
**Richard Rivers**
*Hypertensive Mechanisms: Insights from Genetic Models*
**Richard Roman**
*Writing Higher Level Cognitive Questions in Physiology*
**Rod Seeley**
*Beneficial and Deleterious Effects of Estrogen on the Cardiovascular System*
**John Stallone**
*Ghrelin: Its Role in Energy Balance*
**Gary Truett**
*Abbott Award Featured Topic*
**TBA**
*Comparative Regulation of Renal and Intestinal Phosphorus Processing and Transport: From Molecules to Environment*
**Andreas Werner**
*Starling Lecture Featured Topic: Nitric Oxide: Oxygen Radicals and Lipid Mediators in the Control of Arterial Pressure*
**Christopher Wilcox**
*Excitation-Contraction Coupling in Health and Disease*
**Jay Williams**

## Moving?

If you have moved or changed your phone, fax or Email address, please notify the APS Membership Office at 301-634-7171 or Fax to 301-634-7241. Your membership information can also be changed by visiting the Members Only portion of the APS Website at http://www.the-aps.org.

# Physiology and Experimental Biology 2003

Experimental Biology 2003 was held April 11-15 in San Diego, CA and was a joint meeting of six FASEB societies. The principle-programming societies were: American Physiological Society (APS), American Society for Biochemistry and Molecular Biology, American Society for Pharmacology and Experimental Therapeutics (ASPET), American Society for Investigative Pathology, American Society for Nutritional Sciences, and American Association of Anatomists. The APS hosted five guest societies: American Federation for Medical Research, Association of Latin American Physiological Societies, Biomedical Engineering Society, the Microcirculatory Society, and the Society for Experimental Biology and Medicine.

Experimental Biology (EB) '03 marked the second meeting-wide theme entitled "Translating the Genome." Several societies scheduled sessions relating to the genome and genomic research. The EB Meeting hosted a symposium organized by the participating societies entitled, "Recruiting, Educating and Mentoring the Experimental Biologist of the Future," which addressed both common and society-specific concerns from recruitment to curricula to training and included a discussion about alternative career paths. The participants included one person from each of the six programming societies. EB hosted a workshop entitled "IACUC 101 for Scientists" which was jointly supported by the NIH Office of Laboratory Animal Welfare, each of the six programming societies and FASEB. The workshop addressed the concerns of research scientists who serve on IACUC's and those whose protocols require IACUC review. The FASEB Career Resources and MARC Program Office, in association with the NIH offered a three-part grant seminar workshop in the Placement Service Area. Anthony Coelho, Jr., Review Policy Officer at NIH, chaired the sessions. Additionally, "Career Development Seminars" were held in the Placement Services Area over three days and were open to all attendees.

A total of 6,500 volunteered abstracts were submitted for presentation by the submission deadline of November 13, 2002. Forty-one percent of the total abstracts submitted were sponsored by APS or its guest societies and 38.5% of the total were submitted to APS topic categories. Additionally, 470 late breaking abstracts were accepted with a deadline of February 26, 2003 of which 28% (134) were from members of APS or its guest societies. Late breaking abstracts were scheduled as posters on the last day of the meeting and printed in the program addendum.

Of the 2,503 abstracts programmed by APS, 25% (614) had female first authors; 17% were received from institutions outside the Americas (representing an 6% increase from EB 2002 despite visa entry concerns); 4% (100) were from US government laboratories; and 2% (38) were from industry. Table 1 provides the departmental affiliations of the abstracts programmed by APS and indicates that 23% (569) were from Departments of Physiology and 4% (94) were from Departments of Physiology and Biophysics.

Table 1. EB '03 Departmental Affiliations of Abstracts Submitted to APS for Programming

| Departmental Affiliation | Number of Abstracts | % Total |
|---|---|---|
| Physiology | 569 | 23 |
| Biology/Biomedical Sciences | 144 | 6 |
| Medicine/Internal Medicine | 175 | 7 |
| Pharmacology | 100 | 4 |
| Physiology & Biophysics | 94 | 4 |
| Cardiology/CV Sciences | 81 | 3 |
| Surgery | 78 | 3 |
| Bioengineering | 75 | 3 |

The APS programmed a total of 308 scientific sessions including 182 poster sessions, 50 symposia, 49 featured topics, 16 lectures, 5 workshops, 4 Physiology InFocus symposia, 1 poster discussions, and 1 refresher course. The lecture sessions included 12 Section Distinguished Lectureships, the Walter B. Cannon, Henry Bowditch, and Walter C. Randall, FASEB Excellence in Science Award, and The Microcirculatory Society's Landis Award lectures.

Session highlights included four workshops: "Frontiers of Intravital Microscopy: Crossroads of Physiology and Pathology," chaired by **M.S. Goligorsky** and **A. Verkman**; "Methods to Detect Oxidative and Nitrosative Stress," chaired by **M.B. Grisham** and **J. Granger**; "Understanding and Applying Critical Translational Assays," chaired by **G. Reinhart** and **C. Montrose-Rafizadeh,** sponsored by the APS Liaison with Industry Committee; "Peer Review and Publication in APS Journals," chaired by **D.J. Benos** sponsored by the APS Publications Committee; and "Presentation Skills," chaired by **C.M. Liedtke** and **S. Benyajati,** jointly sponsored by the APS Women in Physiology and the ASPET Women in Pharmacology Committees.

The Refresher Course entitled, "Muscle Physiology: From Cellular to Integrative" was chaired by **R.L. Hester** and **G.A. Ordway** and sponsored by the APS Education Committee. Additionally the APS Communications Committee sponsored its first symposium entitled, "Making Science News," chaired by **A. Gwosdow** that included journalists from print, radio and television and incorporated a media workshop moderated by D. Krupa.

The Physiology InFocus Program, organized by **Barbara Horwitz,** was entitled, "Physiological Implications of Oxidative and Nitrosative Stress," and included four symposia: "General Overview and Physiological Relevance" chaired by **M. Grisham and M. Traber**; "Emerging Concepts in Oxidative and Nitrosative Signaling," chaired by **J. Beckman** and **Y. Jannsen-Heinenger**; "Cardiovascular Consequences," chaired by **J. Eiserich** and **K. Griendling**, and "Pulmonary Consequences," chaired by **B.**

*(continued on page 312)*

(continued from page 311)

**Halliwell** and **J. Mannick**.

The APS Mixer was held on Friday evening and included sumptuous desserts, dancing, and an opportunity to meet with colleagues in a relaxed, festive atmosphere. The Young Experimental Scientist (Y.E.S.) Mixer, designed to enhance interaction between younger members of the participating societies, was held on Sunday and open to all registered attendees.

The total meeting registration was 12,734 of which 9,800 (77%) were scientific registrants. The scientific registrants were represented by 4,876 (50%) members, 125 (1%) retired members, 2,410 (25%) nonmembers, and 2,389 (24%) students. A total of 1,535 (16%) of the scientific registrants were from outside the United States. This represents a 1% increase over the foreign registrants at EB 2002. EB 2003 was the second year in which high school teachers, high school students and undergraduate students could register at no cost. A total of 586 of these complimentary registrants attended, including 61 high school teachers, 33 high school students, and 492 undergraduates. This figure represents 5% of the total registration, an increase of 4% over 2002. Additionally, the total EB meeting registration included 1,851 (15%) exhibitors, 421 (3%) guests of exhibitors, 41 (<1%) guests of scientists, and 35 (<1%) press registrants.

The American Physiological Society gratefully acknowledges financial support through educational grants from Taylor University, Upland, Illinois, National Institutes of Health, Office of Laboratory Animal Welfare, The Grass Foundation, the William Townsend Porter Foundation, Amersham Biosciences, The Muscular Dystrophy Association, and Merck & Co., Inc. ❖



## APS Awards

**The APS sponsored awards are plentiful, but in order to be considered, don't forget to submit the application information before the deadline!**

| *Award* | *Next Deadline* |
|---|---|
| Research Career Enhancement Awards | October 15 |
| Teaching Career Enhancement Awards | October 15 |
| Shih-Chun Wang Young Investigator Award | November 1 |
| Arthur C. Guyton Awards in Integrative Physiology | November 1 |
| Giles F. Filley Memorial Awards for Excellence in Respiratory Physiology and Medicine | November 1 |
| Lazaro J. Mandel Young Investigator Award | November 1 |
| Procter & Gamble Professional Opportunity Awards | November 6 |
| Caroline tum Suden/Francis A. Hellebrandt Professional Opportunity Awards | November 6 |

The Physiologist
Vol. 46, No. 5, 2003

# Careers in Physiology Symposium: The Drug Discovery Process—Opportunities for Physiologists

The overall goals of this Symposium were: *1*) to expose young physiologists to new career opportunities; *2*) to educate others about the important work of the physiologist in drug discovery; and *3*) to demonstrate how academic collaboration with industry leads to new drug discoveries. The presenters were **J.H. "Wick" Johnson**, Pfizer Global Research and Development; **David M. Pollock**, Medical College of Georgia; **Terry J. Opgenorth**, Abbott Laboratories; and **Albert DeFelice**, Food and Drug Administration. **James M. Norton**, University of New England College of Osteopathic Medicine, moderated an interactive discussion with the speakers following the talks.

Johnson's opening remarks highlighted two important intended outcomes of the Careers Symposium at EB 2003. The first was to provide attendees with an overview of the drug development process (a process that many even in the industry do not fully comprehend) and the second was to make the audience aware of opportunities for physiologists that they may not have been aware existed, since training in the broad-based field of Physiology regularly crosses multiple disciplinary lines.

For instance, the long road of drug development starts with an idea that can come from industry, academia or an academia/industry collaboration. Once the idea has been realized and put into practice, patents must protect any resulting intellectual property. One little known career opportunity for aspiring physiologists is with the Patent and Trademark Office as a patent examiner. A critical function of the patent examiner is to evaluate data in the patent package supporting the claims made in the patent. The Patent and Trademark Office uses scientific expertise drawn from many areas, including physiology, to perform these evaluations. Once the idea is developed and intellectual property is protected by patents, the work of establishing proof of concept begins with pre-clinical research, an obvious area of opportunity for physiologists.

Opgenorth emphasized that physiologists have many good opportunities for employment in the pharmaceutical and biotechnology industries. However, it will be rare to see an advertisement for a "physiologist." Rather, the advertisements or job postings to which physiologists should consider responding are, ironically, those for "pharmacologists." There is no escaping the fact that, in general, the educational training of a pharmacologist differs in important ways from that of a physiologist. Pharmacologists receive formal training in such things as receptor binding kinetics, pharmacokinetic and dynamic aspects of drugs, mechanisms of xenobiotic metabolism, etc. Nevertheless, a primary function of many industry pharmacologists is to determine experimentally the therapeutic potential of a potential drug candidate. This involves both the characterization of the effectiveness of a drug entity in relevant animal models ("efficacy") and any potential unwanted activities ("adverse events"). Physiologists with systems and integrative training are ideally suited for this type of work. Evaluation of novel drug candidates often requires the development of new cell and animal models of disease, something which physiologists are again well suited to do.

In addition, there are large scale efforts in industry to identify the functionality of genes by a variety of methods, including siRNA, antisense RNA, transgenic overexpression and gene deletion, to name a few. Since the effects of manipulating a gene often include unexpected systemic results, comprehensive physiologic evaluation, i.e. phenotyping, is critical to a proper understanding of the gene's function. In industry, this activity is often called "target validation."

It is often the case that industry scientists are the first to have access to an inhibitor, antagonist, or agonist to a molecular target that has never been investigated before. This offers a real opportunity for a physiologist to be the first to demonstrate the importance of regulating a particular pathway, i.e., defining the physiological relevance of that protein or the pathway of which it is a part. In addition, access to these reagents provides excellent opportunities for industry physiologists to collaborate with other university scientists who are often eager to have reagents that will aid their own research. Opgenorth used the example of Abbott's endothelin antagonist program to highlight the parallel importance of novel industry-based research and the influence of academic collaborations in the development of Abbott's lead endothelin antagonist, atrasentan, for its novel therapeutic application in patients with prostate cancer.

For career development, Opgenorth suggested that physiologists interested in industry employment could improve their opportunities by seeking to forge collaborations with industry scientists during their graduate and/or postdoctoral research. Most likely this would be in the form of requesting drug samples from industry scientists to apply in their own research. Having published their research incorporating the characterization of novel compounds, applicants for positions in pharmaceutical and biotechnology companies will most likely have their applications taken more seriously, and will be in a much better position, than those who have not done this kind of research.

Pollock described the variety of ways in which academic, university-based investigators can and do participate in the drug discovery process, most frequently at the level of either pre-clinical development or clinical trials. More specifically, basic scientists can contribute to pre-clinical studies through the identification of new chemical entities and the identification of new drug targets. This could include identifying new hormones, autocoids, enzymes, receptors etc., that might provide the basis of new

drugs or drug targets. A second, and perhaps more common role of the academic scientist, is to conduct investigations referred to as "target validation" or "proof of concept" studies. These experiments are a critical and necessary part of establishing a drug as a candidate to be tested in human clinical trials. Often, the way an academic investigator gets involved in such studies is through the development of unique experimental models and research tools or capabilities, such as: creation of specific animal models of disease; access to transgenic and knock-out animals; creation of unique cell lines; possession of methodologies that may not be readily accessible in industry; and demonstration of skill with relevant tools such as DNA probes or antibodies.

The academic researcher most often works in conjunction with a private drug development company through collaborations, specific grant programs or licenses. Collaborations with industry can take on many different forms, just as in collaborations among academic researchers. The successful collaboration must be designed to provide mutual benefit to both participating parties. In other words, collaborations must be structured to allow both parties to achieve something they would not be able to do alone. While financial support may be one of the benefits, this cannot be the driving force in a successful collaboration, but rather the collaboration should focus on the acquisition of new information related to both drug development and the scientific interests of the academician. In addition to collaborations, some companies have grant programs or will offer license agreements to specific investigators where they need to establish a longer-term relationship.

In order for the collaboration to succeed, both parties must have a clear understanding of mutual goals and must have a means of communicating with one another in a timely fashion. Too often collaborations fail because one party or the other does not deliver their part of the work in a timely fashion. For example, a company may want to have a prototype drug evaluated in a unique animal model. This prototype drug may be very useful for an academic investigator who wants to have a better understanding of the pathogenesis of a certain disease. The company may supply the compound to the investigator, but all too often, the compound will sit on the investigator's shelf because the academic investigator and the company have not clearly communicated with one another regarding the level of priority of the studies.

Academia also plays an important role in drug development through clinical investigations. A large number of Phase II and Phase III trials are conducted at academic medical centers because these centers provide access to large numbers of patients with the target disease. There are a number of opportunities for physiologists in industry to work as clinical research associates, whose function is to help design and coordinate trials. These individuals have a variety of educational backgrounds, but all must have a good understanding of experimental design, data management, and general scientific principles. Also, research hospitals have individuals working in a similar capacity to oversee and coordinate clinical investigations.

A more recent development that bridges the gap between academia and industry involves what are referred to as "technology transfer offices" that have been established at most academic institutions. These offices typically help academic researchers work with large and small companies to facilitate development of intellectual property developed by an academician—a patented compound, a medical device, or a service—so that it can potentially become a marketable product.

DeFelice emphasized that the timely submission and evaluation of animal pharmacology and toxicologic pathology data—which importantly includes functional aberrations in the major body systems—is an integral part of the deliberate and coordinated process of FDA approval of new drugs. Distinguishing homeostatic responses secondary to pharmacodynamic activity from primary toxicity due to physiologic processes is an example of the important role that physiologists and pharmacologists share, one that is not generally appreciated. The personnel currently employed by the FDA to review and evaluate such pre-clinical data were hired from the ranks of scientists with doctorate degrees in pharmacology, physiology, molecular biology, experimental pathology, among other disciplines. This reflects the diversity of pre-clinical data submitted by the pharmaceutical industry prior to, and during, clinical evaluation. Through course work, reliance on FDA guidances and other policies, other professional development, and consults, each new reviewer acquires the broader training, experience, and ability to evaluate effectively and efficiently such ancillary pre-clinical data, and to project clinical relevance where appropriate. A major responsibility—and source of job satisfaction from being a member of the review team which eventually recommends regulatory action—is the integration of pharmacodynamic (both targeted and unintended) and safety data (pathophysiologic and toxicologic pathology) to supplement clinical determination of risks and benefits. The identification and evaluation of any potential risk of irreversible or hard-to-identify toxicities (reproductive; genotoxic; carcinogenic) is an important aspect of risk-benefit determination, and is also a statutory labeling requirement of new drugs. The critical evaluation of adverse findings in such assays—and the projection any corresponding risk to future patients—requires an understanding of the physiology underlying such tests, and the pathophysiological mechanism(s) responsible for the adverse findings.

The presentations of Johnson, Opgenorth, Pollock, and DeFelice prompted many questions by attendees of the session during the interactive discussion sessions. A number of the graduate and postdoctoral students in the audience found the sessions very informative and potentially very helpful in their future choices of career paths. ❖

# Section and Group-Sponsored Awards

## Cardiovascular

The **Berne Distinguished Lectureship** award is presented to a scientist who is a Fellow of the Cardiovascular Section of the APS, who has made outstanding prior contributions to cardiovascular research, and whose current research is particularly interesting, such that the presentation of this work would be expected to contribute to further interest in the CV Section meeting. This award is in honor of one of the most distinguished members of the Cardiovascular Section, Robert M. Berne. The nomination package, to be sent to the Chair of the Awards Committee of the APS CV Section, should consist of: (*1*) a letter of nomination; (*2*) one or more seconding letters (preferably from someone outside of the nominee's institution); and (*3*) a CV of the candidate. Materials should be mailed or emailed to Irving G. Joshua, Chair of the Cardiovascular Section Awards Committee, to arrive by **January 30, 2004**. Email address: igjosh01@gwise.louisville.edu; mailing address: Irving G. Joshua, Department of Physiology/Biophysics, University of Louisville, 1115 Health Sciences Center, Louisville, KY 40292-0001.

**The Carl J. Wiggers Award** is presented to a scientist who is a Fellow of the Cardiovascular Section of the APS, who has made outstanding and lasting contributions throughout his/her career to cardiovascular research, and who will bring broader and more international representation to the CV Section meetings. This award is in honor of the Cardiovascular Section's founder, Carl J. Wiggers. The nomination package, to be sent to the Chair of the Awards Committee of the APS CV Section, should consist of: (*1*) a letter of nomination; (*2*) one or more seconding letters (preferably from someone outside of the nominee's institution); and (*3*) a CV of the candidate. Materials should be mailed or emailed to Irving G. Joshua, Chair of the Cardiovascular Section Awards Committee, to arrive by **January 30, 2004**. Email address: igjosh01@gwise.louisville.edu; mailing address: Irving G. Joshua, Department of Physiology/Biophysics, University of Louisville, 1115 Health Sciences Center, Louisville, KY 40292-0001.

**The Cardiovascular Section Research Recognition Awards** ($500) are designed to entice submission of abstracts to the Experimental Biology meetings from junior investigators and to aid them in their travel expenses. To be eligible, the investigator must be within 10 years of receiving his/her PhD or MD degree and have submitted a first-authored abstract to a Cardiovascular Section topic category (topic category numbers 1001-APS through 1026-APS). Abstracts from eligible individuals will be judged by the Cardiovascular Section Awards Committee and a total of up to nine each year which are judged to be the most meritorious will be awarded. Eligible individuals are requested to email a copy of their submitted abstract to the Chair of the Cardiovascular Section Awards Committee: Irving G. Joshua at igjosh01@gwise.louisville.edu, to arrive by **January 30, 2004**.

**The Cardiovascular Section Young Investigator Award Sponsored by Bristol-Myers Squibb** ($750) is intended for Regular Members, but not necessarily Fellows, of the Cardiovascular Section of APS who have received a PhD, MD, DSc, DVM, or DDS degree with an academic rank or equivalent not higher than that of assistant professor who have already made a substantive independent contribution and hold future promise but are not, as yet, well established. The nomination package should consist of: 1) a letter of nomination; 2) a seconding letter (preferably from someone outside the nominee's institution); and 3) the candidate's CV. Materials should be mailed or emailed to Irving G. Joshua, Chair of the Cardiovascular Section Awards Committee, to arrive by **January 30, 2004**. Email address: igjosh01@gwise.louisville.edu; mailing address: Irving G. Joshua, Department of Physiology/Biophysics, University of Louisville, 1115 Health Sciences Center, Louisville, KY 40292-0001.

The **Hsueh-Hwa Wang Cardiovascular Section Travel Award** ($800) recognizes an outstanding graduate student or postdoctoral trainee involved in cardiovascular research. The award is designed to assist the award recipient to attend the Experimental Biology (EB) meeting. Candidates should be graduate students or postdoctoral trainees, who will be presenting cardiovascular research at the EB meeting. Graduate students should be in a doctoral degree program, while eligible postdoctoral trainees should be within five years after receipt of their doctorate. Each applicant must have submitted a first-authored abstract to a Cardiovascular Section topic category (see Physiology topic category list under the heading "Cardiovascular Section"). The Cardiovascular Section Awards Committee will judge abstracts from eligible individuals. Eligible individuals are requested to email a copy of their submitted abstract to the Chair of the Cardiovascular Section Awards Committee: Irving G. Joshua at igjosh01@gwise.Louisville.edu to arrive by **January 30, 2004.**

The **Cardiovascular Section New Investigator Award** ($1,000) recognizes outstanding investigators in the early stages of their career. Candidates should be investigators who have made meritorious contributions to the scientific areas represented by the APS Cardiovascular Section. They should not be above the rank of Assistant Professor or a comparable position in a research track at an academic institution or in industry (e.g. Scientist, Sr. Scientist, Research Investigator, etc.). They should receive nominations from at least two regular members of the APS. Candidates will be judged on their publications, how the publications relate to the APS section to which they have applied, and evidence for independence and promise (grant funding, peer review activities, etc.). Although this is not an abstract-based award, awardees are expected to attend EB and make an oral or poster presentation. The candidate must be an APS

member in good standing. Candidates should submit a curriculum vitae, two nomination letters from APS members, and three reprints to The American Physiological Society, Membership Office, by **January 30, 2004**. Applications will be forwarded to the appropriate section for review.

### Cell and Molecular Physiology

The **Cell and Molecular Physiology (CAMP) Student Awards** ($300) are available for up to two pre-doctoral candidates, depending on applicant pool. One award will be given for work done while enrolled as a medical or graduate (doctoral or masters) student. A second award is reserved for undergraduate researchers. Applicants must be first author on an abstract submitted to the Experimental Biology meeting. The student or their mentor must be a member in good standing of the APS, with a primary affiliation in the CAMP section. Members of the CAMP Steering Committee will review all applications. Winners will be announced, and awards presented, at the Cell and Molecular Section Banquet at the EB meeting. Applicants must complete the Student Award Certificate form and have the mentor submit a brief (e.g. half page) letter describing why the trainee is deserving of the award. Email or Fax a copy of the submitted abstract, the Student Award Certification form, and letter to Peter K. Lauf, MD, Email: peter.lauf@wright.edu, Fax: 937-775-2759. Deadline is **November 19, 2003**.

The **Cell and Molecular Physiology (CAMP) Research Recognition Awards** ($500) will be given to two successful candidates for work performed while in the first through third postdoctoral year or medical residency. Applicants must be first author on an abstract submitted to the Experimental Biology meeting. The trainee or their mentor must be a member in good standing of the APS, with a primary affiliation in the CAMP section. Members of the CAMP Steering Committee will review all applications. Winners will be announced, and awards presented, at the Cell and Molecular Section Banquet at the EB meeting. Applicants must complete the Student Award Certificate form and have the mentor submit a brief (e.g. half page) letter describing why the trainee is deserving of the award. Email or Fax a copy of the submitted abstract, the Student Award Certification form, and letter to Peter K. Lauf, MD, Email: peter.lauf@wright.edu, Fax: 937-775-2759. Deadline is **November 19, 2003**.

The **Cell and Molecular Physiology Section New Investigator Award** ($1,000) recognizes outstanding investigators in the early stages of their career. Candidates should be investigators who have made meritorious contributions to the scientific areas represented by the APS Cell & Molecular Physiology Section. They should not be above the rank of Assistant Professor or a comparable position in a research track at an academic institution or in industry (e.g. Scientist, Sr. Scientist, Research Investigator, etc.). They should receive nominations from at least two regular members of the APS. Candidates will be judged on their publications, how the publications relate to the APS section to which they have applied, and evidence for independence and promise (grant funding, peer review activities, etc.). Although this is not an abstract-based award, awardees are expected to attend EB and make an oral or poster presentation. The candidate must be an APS member in good standing. Candidates should submit a curriculum vitae, two nomination letters from APS members, and three reprints to The American Physiological Society, Membership Office, **by January 30, 2004**. Applications will be forwarded to the appropriate section for review.

### Central Nervous System

The **Central Nervous System Section Van Harreveld Memorial Award** ($300) recognizes outstanding research in neuroscience by a graduate student or postdoctoral fellow. The recipient must be first author on an abstract presented at the Experimental Biology meeting. Mail or email copy of the submitted abstract and the completed APS Award Certification Form to Dr. Reiko Maki Fitzsimonds, Yale Univ. School of Med., Dept. Cell/Molec. Physiol., 333 Cedar St., New Haven, CT 06520, reiko.fitzsimonds@yale.edu. Deadline for receipt of application is **November 19, 2003**.

The **Central Nervous System (CNS) Section Research Recognition Award** ($500) provides at least two awards that recognize meritorious research by young investigators who participate in the annual Experimental Biology (EB) meeting. To qualify for this award, the applicant must have received a PhD or other professional degree within the past 10 years and must present a poster or talk at the EB meeting. The subject matter of this presentation can be any topic related to the central or peripheral nervous system. Applications are reviewed and rated by the CNS Section Awards Committee. Applicants should submit a copy of their abstract (or a paragraph describing his/her research if it is to be presented in a symposium), and a letter indicating the novelty of the research project described in the abstract, the year he/she received a degree, his/her current position, and whether he/she is a member of the APS. Membership in the APS is not required but is highly recommended. Mail or email these items to: Dr. Reiko Maki Fitzsimonds, Yale Univ. School of Med., Dept. Cell/Molec. Physiol., 333 Cedar St., New Haven, CT 06520, reiko.fitzsimonds@yale.edu. Deadline for receipt of application is **January 23, 2004**.

The **Central Nervous System (CNS) New Investigator Award** ($1,000) recognizes outstanding investigators in the early stages of their career. Candidates should be investigators who have made meritorious contributions to the scientific areas represented by the APS CNS Section. They should not be above the rank of Assistant Professor or a comparable position in a research track at an academic institution or in industry (e.g.

Scientist, Sr. Scientist, Research Investigator, etc.). They should receive nominations from at least two regular members of the APS. Candidates will be judged on their publications, how the publications relate to the APS section to which they have applied, and evidence for independence and promise (grant funding, peer review activities, etc.). Although this is not an abstract-based award, awardees are expected to attend EB and make an oral or poster presentation. The candidate must be an APS member in good standing. Candidates should submit a curriculum vitae, two nomination letters from APS members, and three reprints to The American Physiological Society, Membership Office, **by January 30, 2004**. Applications will be forwarded to the appropriate section for review.

## Comparative Physiology

The **Comparative Section Research Recognition Award** ($500) will provide three travel awards for recognition of meritorious research by young investigators who participate in the Experimental Biology (EB) meeting. Candidates must have completed their PhD within the past 10 years, be a member of APS, and must present a talk or poster at the EB meeting. The subject matter can be any topic that deals with comparative physiology. Applicants should submit their abstract, abstract submission confirmation page, a one-page CV, and a one-page summary of research accomplishments and goals via email to: Stan Lindstedt, PhD, Chair of the Comparative Section (stan.lindstedt@nau.edu) by **November 19, 2003** for review by the Section Steering Committee. The winners will be notified by email before March 1, 2004 and the award will be presented at the Comparative Section Business Meeting during the EB meeting.

**The Comparative Physiology Section Scholander Award** ($200) will be presented to an outstanding young investigator presenting a paper in the "Scholander Award" Session. To be eligible, applicants must: a) submit their abstract to the Scholander Award Session topic category (#1072-APS); b) be first author on the abstract and; c) be not more than five years past the highest degree. Mail a copy of your abstract submission and completed APS Award Certification Form to: Linda Allen, Meetings Department, APS, 9650 Rockville Pike, Bethesda, MD 20814-3991; Fax: 301-634-7241.

The **Comparative Section New Investigator Award** ($1,000) recognizes outstanding investigators in the early stages of their career. Candidates should be investigators who have made meritorious contributions to the scientific areas represented by the APS Comparative Section. They should not be above the rank of Assistant Professor or a comparable position in a research track at an academic institution or in industry (e.g. Scientist, Sr. Scientist, Research Investigator, etc.). They should receive nominations from at least two regular members of the APS. Candidates will be judged on their publications, how the publications relate to the APS section to which they have applied, and evidence for independence and promise (grant funding, peer review activities, etc.). Although this is not an abstract-based award, awardees are expected to attend EB and make an oral or poster presentation. The candidate must be an APS member in good standing. Candidates should submit a curriculum vitae, two nomination letters from APS members, and three reprints to The American Physiological Society, Membership Office, by **January 30, 2004**. Applications will be forwarded to the appropriate section for review.

## Endocrinology and Metabolism

The **Mead Johnson Research Award in Endocrinology and Metabolism** (certificate plus cash prize, depending on funds available) is intended to recognize the graduate student, resident or postdoctoral fellow who presents the best abstract for research in the area of endocrinology and metabolism at the Experimental Biology (EB) meeting. Applicants must be first author on a submitted abstract and should mail a copy of the abstract, the completed Award Certification Form, and a letter from the sponsor of the abstract indicating the training status of the individual to: Dr. Charles Lang, Department of Cellular & Molecular Physiology (H166), Pennsylvania State Univ. College of Medicine, Hershey, PA 17033-0850. Abstracts will be judged for scientific content by a committee comprised of the Endocrinology & Metabolism Section members. The successful candidate will be notified approximately 30 days prior to the EB meeting and will be presented the award during the Endocrinology & Metabolism Section Reception. Deadline for application is **November 19, 2003**.

The **Endocrinology & Metabolism Section Research Recognition Award** ($500) is presented to one or more pre-doctoral graduate students whose investigations in endocrinology and metabolism physiology has been designated by the Steering Committee as being an example of meritorious research. The recipient must be first author on a submitted abstract to the Endocrinology & Metabolism Section (topic categories 1074-APS through 1088-APS), and be certified by his/her advisor as being eligible for such an award. The successful candidate will be notified approximately 30 days prior to the Experimental Biology Meeting and will be presented the award during the Endocrinology & Metabolism Section Reception. A copy of your abstract submission and a completed APS Award Certification Form should be mailed to: Dr. Charles Lang, Department of Cellular & Molecular Physiology (H166), Pennsylvania State Univ. College of Medicine, Hershey, PA 17033-0850. Deadline for application is **November 19, 2003**.

The **Virendra B. Mahesh Award of Excellence in Endocrinology** ($1,000) is to promote the career development of young investigators pursuing research in the area of Endocrinology. The award will be presented to the graduate student or

postdoctoral fellow submitting the best abstract to the annual Experimental Biology (EB) meeting in the area of Endocrinology. The recipient must be first author on an abstract submitted to the Endocrinology & Metabolism Section topic category (1074-APS through 1088-APS) listing and be certified by his/her advisor as being eligible for such an award. The recipient will be notified prior to the meeting and award presented at the Endocrinology & Metabolism Section Reception at the EB meeting. A copy of the applicant's abstract submission, a completed APS Award Certification Form, and a brief (e.g., half page) letter from the mentor describing why the trainee is serving of the award should be mailed to: Charles H. Lang, PhD, Depart Cellular & Molecular Physiology (H166), Penn State College Medicine, Hershey, PA 17033. Deadline for application is **November 19, 2003**.

The **Endocrinology & Metabolism Section New Investigator Award** ($1,000) recognizes outstanding investigators in the early stages of their career. Candidates should be investigators who have made meritorious contributions to the scientific areas represented by the APS Endocrinology & Metabolism Section. They should not be above the rank of Assistant Professor or a comparable position in a research track at an academic institution or in industry (e.g. Scientist, Sr. Scientist, Research Investigator, etc.). They should receive nominations from at least two regular members of the APS. Candidates will be judged on their publications, how the publications relate to the APS section to which they have applied, and evidence for independence and promise (grant funding, peer review activities, etc.). Although this is not an abstract-based award, awardees are expected to attend EB and make an oral or poster presentation. The candidate must be an APS member in good standing. Candidates should submit a curriculum vitae, two nomination letters from APS members, and three reprints to The American Physiological Society, Membership Office, **by January 30, 2004**. Applications will be forwarded to the appropriate section for review.

## Environmental and Exercise Physiology

The **Environmental & Exercise Physiology (EEP) Section Gatorade Young Investigator Award** ($600 plus complimentary EB meeting registration and EEP Banquet ticket) is presented to a pre-doctoral graduate student whose investigation in either environmental, exercise, or thermal physiology has been designated by the Steering Committee as an outstanding example of experimental research. The recipient must be first author on a submitted abstract to the Environmental & Exercise Physiology Section topic category (topic category numbers 1089-APS through 1097-APS), certified by his/her advisor as being eligible for such an award, answer a questionnaire from the Steering Committee, one who has not received an advanced degree at the date of the abstract deadline, and be present at the EEP Section Awards Banquet. A copy of your abstract submission and a completed APS Award Certification Form should be mailed to: Dr. Kenneth Baldwin, Dept. of Physiology & Biophysics, University of California, Irvine, CA 92697. Deadline for application is **November 19, 2003**.

The **Environmental & Exercise Physiology Section Gatorade Beginning Investigator Award** ($750 plus complimentary EB meeting registration and EEP Banquet ticket) is presented to a postdoctoral fellow or its equivalent whose investigation in either environmental, exercise, or thermal physiology has been designated by the Steering Committee as an outstanding example of experimental research. The recipient must be first author on a submitted abstract to the Environmental & Exercise Physiology Section topic category (topic category numbers 1089-APS through 1097-APS), answer a questionnaire from the Steering Committee, have received their advanced degree within four years of the date of the abstract deadline, and be present at the EEP Section Awards Banquet. A copy of your abstract submission and a completed APS Award Certification Form should be mailed to: Dr. Kenneth Baldwin, Dept. of Physiology & Biophysics, University of California, Irvine, CA 92697. Deadline for application is **November 19, 2003**.

The **Environmental & Exercise Physiology Section Recognition Award** ($500) is presented to one or more pre-doctoral graduate and postdoctoral students whose investigations in either environmental, exercise, or thermal physiology has been designated by the Steering Committee as being an example of meritorious research. The recipient must be first author on a submitted abstract to the Environmental & Exercise Physiology Section topic category (topic category numbers 1089-APS through 1097-APS), and be certified by his/her advisor as being eligible for such an award. A copy of your abstract submission and a completed APS Award Certification Form should be mailed to: Dr. Kenneth Baldwin, Dept. of Physiology & Biophysics, University of California, Irvine, CA 92697. Deadline for application is **November 19, 2003**.

The **Environmental and Exercise Physiology Section Honor Award** ($1,250) recognizes a previous or current primary member who has made significant research contributions to the scientific advancement of environmental, exercise, or thermal physiology while enhancing the educational objectives of the section. The recipient receives a plaque, a check for $1,250, reimbursement of the registration fee, and the opportunity to discuss his/her research as the featured speaker at the annual EEP Section Banquet.

The **Environmental & Exercise Physiology Section Military Physiology Award for Beginning Investigators** ($750) recognizes outstanding research in either environmental, exercise, or thermal physiology by a postdoctoral fellow or equivalent that is relevant to the physiological missions of the US Armed Forces. Applicants must have received their

advanced degree within four years of the abstract submission date and must be first author on an abstract submitted to an APS Environmental & Exercise Physiology Section topic category (topic category numbers 1089-APS through 1097-APS). The award recipient must attend the EEP Section Awards Banquet to receive the cash prize and certificate. A copy of your abstract submission and a completed APS Award Certification Form should be mailed to: Dr. Kenneth Baldwin, Dept. of Physiology & Biophysics, University of California, Irvine, CA 92697. Deadline for application is **November 19, 2003**.

The **Environmental & Exercise Physiology Section Graduate Student Military Physiology Award** ($600) recognizes outstanding research in either environmental, exercise, or thermal physiology by a graduate student that is relevant to the physiological missions of the US Armed Forces. Applicants must be first author on an abstract submitted to an APS Environmental & Exercise Physiology Section topic category (topic category numbers 1089-APS through 1097-APS). The award recipient must attend the EEP Section Awards Banquet to receive the cash prize and certificate. A copy of your abstract submission and a completed APS Award Certification Form should be mailed to: Dr. Kenneth Baldwin, Dept. of Physiology & Biophysics, University of California, Irvine, CA 92697. Deadline for application is **November 19, 2003**.

The **Environmental & Exercise Physiology Section New Investigator Award** ($1,000) recognizes outstanding investigators in the early stages of their career. Candidates should be investigators who have made meritorious contributions to the scientific areas represented by the APS Environmental & Exercise Physiology Section. They should not be above the rank of Assistant Professor or a comparable position in a research track at an academic institution or in industry (e.g. Scientist, Sr. Scientist, Research Investigator, etc.). They should receive nominations from at least two regular members of the APS. Candidates will be judged on their publications, how the publications relate to the APS section to which they have applied, and evidence for independence and promise (grant funding, peer review activities, etc.). Although this is not an abstract-based award, awardees are expected to attend EB and make an oral or poster presentation. The candidate must be an APS member in good standing. Candidates should submit a curriculum vitae, two nomination letters from APS members, and three reprints to The American Physiological Society, Membership Office, **by January 30, 2004**. Applications will be forwarded to the appropriate section for review.

## Epithelial Transport Group

The **Epithelial Transport Group Student and Young Investigator Awards** ($250) will be given to one pre-doctoral and one postdoctoral candidate for outstanding research in a topic related to epithelial physiology. To be eligible for the award, the candidate must be the first author on an abstract submitted under one of the headings outlined under the Epithelial Transport Group topic categories (1098-APS through 1112-APS) at the Experimental Biology meeting, and for the postdoctoral award, must hold either a PhD, MD, DVM, or other comparable higher degree. Applicants should submit a copy of their abstract, a completed APS Award Certification Form and a one-page CV to Cathy Fuller PhD, Department of Physiology and Biophysics, University of Alabama at Birmingham, Birmingham AL 35294-0005 (fuller@physiology.uab.edu) for review by the ETG Steering Committee. Deadline for application is **December 12, 2003**.

## Gastrointestinal and Liver Physiology Section

The **Abbott Distinguished Research Award for Excellence in Gastrointestinal & Liver Physiology** ($750) recognizes a scientist who has carried out highly meritorious research in gastrointestinal or liver physiology. The recipient receives a commemorative plaque, a $750 award, and presents an award lecture at the section's annual business meeting/reception. The recipient is chosen by the Gastrointestinal Section Steering Committee. The section membership is encouraged to submit nominations, which should be sent to the Steering Committee Chair. Nominations consist of a cover letter outlining the candidate's qualifications for the award and his/her curriculum vitae.

The **Gastrointestinal & Liver Physiology Section Student Prize** ($500) is designed to challenge and reward trainees who are engaged in gastrointestinal and liver research. Two awards will be made at the Experimental Biology Meeting. One will be given for work done while enrolled as a doctoral or medical student. A second award will be given for work performed during the first through third postdoctoral years or during a medical residency. In order to be considered, the applicant must be first author on an abstract submitted for the meeting and either the applicant or sponsor must be a member of APS. A copy of the submitted abstract, accompanied by the signed and completed APS Award Certification Form should be sent to: Hugh Nellans, PhD, GI Pharmacology & Oral Drug Delivery, Abbott Laboratories, Dept 46V, Bldg AP9, 100 Abbott Park Road, Abbott Park, IL 60064-6122 to arrive on or before **January 3, 2004**.

The **Gastrointestinal & Liver Physiology Section Research Recognition Awards** ($500) will provide travel support for junior investigators to participate in the annual Experimental Biology meeting. To be eligible for the award, the investigator must be within 10 years of receiving a higher degree (PhD, MD or DVM), and must submit an abstract to a Gastrointestinal & Liver Physiology Section topic category (1113-APS through 1123-APS). To apply for the award, applicants should submit their abstract and a brief statement of research accomplishments by **Jan-**

**uary 10, 2004** by Email to Matthew Grisham, Chair of the GI Section Steering Committee at mgrish@lsuhsc.edu.

The **Gastrointestinal & Liver Physiology Section New Investigator Award** ($1,000) recognizes outstanding investigators in the early stages of their career. Candidates should be investigators who have made meritorious contributions to the scientific areas represented by the APS Gastrointestinal & Liver Physiology Section. They should not be above the rank of Assistant Professor or a comparable position in a research track at an academic institution or in industry (e.g. Scientist, Sr. Scientist, Research Investigator, etc.). They should receive nominations from at least two regular members of the APS. Candidates will be judged on their publications, how the publications relate to the APS section to which they have applied, and evidence for independence and promise (grant funding, peer review activities, etc.). Although this is not an abstract-based award, awardees are expected to attend EB and make an oral or poster presentation. The candidate must be an APS member in good standing. Candidates should submit a curriculum vitae, two nomination letters from APS members, and three reprints to The American Physiological Society, Membership Office, **by January 30, 2004**. Applications will be forwarded to the appropriate section for review.

## Liaison with Industry Committee

The **Liaison with Industry Committee Novel Disease Model Award** ($500/graduate student; $800 postdoctoral fellow) recognizes the graduate student and postdoctoral follow submitting the best abstracts describing a novel disease model. The model can be cellular or in vivo but should clearly emphasize the potential utility of the system for future research related to a disease process. Applicants must send a copy of the submitted abstract accompanied by the signed and completed Award Certification Form to: Linda Allen, Meetings Department, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991; Fax: 301-634-7241; Email: lallen@the-aps.org to arrive before **January 2, 2004**.

## Neural Control and Autonomic Regulation

The **Michael J. Brody Young Investigator Award of the APS Neural Control and Autonomic Regulation Section** ($500) is sponsored by Merck & Co. recognizes a promising young investigator who has made a significant research contribution to the understanding of neural control and autonomic regulation. The award is open to graduate students (post-candidacy exams), postdoctoral fellows, and clinical fellows who present and are first author on an abstract at Experimental Biology. Either the applicant or the abstract sponsor must be a member of APS. Applicants must mail a copy of the submitted abstract; the completed APS Award Certification Form; a list of publications; a one page summary and evaluation of research contributions, written by the applicant and; a cover letter signed by both the applicant and sponsor indicating the date, or expected date, of highest degree. The deadline for receipt of applications is **December 1, 2003**. Send applications to Chester A. Ray, PhD, Penn State College of Medicine, Division of Cardiology H047, 500 University Dr., Hershey, PA 17033-2390.

**The Neural Control and Autonomic Regulation (NCAR) Research Recognition Awards** ($500) provide travel support to junior investigators to present meritorious research at the annual Experimental Biology Meeting. To be eligible, the investigator must have a PhD, MD, or other professional degree with an academic rank or equivalent not higher than that of Assistant Professor and conduct either basic or clinical research in a field of neural control and autonomic regulation. Junior faculty members are particularly encouraged to apply for this award. To apply, the investigator must submit a first-authored abstract to any appropriate neural control topic of the Experimental Biology meeting. Award criteria will be based on current work reflected in the abstract and overall contributions to the field. A copy of the abstract and a CV from the investigator must be received by **December 1, 2003**. Send application to Chester A. Ray, PhD, Penn State College of Medicine, Division of Cardiology H047, 500 University Dr., Hershey, PA 17033-2390. The abstracts will be judged by the NCAR Steering Committee and the most meritorious applications will be awarded.

The **Neural Control and Autonomic Regulation Section New Investigator Award** ($1,000) recognizes outstanding investigators in the early stages of their career. Candidates should be investigators who have made meritorious contributions to the scientific areas represented by the APS Neural Control & Autonomic Regulation Section. They should not be above the rank of Assistant Professor or a comparable position in a research track at an academic institution or in industry (e.g. Scientist, Sr. Scientist, Research Investigator, etc.). They should receive nominations from at least two regular members of the APS. Candidates will be judged on their publications, how the publications relate to the APS section to which they have applied, and evidence for independence and promise (grant funding, peer review activities, etc.). Although this is not an abstract-based award, awardees are expected to attend the Experimental Biology meeting and make an oral or poster presentation. The candidate must be an APS member in good standing. Candidates should submit a curriculum vitae, two nomination letters from APS members, and three reprints to Chester A. Ray, PhD, Penn State College of Medicine, Division of Cardiology H047, 500 University Dr., Hershey, PA 1703-2390, **by December 1, 2003**.

## Renal Section

The **Robert W. Berliner Award for Excellence in Renal Physiolo-**

**gy Sponsored by Abbott Laboratories** ($1,000 plus reimbursement of travel expenses to the Experimental Biology meeting) is given to an outstanding senior researcher and educator in renal physiology. The award winner is also acknowledged at the Renal Dinner.

**The Young Investigator Award for Excellence in Research Sponsored by AstraZeneca** ($1,000 plus reimbursement of travel expenses to the Experimental Biology meeting) recognizes an outstanding young investigator, less than 41 years old, or less than 15 years beyond receipt of his/her first doctoral degree. Research topics qualifying consideration include any area of renal physiology, pathophysiology, or hypertension. A nominee for renal physiology is required to have published original work in the *American Journal of Physiology Renal Physiology* or similar journal during the preceding four years. The award winner is acknowledged at the Renal Dinner. Nominations and applications should be sent to the Chair of the Renal Section: Susan M. Wall, MD, Department Medicine, Renal Division, Emory University, School of Medicine, 1639 Pierce Drive, WMRB Room 338, Atlanta, GA 30322-0001; Email: smwall@emory.edu.

**The Aventis Pharmaceutical Excellence in Renal Research Awards** are sponsored by Aventis Pharmaceutical and designed to promote and develop excellence in research pertaining to molecular, cellular, or organ mechanisms involving the kidney. Awards are presented to two categories of students: predoctoral students (including graduate students and medical students) and postdoctoral fellows. Award recipients must be first authors on abstracts focused on kidney research and they must agree to attend the Renal Dinner to participate in the Awards Proceeding sponsored by the APS Renal Section. Prior to the meeting a first level of evaluation is conducted based on the submitted abstract; a subset of abstracts are further judged during oral presentation at the meeting. Award winners are announced at the annual Renal Dinner held in conjunction with the meeting. Students and fellows are strongly urged to participate in the award process. Mail completed Award Certification Form and a copy of the submitted abstract to: Ed Inscho, Chair, Renal Section Awards, Medical College of Georgia, Dept. of Physiology CL-3140, 1120 15th St, Augusta, GA 30912-3000. Email: einscho@mail.mcg.edu. Deadline for applications is **November 12, 2003**.

The **Renal Section Research Recognition Awards** ($500) recognize the meritorious research by young investigators (junior faculty) who participate in the annual Experimental Biology (EB) meeting. At least two awards will be given. To qualify for this award, the applicant must have finished postdoctoral work, may not be a senior faculty member, i.e. may not have a faculty rank of Associate or Full Professor, and may not have won this award in previous years. Candidates should either be an author on an abstract submitted to the EB meeting, or agree to submit a late-breaking abstract if they did not submit one originally and they are selected for this award. Applications will be reviewed and rated by the Renal Section Awards Committee. Membership in the APS is not required, but awardees will be encouraged to join if they are not members. The awards will be presented at the annual Renal Dinner during the EB meeting. Applicants and awardees should plan to attend this Renal Section Function. Applicants must submit a copy of their EB meeting abstract or a note agreeing to do so if selected, and a note indicating their current position. Applicants who plan to submit an abstract only if selected for this award, must include a note explaining their decision. Alternatively, Renal Section members may nominate candidates for this award by submitting the above items. Send these items by **December 15, 2003** to the Chair of the Renal Section Award Committee: Ed Inscho, Chair, Renal Section Awards, Medical College of Georgia, Dept. of Physiology CL-3140, 1120 15th St, Augusta, GA 30912-3000. Email: einscho@mail.mcg.edu

The **Renal Section New Investigator Award** ($1,000) recognizes outstanding investigators in the early stages of their career. Candidates should be investigators who have made meritorious contributions to the scientific areas represented by the APS Renal Section. They should not be above the rank of Assistant Professor or a comparable position in a research track at an academic institution or in industry (e.g. Scientist, Sr. Scientist, Research Investigator, etc.). They should receive nominations from at least two regular members of the APS. Candidates will be judged on their publications, how the publications relate to the APS section to which they have applied, and evidence for independence and promise (grant funding, peer review activities, etc.). Although this is not an abstract-based award, awardees are expected to attend EB and make an oral or poster presentation. The candidate must be an APS member in good standing. Candidates should submit a curriculum vitae, two nomination letters from APS members, and three reprints to The American Physiological Society, Membership Office, **by January 30, 2004**. Applications will be forwarded to the appropriate section for review.

## Respiration

The **Julius Comroe, Jr. Travel Award of the APS Respiration Section** ($500) was established to increase support for new investigators and enhance their involvement in the Respiration Section of APS with original presentations of their scientific work at the annual Experimental Biology meeting. To be eligible for the award, applicants must submit their abstract to a Respiration Section topic category (topic category numbers: 1163-APS through 1192-APS) and send a copy of the submitted abstract accompanied by the signed and completed Award Certification Form to: Linda Allen, APS Meetings Department, 9650 Rockville Pike, Bethesda, MD 20814-3991 to arrive by **January 2, 2004**.

The **Respiration Section Research Recognition Awards** ($500) recognize outstanding research by

graduate students and postdoctoral fellows who submitted their abstract to a Respiration Section topic category (topic categories 1162-APS through 1185-APS) at the Experimental Biology meeting. Awardees will be asked present their work at a special evening poster discussion session during the meeting. The selection is made by the Respiration Section Steering Committee.

The **Respiration Section New Investigator Award** ($1,000) recognizes outstanding investigators in the early stages of their career. Candidates should be investigators who have made meritorious contributions to the scientific areas represented by the APS Respiration Section. They should not be above the rank of Assistant Professor or a comparable position in a research track at an academic institution or in industry (e.g. Scientist, Sr. Scientist, Research Investigator, etc.). They should receive nominations from at least two regular members of the APS. Candidates will be judged on their publications, how the publications relate to the APS section to which they have applied, and evidence for independence and promise (grant funding, peer review activities, etc.). Although this is not an abstract-based award, awardees are expected to attend EB and make an oral or poster presentation. The candidate must be an APS member in good standing. Candidates should submit a curriculum vitae, two nomination letters from APS members, and three reprints to The American Physiological Society, Membership Office, **by January 30, 2004**. Applications will be forwarded to the appropriate section for review.

## Teaching of Physiology

**The Arthur C. Guyton Educator of the Year Award sponsored by the W. B. Saunders Company** ($1,000, plaque and up to $750 in travel reimbursement to the Experimental Biology meeting) recognizes a full-time faculty member of an accredited college or university and member of the APS who has independent evidence of: (*1*) excellence in classroom teaching over a number of years at the undergraduate, graduate, or professional levels; (*2*) commitment to the improvement of physiology teaching within the candidate's own institution; and (*3*) contributions to physiology education at the local community, national or international levels. A member of APS must nominate a candidate for this award. The nominator is responsible for completing application materials and forwarding six copies to the chairperson of the Guyton Award Selection Committee, William H. Cliff, PhD, Department of Biology, Niagara University, Niagara University, NY 14109-2032, email: bcliff@niagara.edu. The award winner is announced at the APS Business Meeting during Experimental Biology. The awardee is requested to write an essay on his/her philosophy of education for publication in *The Physiologist*.

The **Teaching of Physiology Section Research Recognition Awards** ($500) will provide two travel awards for outstanding posters presented in the Teaching Poster Sessions at Experimental Biology '04. To qualify for this award, the applicant must be first author on the poster, and age 40 or under or within 10 years of receiving the PhD or MD. Applicants must also be APS regular, affiliate, or student members. Abstracts will be reviewed and rated by the Teaching Section Steering Committee. All poster abstracts must be formally submitted to EB by the abstract deadline. To apply for this award, please send a copy of the abstract submission and a completed APS Award Certification Form to: Penelope A. Hansen, PhD, Memorial University Faculty of Medicine, St. John's, NF, Canada A1B 3V6, Fax 1-709-777-6576. Deadline for receipt of the application is **November 18, 2003**.

The **Teaching of Physiology Section New Investigator Award** ($1,000) recognizes outstanding investigators in the early stages of their career. Candidates should be investigators who have made meritorious contributions to the scientific areas represented by the APS Teaching of Physiology Section. They should not be above the rank of Assistant Professor or a comparable position in a research track at an academic institution or in industry (e.g. Scientist, Sr. Scientist, Research Investigator, etc.). They should receive nominations from at least two regular members of the APS. Candidates will be judged on their publications, how the publications relate to the APS section to which they have applied, and evidence for independence and promise (grant funding, peer review activities, etc.). Although this is not an abstract-based award, awardees are expected to attend EB and make an oral or poster presentation. The candidate must be an APS member in good standing. Candidates should submit a curriculum vitae, two nomination letters from APS members, and three reprints to The American Physiological Society, Membership Office, **by January 30, 2004**. Applications will be forwarded to the appropriate section for review.

## Water and Electrolyte Homeostasis

**The New Investigator Award in Regulatory and Integrative Physiology** ($1,000) was established to encourage young investigators to continue research careers in cardiovascular, renal, and neuroendocrine integration. The award is presented annually at the business luncheon of the Water and Electrolyte Homeostasis Section to a new investigator who has made important contributions to our understanding of the integrative aspects of cardiovascular, renal, and neuroendocrine physiology in health and/or disease. Applicants should not be above the rank of Assistant Professor or a comparable position in a research track at an academic institution or in industry. The recipient of the award will present a short lecture on his/her research during one of the scientific sessions of the Experimental Biology meeting and will be invited to publish a manuscript on this presentation in the *American Journal of Physiology-Regulatory, Integrative & Comparative Physiology*. Any member of the APS in good standing may apply

or be nominated for the award. Applications are reviewed by the Awards Committee of the Water and Electrolyte Homeostasis Section and should include: (*1*) a curriculum vitae of the nominee; (*2*) a brief one-page summary and analysis of the research contributions of the nominee; (*3*) a complete list of publications; and (*4*) two letters of nomination from members of the APS. Applicants are requested to send information to Joey P. Granger, Dept of Physiology & Biophysics, Univ. of Mississippi Med Center, 2500 North State Street, Jackson, MS 39216-4505, Fax: 601-984-1817; Email:jgranger@physiology.umsmed.edu by **December 1, 2003**.

**The Water & Electrolyte Homeostasis Section Research Recognition Travel Award** ($500) provides support for travel expenses for junior investigators to attend the annual Experimental Biology Meeting. To be eligible, the investigator must be either a pre-doctoral student or within ten years of receiving his/her PhD or MD degree. Applicants must be first author on an abstract submitted to an APS Water & Electrolyte Homeostasis Section topic category (1194-APS through 1200-APS) The Section Steering Committee will judge the abstracts. Applicants are requested to send a copy of their submitted abstract to Joey P. Granger, Department of Physiology & Biophysics, Univ. of Mississippi Med Center, 2500 North State Street, Jackson, MS 39216-4505, Fax: 601-984-1817; Email: jgranger@physiology.umsmed.edu by **December 1, 2003**.

## Other Awards

### Procter and Gamble Professional Opportunity Awards

The Procter and Gamble Professional Opportunity Award provides funds to predoctoral students to allow full participation in the Experimental Biology meeting. A candidate must be first author of an abstract submitted to the APS and be within 12-18 months of completing a PhD degree. The candidate must either be a student member of the APS, have an advisor who is an APS member, or have a supporting sponsor who is an APS member. A recipient must be a US citizen or hold a permanent resident visa. The recipient receives $500 and complimentary registration for the Experimental Biology meeting and must attend and present a paper at the meeting. The deadline is **November 12, 2003**. For application information, contact Melinda Lowy in the APS Education Office at mlowy@the-aps.org.

### Caroline tum Suden/Frances Hellebrandt Professional Opportunity Awards

This award provides funds for junior physiologists to attend and participate fully in the Experimental Biology meeting. The award is granted to as many as 36 male or female graduate students or postdoctoral fellows. To be considered for the award, the candidate must be first author of an abstract submitted to APS and either the candidate or the abstract sponsor must be an APS member. The recipient receives $500 and complimentary registration for the Experimental Biology meeting. A recipient must attend and present a paper at the meeting. The deadline is **November 12, 2003**. For application information, contact Melinda Lowy in the APS Education Office at mlowy@the-aps.org.

### Minority Travel Awards

The American Physiological Society, with support from NIDDK and NIGMS, offers travel awards for underrepresented minorities (i.e., African Americans, Hispanics, Native Americans, and Pacific Islanders) who are US citizens or permanent residents and wish to attend the APS Fall Conferences and/or the annual spring meeting, Experimental Biology. The specific intent of this award is to increase participation of pre- and postdoctoral minority students in the physiological sciences. The awards are open to graduate students, postdoctoral students, and advanced undergraduate students. Students who obtained their undergraduate education in Minority Biomedical Research Programs (MBRS) or Minority Access to Research Career (MARC)-eligible institutions, as well as students in the APS Porter Development Program, are encouraged to apply. Minority faculty members at the above institutions may also submit applications. Funds will provide transportation, meals, and lodging. The applicant need not be a member of APS. For application information, contact Brooke Bruthers in the APS Education Office at bbruthers@the-aps.org. ❖

## Gift Planning Opportunities

APS is pleased to invite the membership to consider including APS in their gift giving plans. In the past, 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.: 301-634-7118, Email: mfrank@the-aps.org), or Robert Price, Director of Finance (Tel.: 301-634-7173, Email: rprice@the-aps.org)

## Senators Offer Amendment To Increase NIH Funding

In September, when the Senate returned from its summer recess, the first order of business was the Labor Health and Human Services and Education (Labor HHS) appropriations bill, which funds the National Institutes of Health (NIH). During floor consideration of this legislation, Senators Arlen Specter (R-PA), Tom Harkin (D-IA), and Dianne Feinstein (D-CA) offered an amendment that would have added $1.5 billion to the NIH budget in fiscal year (FY) 2004. This would have provided a $2.5 billion or 9.2% increase over FY 2003 levels, consistent with what experts in the research community believe is needed to sustain the momentum achieved during the recently completed doubling. Unfortunately, this amendment failed by a vote of 52 to 43. (Under Senate rules, 60 votes were necessary to pass this type of amendment.)

To win support to add new money, Senator Specter tried to designate the funds as emergency spending that would not count towards the agreed upon limit in the bill. However, this budget tactic angered Senator Kent Conrad (D-ND) the Ranking Member on the Senate Budget Committee and others, whose opposition doomed the amendment.

The Senate Appropriations Committee had recommended $26.8 billion for NIH in FY 2004. This $1 billion (3.7% increase) over FY 2003 levels was far smaller than the 8%-10% increase advocated by the American Physiological Society (APS), Federation of American Societies for Experimental Biology (FASEB) and the Association of American Medical Colleges (AAMC). NIH advocates Specter, Harkin, and Feinstein had hoped to improve on that number. The House had already voted on July 11, 2003 to provide NIH with a $26.6 billion budget in FY 2004. A House-Senate conference committee must now reconcile the two NIH recommendations.

In an effort to encourage all Senators to vote for the Specter-Harkin-Feinstein amendment, the APS joined with over 500 health and patient advocacy groups in signing a letter that called on Senators to support this initiative. The APS also asked members living in the United States to contact their Senators in support of the amendment. For more information on this and other issues important to APS members, please visit the Legislative Action Center at: http://www.the-aps.org/pa/.

## Group Wants Government to Revoke PETA's Tax Exemption

The National Animal Interest Alliance (NAIA) is calling upon the government to revoke the tax-exempt status of People for the Ethical Treatment of Animals (PETA) because of its support for individuals and organizations that engage in illegal activities and violence. In early August NAIA published a summary of PETA's questionable activities on its website in an article entitled "California arson fits terrorist pattern," (http://www.naiaonline.org/body/ca_arson_terrorist(8-7-03).htm). NAIA is inviting individuals to sign its petition.

NAIA describes itself as "an association of business, agricultural, scientific, and recreational interests formed to protect and promote humane practices and relationships between people and animals."

NAIA first asked Congress in 1999 to seek an investigation of the connection between tax-exempt groups such as PETA and extremist groups that have committed illegal acts. NAIA requested that Congress direct the IRS to "vigorously review the tax exempt status of organizations that advocate, support, fund, or engage in unlawful activities." It further called upon Congress to ask the IRS to "investigate and take appropriate action to revoke such classification when the facts so dictate and report such findings to Congress." The issue of concern is PETA's relationship with the Animal Liberation Front (ALF) and the Environmental Liberation Front (ELF).

In the FBI's 1999 report Terrorism in the United States, the ALF and ELF were described as "interrelated movements" that have "increasingly engaged in vandalism, destruction of property, and other criminal activity (such as the sending of parcels rigged with razor blades)." The NAIA website provides a quote from the February 2002 Southern Poverty Law Center Intelligence Report noting that ALF and ELF members "have been involved with SHAC's campaign to harass employees of Huntingdon [Life Sciences] . . .with frankly terroristic tactics similar to those of anti-abortion extremists."

NAIA renewed its call for a government investigation in August 2003 in the wake of an arson attack near San Diego. NAIA suggested the possibility of a connection between the presence of ALF member and convicted arsonist Rodney Coronado in San Diego on August 1 and a fire that caused $30 million in damage to an apartment building under construction in nearby University City during the early hours of that day.

When firefighters reached the blaze, which had broken out at about 3 a.m., they found a large banner proclaiming, "If you build it—we will burn it—The E.L.F.'s are mad." No injuries reported, but nearby buildings had to be evacuated and some resident said that the intensity of the heat melted portions of their plastic window blinds.

Coronado was in San Diego August 1 as a featured speaker at the Animal Liberation Weekend program offered by a group called "Revolution Summer San Diego." A program flyer described Coronado as a "Radical Native American and militant Animal Liberationist" who would speak about "militant animal liberation and the defense of Mother Earth." In 1995 Coronado was sentenced to five years in prison for his role in a 1992 arson attack that caused $1 million in damage to a Michigan State University fur research lab. The arson was part of a series of attacks in an ALF campaign known as "Operation Bite Back." The MSU arson is one instance suggestive

*(continued on page 326)*

(continued from page 325)
of a connection between PETA and illegal ALF activities. According to the government's sentencing memorandum for Coronado, PETA made the public announcement about the MSU attack and said that it was "acting as a media conduit for the ALF."

In his San Diego speech Coronado denied any connection to the August 1 apartment fire but defended those who had taken the action. "People willing to risk their lives to protect the environment by destroying buildings built on the habitat of endangered species make people take notice," Coronado said according to a report published online by Zenger's, an alternative monthly newsmagazine.

Zenger's also reported that Coronado justified the use of incendiary devices to destroy animal facilities. "Fire is a very sacred power," Coronado reportedly said. "We use fire to cleanse ourselves, and when we address buildings and institutions that have no other purpose but to destroy life, fire is the only way to stop them."

On its website NAIA noted that while Coronado was a fugitive sought in connection with the MSU arson, PETA gave his father a $25,000 loan that has apparently never been repaid. After Coronado was apprehended, PETA donated $45,000 to the Rodney Coronado Support Fund. In a February 2003 interview with ABC's John Stossell, 2003, PETA President Ingrid Newkirk called Coronado "a fine young man" and defended the use of its tax-exempt funds to assist him.

"We gave him money for his defense because it is America and you are entitled to a legal defense," Newkirk said told Stossell in that interview.

The NAIA website also notes that PETA gave $2,000 in 1999 to David Wilson while he was the national spokesman for ALF and $5,000 in 2001 to a support fund for Josh Harper, who was subsequently convicted in connection with ELF fire bombings of several business in Utah.

While PETA's support for individuals involved in illegal activities has provoked a general sense of outrage, other nonprofit groups may advocate "illegal" activities in the form of civil disobedience. In fact, many nonprofits support legal defense funds for various causes, ranging from those who oppose abortion to those who oppose capital punishment. Concerns have been raised about the potential to politicize the IRS if it were in the position to decide which organizations to investigate. Concerns have also been raised about the chilling effect such authority might have on the exercise of free speech.

Nevertheless, NAIA insists that there are situations where extraordinary action may be appropriate: "PETA gets a tax break while supporting terrorism," according to NAIA President Patti Strand.

For further information on the NAIA petition drive, see the NAIA website at http://www.naiaonline.org.

## Institute of Medicine Recommends NIH Changes

On July 29, 2003, the Institute of Medicine (IOM)/National Research Council (NRC) released a report recommending organizational changes at the National Institutes of Health (NIH). Harold T. Shapiro, President Emeritus and Professor of Economics and Public Affairs at Princeton University chaired the Committee on the Organizational Structure of the National Institutes of Health, which wrote the study.

The report, "Enhancing the Vitality of the National Institutes of Health: Organizational Change to Meet New Challenges," was undertaken at the request of Senators Arlen Specter (R-PA) and Tom Harkin (D-IA). The Senators were concerned that the organizational structure of NIH—particularly the increasing number of institutes and centers, which now total 27—had either fragmented the agency or made it too unwieldy to effectively address the research challenges now emerging on the biomedical research frontier.

The committee's goal was to look at the organizational structure of the NIH and see whether the agency could be made more effective. "Despite the considerable achievements of NIH, important organizational changes are needed for it to meet future challenges effectively," Shapiro noted in announcing the panel's recommendations. "In particular, changes are required to allow NIH to devote additional resources to innovative, interdisciplinary research that reflects strategic objectives and cuts across many or all of the agency's institutes and centers,"

### Summary of Recommendations

- Assure that centralization off management functions will not undermine NIH's ability to identify, fund, and manage the best research and training
- Create a public process for considering proposed changes in the number of NIH institutes of centers
- Strengthen the overall NIH clinical research effort through consolidation of programs and creation of a new leadership position
- Enhance and increase trans-NIH strategic planning and funding
- Strengthen the Office of the NIH Director
- Establish a process for creating new OD offices and programs
- Create a Director's Special Projects Program to support high risk, high potential payoff research
- Promote innovation and risk-taking in intramural research
- Standardize level-of-investment data and information management systems
- Set terms and conditions for IC director appointments and improve IC directors review process
- Set terms and conditions for the NIH director appointment
- Reconsider the special status of the National Cancer Institute
- Retain integrity in appointments to advisory councils and reform advisory council and activity and membership criteria
- Increase funding for Research Management and Support

he said. The committee came up with 14 recommendations designed to achieve this objective. (See accompanying box.)

The committee recommended that the NIH Director, who is a Presidential appointee, should serve a six-year term, unless removed sooner. A second six-year term would be contingent on a performance review by outside experts and the recommendation of the secretary of Health and Human Services. The committee also recommended that the directors of the NIH institutes and centers be appointed to five-year terms with the option of serving a second and final five-year term. Terms of these lengths would allow the tenure of NIH officials to transcend political administrations.

Another objective of the recommendations was to grant the NIH Director the power to quickly meet unanticipated needs. The committee recommended that the Office of the Director should be given a more adequate budget to support its management roles or greater discretionary authority to reprogram funding. The committee also made other recommendations to enhance the Director's role. For example, it recommended that the power to hire and fire Directors of Institutes and Centers be transferred from the secretary of Health and Human Services to the Director of the NIH. It also recommended that the NIH Director review the performance of institute and center directors annually.

In what may become a point of controversy, the committee recommended that the NIH director be formally charged by Congress to develop initiatives that cut across the purview of the multiple institutes and centers. This type of research was considered especially important given the increasingly interdisciplinary nature of science. Examples the committee gave included proteomics and obesity, two areas that cut across many different NIH centers and institutes. This recommendation was expected to be contentious because the committee also recommended that Congress give the NIH Director the authority to require the institutes and centers to commit a fixed percentage of their extramural and intramural budgets for participation in trans-NIH research initiatives identified through a strategic planning process.

The panel also focused on the role of translational research. According to Shapiro, "The importance of clinical research in translating the knowledge produced by basic science into improved health cannot be overstated, but this translation is hampered by high costs, regulatory uncertainties, incompatible databases, and a shortage of qualified investigators and willing patient participants." The panel therefore recommended that several intramural and extramural clinical research programs be combined into a new entity called the National Center for Clinical Research and Research Resources. This new center would take over the clinical research role currently held by the National Center for Research Resources.

In an effort to stimulate creative solutions to complex medical problems, the committee recommended that the NIH Director be given a special projects program budget. This program, similar to the Defense Department's Defense Advanced Research Projects Agency (DARPA), would fund risky cutting edge research that offers a high potential payoff for society in terms of cures and improved medical treatment. The committee recommended that Congress provide $100 million for this program in the first year, with the budget eventually growing to as much as $1 billion a year.

For a full copy of the report, please visit:http://www.nap.edu/books/0309089670/html/.

## APS to Sponsor 2004 Mass Media Fellowship

For the sixth consecutive year, APS will sponsor an American Association for the Advancement of Science (AAAS) Mass Media Science and Engineering Fellow for summer 2004. Applications are due to the AAAS by January 15, 2004.

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, and radio and 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 nonscientists 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 "Student Awards" section of the APS website at http://www.the-aps.org/awards/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 underrepresented 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). ❖

The Physiologist
Vol. 46, No. 5, 2003

## 2003 APS Mass Media Fellow - Alison Burggren

This year's APS-sponsored AAAS *Mass Media Fellow was Alison Burggren. Burggren, who is currently a PhD candidate at University of California, Los Angeles, spent her summer at the Sacramento Bee.*

*Burggren enjoyed her summer as a science writer and learned much about the profession of journalism. After presenting her dissertation in December, she plans to pursue a career in science writing. The following article details her summer as a* Sacramento Bee *reporter.*

Science writing is an art. In the shortest amount of space your editor can give you, you have to grab your reader's attention, explain an incredibly complicated idea, and say something that enriches your reader's life in the time they took to read the article. If you don't, you're not doing your job and you're wasting time and newsprint space—a very valuable commodity.

My summer started slowly, learning the ropes of the newsroom and searching for story ideas. It took a couple of weeks to see my first story in print, but after that it happened more frequently.

The newsroom was exactly like I'd imagined it. Filled with bustling activity by late morning (no one gets in before 10 AM around here—a shocker to a graduate student used to reporting to work by 8 AM at the latest), and the most chaotic time was always 6 PM. I've been told the *Sacramento Bee* has the smallest amount of space per reporter in the newsroom, which meant we were right on top of each other's desks. You quickly learn to give up any shred of privacy you have and how to drown out other people's phone conversations in order to focus on your research and writing.

I spent the majority of my summer as a science intern at the *Sacramento Bee* working intimately with the other science writer and medical writer on staff. Both women were patient, supportive, and critical of me in a way that made me feel like their equal (even if I lacked the 30 years of experience they had between the two of them). They took me as a writer and turned me into a journalist. One of them read every article I wrote and told me how to make it better; tighter, more compelling, more relevant. By the end of the summer I felt confident I could do this on my own and was told so by both the writers and by my editor.

I learned that outside of crafting a story, a journalist's most important skill is creating a world of contacts. A large percentage of the time, reporters cover stories pitched by lay people or by hospital and university public information officers. It is time-consuming, yet ultimately worthwhile, to cultivate these contacts and make certain that they recognize you as the writer who should receive information on particular topics. This is especially true of a locally-orientated paper like the *Sacramento Bee* since most of our stories don't come from national scientific websites or newswires for journalists. Finding the local voice is extremely important.

Researching a story takes far more time than writing it does. For me, writing was the easy part. Finding all the information and ensuring that I wouldn't get a call after the story had run saying I'd missed a huge fact was always my biggest priority. During an orientation session, we were told reporters always have 10 times the information that ever goes into a story. Now I believe it's double that. And quotes! From an hour-long conversation you might get one great quote. But that makes the hour worth it because a great quote can make a story.

I think the most critical part of this internship was showing us why it's important to communicate scientific ideas to the public, not just how. The why came in the form of calls and emails from readers after my stories ran. The feeling that someone took time out of their busy day to read your story is a huge compliment and makes you feel justified in pushing forward through the next story. Without that, you might as well be writing in a diary.

I honestly feel that I was probably luckier than most with the choice of my site and would hope future interns get the privilege of being placed at the *Sacramento Bee*. My editor was incredibly patient with me, taking half hour breaks out of his busy day to review the edits he wanted to make to my stories before making them. Not once did he ever change my articles without running it by me first. From that exercise, I learned to write in a way that needed less editing. I loved the smaller-sized newspaper environment and felt that I learned so much more by working on a story one-on-one with another writer or editor. I don't think I would have gotten such personal attention from a bigger newspaper.

The attention from the group that organized the internship, the American Association for the Advancement of Science (AAAS), was a huge asset too, especially the orientation. I got to orientation in a state of panic about starting my first new job in four years. I left after three days in Washington, DC, feeling totally prepared to start my internship. Reading everyone's weekly reports made me feel more justified in the range of emotions I experienced. Other interns expressed my feelings, too: frustration over a story not getting into the paper, elation at pitching a story idea of your own and seeing it coming to fruition, awe at seeing your name on the front page, homesickness. After such a simple three-day orientation meeting, we were intimately connected through a cross-country network and by our shared experience in a field that we'd never worked in before.

My personal goal for the summer was landing a front-page story. Achieving that goal appeared to put me on the map in most everyone's eyes in the newsroom. The article was about a prostate study published in the *New England Journal of Medicine*. It reported that the blood test most regularly used for screening misses 82 percent of prostate cancers in men under 60. I reached tens of thousands of people with that story. That was the day I realized why I love journalism. It's not only about writing for myself,

but about sharing what I've learned with others in a way that allows them to make their own decisions. The calls I received that week from men thanking me for that story touched my heart. The power of the media is awesome.

The medical journal stories that had very little human interest to begin with were the most difficult stories for me. To personalize a medical journal story is difficult and requires a lot of extra research. I had the most fun with surgical procedure stories where I spent time watching the surgery in scrubs while the doctor explained what he/she was doing. It was fascinating to see every detail of the procedure and talk to the patient before and after the operation was done. It made me feel compelled to relate the experience to the reader in such a way that would bring this feeling to them through the pages of the paper.

Overall I'd say I'm incredibly lucky to have been given this opportunity and intend to use it to my fullest advantage in developing my career as a science writer. I am so grateful to APS for funding this entire experience for me and for sending Stacy Brooks and Alice Ra'anan to meet with me at breakfasts and luncheons and see how I was doing. Their support made me realize how much APS cares about my development as a science writer. I'll be going back to school at UCLA for the next three months, preparing for my dissertation defense on December 1. After than I'm hoping to find employment as a science writer—freelance, staff position, anything! As long as I continue working in this field that I've fallen in love with I'll be happy! ❖

The Physiologist
Vol. 46, No. 5, 2003

# Exercise: Hot Topics

Manu V. Chakravarthy and Frank W. Booth
Hanley and Belfus Inc., Philadelphia (USA), 2003, 326 pp., index, $29.95
ISBN 1-56053-568-7

*Exercise: Hot topics* champions the role of physical activity and exercise in achieving and sustaining physical and mental health. In a direct and highly readable style, Chakravarthy and Booth review the established and latest evidence that widespread inactivity constitutes substantially to morbidity, mortality and skyrocketing health care costs. This work is a tour-de-force of statistical information regarding the health benefits of a physically active lifestyle that has been immaculately researched and presented. The reader should never feel adrift in a sea of knowledge because each major point is carefully referenced and a comprehensive reading list is provided. In addition, the text is systematically peppered with web addresses for both primary sources and authoritative additional resources including recommendations by expert panels.

Rather than pushing the perspective that physical activity is something we should do, *Hot topics* directs that we in the modern world cannot afford not to become more active as a species. In a direct challenge to the medical community, Chakravarthy and Booth point out that if physicians do not advocate and promote physical activity and behavior change this "constitutes a direct violation of one of the central tenets of the Hippocratic oath i.e., do no harm." *Hot topics* acknowledges that sedentary habits are hard to change. However, recognizing that the cost of the inactivity epidemic may be as high as 250,000 American lives per year, health care professionals must become proactive to combat this problem. Even small steps taken in the right direction are valuable and should be initiated without delay. *Hot topics* should not be viewed as "THE guideline" but instead as a catalyst to fuel new and innovative ideas focused on reducing the burden of disease for humanity.

*Exercise: Hot topics* is presented in three sections: "Section I: Defining the Problem" explores briefly the formation of the present human genome between 50,000 and 10,000 years ago. This section lays the foundation for understanding why the genetic predisposition for energy storage that was essential to our ancestors survival places us at odds with the modern sedentary lifestyle and may cause premature morbidity and mortality. Focus is brought to bear on the health and prospective well-being of our children. As they grow up in the computer age where physical activity is deemphasized and safety issues are used to rationalize and promote motorized transport and television watching rather than physical activity, inactivity-related diseases are burgeoning. The old adage that "an ounce of prevention is worth a pound of cure" is placed in the context that once exorbitant stores of adipose tissue are laid down, it is extremely difficult to reduce these stores. In the short term, our children may be safer in the home watching television under parental control than exposed to a potentially hostile environment outdoors. However, we may be sowing the seeds for a generation riddled with chronic health conditions that could have been lessened or avoided by encouraging a healthy and active lifestyle for our children.

"Section II: The Means to Action" presents evidence from 44,788 pairs of twins that for many major chronic health conditions (e.g., Type II diabetes, coronary heart disease, cancer [leukemia, and lung, breast and prostate cancer]), environmental factors including physical inactivity rather than inherited factors are largely to blame. Moreover, a moderate level of physical activity such as walking 30 or more minutes per day significantly reduces the incidence of many chronic health conditions. This section summarizes the clinical manifestations of physical inactivity, the demonstrated benefits of increased physical activity and the putative biochemical/cellular mechanisms for the healthful effects of physical activity. Rather than promoting the concept of "fitness" per se, Chakravarthy and Booth suggest participation in physical activity to advance "well-being." The principles of caloric balance are applied to the prevention of weight gain and to weight loss. The body mass index or BMI (weight[kg]/height[m]$^2$) is utilized almost universally to judge the appropriateness of a patient's weight. However, it is recognized that health benefits may be gained even without losing weight. Indeed, as espoused in Glenn A. Gaesser's book *Big Fat Lies* it is possible for an individual to be extremely active, have an excellent blood lipid profile normal glucose tolerance and blood pressure and yet have a BMI rating that is >30 (i.e., viewed as unhealthy by almost all weight-based standards). *Hot topics* emphasizes that increased physical activity levels may bring about major health benefits irrespective of weight loss.

Section II systematically presents physical activity prescriptions on a case-by-case basis. Common pitfalls and reasons for failing to increase patient physical activity are addressed with helpful methods to overcome these problems. The challenges faced in physical activity counseling are detailed along with the wisdom of employing multicomponent interventions that combine provider advice with behavioral counseling. The Activity Counseling Trial (ACT) which is one of the first randomized, controlled trials to clearly show the benefits of primary care counseling to increase physical activity levels above that of a sedentary baseline is used as an example.

"Section III: The Biological Basis for Chronic Diseases Caused by Physical Inactivity" details the health consequences of physical inactivity. Within this section, ten chapters are devoted to specific diseases such as cardiovascular, metabolic, and pulmonary diseases, cancer, bed rest and spinal cord injury, immune dysfunction and neurological and musculoskeletal disorders. Aging and also women's health are also accorded their own chapters. Each disease and condition is carefully dissected and the evidence for the role of physical inactivity in promoting

or physical activity in reducing the prevalence of disease is presented in a clear and compelling fashion. Focus is brought to bear on the cellular mechanisms involved at each juncture.

Chakvarathy and Booth acknowledge that this book represents only a first step in acknowledging and addressing the problem that physical inactivity either causes or contributes to multiple chronic health conditions. They point out that at a time when health care professionals are trained to focus on treating specific symptoms of acute diseases, the diverse nature of chronic health conditions is proving problematic. Moreover, they note that the National Institutes of Health needs to acknowledge this problem by better funding research into the role of activity in preventing disease. There is a plenitude of evidence that muscular activity can help restore physiological function and health within patient populations. This book provides a mandate for healthcare professionals to implement preventive programs of which the major focus must be increased physical activity.

In conclusion, *Hot Topics: Exercise* presents the epidemiology and the molecular-biological evidence for the role of physical activity in combating chronic disease. The information is superbly researched, clearly presented and referenced comprehensively. It is an unparalleled resource for the exercise scientist and physician or other health care professional. Whereas it may be read cover-to-cover, it is equally useful as an up-to-date resource on the role of physical activity in reducing the incidence of major disease conditions that may be "dipped" into for selective information. I have enthusiastically recommended this book to my students and professional colleagues. ❖

*David C. Poole*
*Kansas State University*

# Books Received

*Animal Locomotion.*
Andrew A. Biewener.
New York: Oxford Univ. Press, 2003, 281 pp., illus., index, $15.00.
ISBN: 0-19-850022-X.

*Calcium-Sensing Receptor.*
Naibedya Chattopadhyay and Edward M. Brown (Editors).
Boston, MA: Kluwer Academic Publishers, 2003, 286 pp., illus., index, $142.00.
ISBN: 1-4020-7314-3.

*Comparative Biomechanics: Life's Physical World.*
Steven Vogel.
Princeton, NJ: Princeton Univ. Press, 2003, 580 pp., illus., index, $60.00.
ISBN: 0-691-11297-5.

*Insulin-Like Growth Factors.*
Derek LeRoith, Walter Zumkeller, and Robert C. Baxter, (Editors).
New York: Kluwer Acad./Plenum, 2003, 498 pp., illus., index, $165.00.
ISBN: 0-306-47846-3.

*Physiology, 5th Edition.*
Robert M. Berne, Matthew N. Levy, Bruce M. Koeppen, and Bruce A. Stanton.
St. Louis, MO: Mosby, 2004, 1024 pp., illus., index, $74.95.
ISBN: 0-323-02225-1.

*Physiology of the Graafian Follicle and Ovulation.*
R. H. F. Hunter.
New York: Cambridge Univ. Press, 2003, 397 pp., illus., index, $90.00.
ISBN: 0-521-78198-1.

*Textbook of Work Physiology: Physiological Bases of Exercise, 4th Edition.*
Per-Olof Astrand, Kaare Rodahl, Hans A. Dahl, and Sigmund B. Stromme.
Champaign, IL, Human Kinetics, 2003, 650 pp., illus., index, $79.00.
ISBN: 0-7360-0140-9.

*Vertebrate Ecophysiology. An Introduction to its Principles and Applications.*
Don Bradshaw.
New York: Cambridge Univ. Press, 2003, 287 pp., illus., index, $35.00.
ISBN: 0-521-52109-2.

## Postdoctoral Positions

**Postdoctoral position:** A postdoctoral position is available immediately to join a multidisciplinary team in newly funded studies of the genetics and cell biology of salivary mucous exocrine cells. Projects include: elucidation of the murine sld mutation that results in attenuation and delayed expression of the mucous cell phenotype in sublingual glands (*Physiol. Genomics*, 14:95-106, 2003); delineating the genomic organization and cell-specific expression of a newly discovered sublingual apomucin gene; determining whether a putative syntenic human gene is expressed; and developing knockout and transgenic animal models to test the role of apomucins in mucous cell differentiation. The Center for Oral Biology is part of the Aab Institute of Biomedical Sciences (http://www.rochester.edu/research/biomedical.html) and is housed in a new 250,000 square foot research building. Funding is through a NIH Training Grant and is, therefore, open only to US citizens or permanent residents. Please Email a CV with the names/addresses of three references and PDF files of your two most significant original research articles to: David J. Culp, PhD, Assoc. Prof. of Pharmacology and Physiology, Center for Oral Biology, University of Rochester Medical Center, Box 611, Rm. G-9627, 601 Elmwood Ave., Rochester, NY 14642; Email: David_Culp@urmc.rochester.edu; Tel: 585-275-0402; Fax: 585-506-0190.

---

**Postdoctoral Position:** An NIH-funded postdoctoral position is available immediately to study IGFBP-3 Mediates p53-Induced Apoptosis at the Children's Hospital of Philadelphia. Candidates with one or two years of postdoctoral experience and trained in molecular biology technology are encouraged to apply; Reference: 1.*International Journal of Oncology*, 2002; 21: 327-335. 2. *Methods in Molecular Medicine: Lung Cancer Volume 1-Molecular Pathology Methods and Reviews*, The Humana Press Inc., Totowa, 2002; 167-186. 3. *Molecular Genetics and Metabolism*, 2000; 70: 85-98. Send curriculum vitae and names, addresses, phones and Email addresses of three references to: Adda Grimberg MD, Division of Endocrinology, Children's Hospital of Philadelphia at email address: grimberg@email.chop.edu.

---

**Postdoctoral Positions:** Postdoctoral positions are available at the National Heart, Lung, and Blood Institute (NHLBI) in the Laboratory of Kidney & Electrolyte Metabolism, in Molecular Physiology & Proteomics of the Renal Collecting Duct at the National Institutes of Health, Bethesda, MD (starting date: 7/04). Applicants should have either a PhD or MD degree and less than four years of postdoctoral experience. One position is for an individual to use transgenic technology in mice to investigate regulation of the epithelial sodium channel (ENaC) and aquaporin-2 in renal collecting duct. Experience in basic molecular biological techniques is required and a fundamental understanding of transport physiology is highly desirable. NHLBI has an outstanding Transgenic Core Facility that can be exploited for these studies. A second position is for an individual to use proteomics methodologies to investigate signalling pathways associated with the actions of vasopressin and aldosterone in the renal collecting duct. Experience in basic techniques of protein chemistry is required and a fundamental understanding of kidney physiology is highly desirable. NHLBI has an outstanding Proteomics Core Facility that can be exploited in these studies. For more information, see: http://www.nhlbi.nih.gov/labs/kidneymetabolism/index.htm. Appointment and salary are dependent on experience. Applicants should submit a letter of interest, curriculum vitae, and the names of three individuals willing to provide letters of reference to: Mark A. Knepper, MD, PhD, Chief, Laboratory of Kidney and Electrolyte Metabolism, Building 10, Room 6N260, National Institutes of Health, 10 Center Drive, Bethesda, MD 20982-1603. Applications should be received no later than **October 1, 2003**. [EEO]

---

**Postdoctoral Fellow:** We are seeking a postdoctoral fellow to assist with NIH-funded studies dealing with basic, integrative physiology related to sleep-disordered breathing. Specifically, the fellow would participate in projects dealing with the role of: a) pulmonary congestion, b) central and peripheral chemoreceptor responses to transient hypocapnia, c) central hypoxia, d) long-term intermittent hypoxia, and e) cerebral blood flow, in the genesis of unstable breathing during sleep in a chronically instrumented animal model. The position will be available January 1, 2004. The candidate must have a PhD, MD, or equivalent terminal degree and an appropriate background in physiology. Candidates need not be American citizens but fluency in both spoken and written English is mandatory. Please send inquiries (email is preferable) to: Curtis A. Smith, PhD, (casmith4@wisc.edu), The John Rankin Laboratory of Pulmonary Medicine, University of Wisconsin, Madison, 504 North Walnut Street Madison, WI 53726-2368 Note: Unless confidentiality is requested in writing, information regarding the names of applicants must be released upon request. Finalists cannot be guaranteed confidentiality. [EEO]

---

**Postdoctoral Positions:** Postdoctoral positions are available in the Multidisciplinary Exercise Science program, University of California, Irvine, CA. This program consists of three different core programs: *1*) Molecular Physiology core; *2*) Systems Physiology core; and *3*) the Clinical Applications core. The overall goal of this training program is to develop scientists with a strong integrative approach (molecular-to-systems physiology) in the field of exercise science. Additionally, each candidate will be provided with a rich clinical exposure to strengthen the integrative nature of the program. Applicants are sought

with PhD and/or MD degrees. Rank will be determined based on qualifications and experience. Salary commensurate with qualifications and experience. This position is funded by an NIH training grant; eligible candidates must be US citizens or non-citizen nationals or must be lawfully admitted for permanent residence. Candidates interested in the following areas of exercise science are encouraged to apply: skeletal muscle plasticity; neurobiology of aging; molecular and mitochondrial medicine and genetics; smooth muscle plasticity; glucose metabolism and diabetes; myocardial plasticity; comparative physiology; pulmonary physiology and nitric oxide; pediatrics and exercise; effects of exercise on the immune system; autonomic regulation of the circulatory system; spinal cord injury, and robotics. Interested applicants should send a curriculum vitae along with the names and addresses of three references (please do not solicit letters) to: Dr. Kenneth M. Baldwin, D352 Medical Science I, College of Medicine, University of California, Irvine, CA 92697-4560; kmbaldwi@uci.edu. Begin screening on August 1, 2003 and will remain open until filled. [EEO]

---

**Postdoctoral Fellowship:** Applications are invited for a postdoctoral position at the University of Alberta Perinatal Research Centre (http://www.ualberta.ca/perinatal) to study the effects of steroid hormones and nuclear receptors on vascular and uterine smooth muscle. Applicants must have a PhD and some experience with research in endocrine and/or vascular physiology. The project to be undertaken will involve assessment of vascular and uterine function using a variety of myographic techniques as well as exploration of potential signal transduction pathways using cell culture and molecular biological approaches. The successful candidate will interact with several other members of the investigative team in two adjacent laboratories. The position is available immediately. Salary will be commensurate with CIHR guidelines and will be guaranteed for two years. For consideration, please send a current curriculum vitae, a brief statement of research and career interests along with the names and addresses of three referees to either Dr. Sandra Davidge or Dr. B. F. Mitchell, Perinatal Research Centre, 220 HMRC, University of Alberta, Edmonton, Canada T6G 2S2. Email applications are encouraged to Sandra.Davidge@ualberta.ca or brymitch@ualberta.ca.

---

**Postdoctoral Position**: Applications are invited for a NIH-funded postdoctoral position to study the effects of age on central neural regulation of sympathetic nerve discharge (in vivo experiments). Applicants should have a PhD and/or MD and one to two years relevant experience in cardiovascular physiology or neurophysiology. Experience in autonomic neurophysiology is desired. Opportunity will be available to interact with other members of the investigative team involved in immunological and neuroanatomical studies. The position is available immediately. For consideration send letter of interest, curriculum vitae, brief statement of research interests, and the names and addresses of three references to: Dr. Michael Kenney, Anatomy and Physiology Department, Kansas State University, 228 Coles Hall, Manhattan, KS 66506-5802. Email applications are encouraged: kenny@vet.ksu.edu. Application deadline: open until filled. [EEO]

---

**Postdoctoral/Research Associate Position:** The position is available immediately in the Department of Cardiothoracic Surgery at The University of Texas at Houston, and the laboratory is fully funded for at least three years, including two full-time technicians and a surgical fellow. The position is in the division of Pediatric Cardiac Surgery and the candidates will work with Bradley Allen, Chief of Pediatric Cardiac Surgery. This is a new research laboratory, and the candidate will be responsible (along with Dr. Allen) for setting up and running the laboratory. Investigations will consist of large animal preparations, and will include studies of ischemia/reperfusion, hypoxia/reoxygenation, and the effects ventricular remodeling on the newborn heart. Experiments will include a variety of animal models, hemodynamic measurements, biochemical assays, and molecular techniques. They will have clinical relevance pediatric to patients. Potential candidates should have an advanced degree (PhD, MD, or MD/PhD) and some history of external funding. Experience in clinical research with expertise in cardiac physiology, biochemistry or molecular biology is of advantage. Interested candidates may submit a CV and three letters of recommendation either by Fax: 713-500-0656; Email to Victoria_Rivera@mhhs.org. Applications via email are preferred.

---

**Biomedical Postdoctoral Research Position:** Postdoctoral position available in a state-of-the-art biomedical research center, part of the Children's Hospital of Philadelphia, University of Pennsylvania, examining an exciting new area of cell cycle control at the interface of endocrinology and oncology. The insulin-like growth factor (IGF) binding protein (BP)-3 was originally believed to function primarily as the principal carrier and modulator of bioavailable IGF. However, it is now clear that IGFBP-3 can also induce apoptosis in an IGF-independent fashion. IGFBP-3 acts at a unique junction between growth promoting (growth hormone and IGF) and death promoting (tumor suppressor p53) pathways. Work will involve examining the role of IGFBP-3 in mediating apoptosis and the interactions between p53 and the IGF axis in regulating cell growth. Seeking enthusiastic individual with PhD in Biology and previous lab experience, especially experience in apoptosis assays. Skills in genetic engineering and cell culture work required. Expertise in IGFBP biology will be gained. Opportunities for academic growth: structured weekly meetings as well as informal exchanges with other members of the Joseph Stokes Research

Institute, the CHOP Division of Endocrinology, and the University of Pennsylvania Cancer Center. Participation in data presentation (posters, oral, and publications) Grant-funded lab, guaranteed for several years. Interested individuals should contact: Adda Grimberg, MD, Assistant Professor, Div. Pediatric Endocrinology & Diabetes, The Children's Hospital of Philadelphia, Abramson Research Center Room 802, 3615 Civic Center Blvd., Philadelphia, PA 19104-4318; Tel: 215-590-4504; Fax: 215-590-1605; Email: grimberg@email.chop.edu.

---

**Biologist/Physiologist:** The National Heart, Lung, and Blood Institute, a major research component of the National Institutes of Health and the Department of Health and Human Services, is recruiting a Biologist/Physiologist with experience in the renal physiology of rats and mice to supervise a small laboratory investigating the role of renal sodium transporters and water channels in blood pressure regulation. Applicants should provide evidence of knowledge and abilities in the following: *1*) knowledge of principles, theories, and concepts of physiology, cell biology, biochemistry, molecular biology or related biological science; *2*) ability to carry out physiological experiments in rats and mice; *3*) ability to communicate orally and in writing; *4*) ability to carry out quantitative analysis of scientific data; and *5*) ability to teach scientific methods and physiological concepts. Two years of experience carrying out physiological experiments in animals. Experience with blood pressure telemetry and immunochemical techniques (immunocytochemistry and immunoblotting) is desirable. Salary range is $48,451 to $75,492 (GS-11/12) depending on experience. US citizenship required. For information on how to apply and obtain vacancy announcement or for more specific information call Christine Fisher on 301-496-6477 (reference announcement #HL-03-0073) or via fax-back by calling 301-594-2953 and using Fax ID #4008. Send applications to DHHS/NIH/OHR, Two Democracy Plaza, Suite 700N, 6707 Democracy Blvd., MSC 5451, Bethesda, MD 20892-5451. Applications must be received by **September 15, 2003**. DHHS and NIH are Equal Opportunity Employers.

---

**Postdoctoral/Research Associate:** A position is available immediately to work on a project that is currently studying ovarian gene expression in response to an ovulation-stimulating dose of gonadotropic hormone. The Senior Investigator has 42 years of experience on the physiology and biochemistry of ovulation. Preference is for candidates with a doctoral degree who have previous experience with differential display, microarray, and/or related techniques in molecular biology. Nature of the current work can be assessed by looking under "Manuscripts" at http://www.trinity.edu/lespey. 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, One Trinity Place, San Antonio, TX 78212.

---

**Postdoctoral Research Associate and Assistant Research Scientist Positions:** Positions are available in Coronary and Retinal Microcirculation Cardiovascular Research Institute, Texas A&M University System Health Science Center for scientists interested in the physiology and pathophysiology of coronary and ophthalmic microcirculation. The Cardiovascular Research Institute at The Texas A&M University System Health Science Center invites applications from highly motivated individuals (with PhD or/and MD/DVM; Assistant Research Scientist position requires advanced degree and three to four years additional postdoctoral experience) to participate in studying vasoregulatory mechanisms in microvascular beds of the heart and eye. Individuals with backgrounds in medical science and vascular biology are encouraged to apply. Current approaches used to comprehensively study vasoregulatory mechanisms include isolated and perfused microvessels, cultured endothelial and smooth muscle cells, immunohistochemistry, transgenic animal model and biochemical/molecular biology techniques. A multitude of unique opportunities for microvascular study include metabolic vasoregulation, autoregulation, conducted vasoregulation, and angiogenesis under physiological and pathophysiological conditions such as ischemia/reperfusion, atherosclerosis, hypertension, diabetes, inflammation, oxidative stress, vascular retinopathies, glaucoma, and macular degeneration. Offer competitive salary and benefit package. Starting salaries may be negotiable based on qualifications and experience. Interested individuals should send letter of interest, résumé and names of three references to: Dr. Lih Kuo, Department of Medical Physiology, Cardiovascular Research Institute, Texas A&M University System Health Science Center, Medical Research Building, 702 SW H.K. Dodgen Loop, Temple, TX 76504; email inquiries to: LKUO@tamu.edu. For the Postdoctoral Research Associate position, apply for Job #031020. For the Research Scientist position, apply for Job #031022. You can apply for both positions online at http://tamujobs.tamu.edu. Staff can assist you at: Employment Office, Texas A&M University, 1475 TAMU, College Station, TX 77843-1475, Emploffice@tamu.edu. [EEO/AA]

---

**Research Associate/Postdoctoral Position:** The University of Virginia Health System, Department of Pharmacology, is seeking applications to investigate the brainstem networks that regulate respiration and the cardiovascular system in mammals. Mechanisms of respiratory rhythmogenesis and chemosensitivity are of special interest. Applicants with neu-

roscience backgrounds in integrative neuroscience may apply. Prior training in either electrophysiology (in vivo or in vitro) or molecular biology or virology (e.g. adenovirus-mediated gene transfer) is desirable. Applicants at the PhD level will be considered; salary will depend on qualifications. To apply send resume and references to: Dr. Patrice G. Guyenet, Dept. of Pharmacology, PO Box 800735, University of Virginia, Charlottesville, VA 22908-0735, Email: pgg@virginia.edu (application deadline: open until filled). [AA/EEO]

## Faculty Positions

**Faculty Position:** The Department of Integrative Physiology is searching to fill a non-tenure track Instructor position to start January 1, 2004. The applicant must have an earned doctorate with expertise in human and/or comparative physiology. The duties of this position will be to oversee the laboratories of Human Physiology, Cell Physiology, and Comparative Animal Physiology courses; maintain the laboratory manuals and teaching materials for these courses; develop new laboratory exercises as needed, troubleshoot, repair and integrate new laboratory equipment as needed; handle and euthanize laboratory animals; supervise up to 15 graduate teaching assistants per semester; and serve as point-of-contact for students enrolled in these courses. Teaching experience is desirable. Proficiency with Macintosh-based software, hardware, and PowerLab data-acquisition systems is necessary. General Information—The Department of Integrative Physiology is newly formed from the previously existing Kinesiology and Applied Physiology Department and from some faculty members moving from the Department of Environmental, Population and Organismic Biology. It includes 19 tenured and tenure-track faculty and several instructors. The undergraduate and graduate programs comprise about 650 and 60 students, respectively. For more details on the Department and the University, visit our website (http://www.colorado.edu/kines). The Boulder campus is one of four in the University of Colorado system, and is approximately 35 miles from the Health Sciences Center in Denver. Send an application letter, a current curriculum vita and at least one reference letter to: Melanie Evans, Program Assistant, Department of Integrative Physiology, University of Colorado, Boulder, CO 80309-0354. Review of the applications will begin on October 15, 2003, and will continue until the position is filled. Additional information can be obtained by phone (303-492-3122), Fax (303-492-4009), or Email (melanie.evans@colorado.edu). The University of Colorado at Boulder is committed to diversity and equality in education and employment.

**Assistant/Associate/Full Professor Positions:** Environmental Physiologist-Open Rank: The John B. Pierce Laboratory, an endowed research institute affiliated with Yale University, seeks an outstanding scientist with an active research program in environmental physiology. Possible areas of research interest include, but are not restricted to, thermoregulation, fluid balance, cardiovascular responses to microgravity, and microcirculatory/macrocirculatory responses to heat and/or exercise. The level of the appointment is open, although a mid-level to senior-level scientist is preferred. Joint appointment is anticipated in the Department of Epidemiology and Public Health, Yale University School of Medicine. The Laboratory offers competitive salary, benefits, and start-up, as well as an outstanding work environment. Applicants should submit a CV, a description of research interests, a set of representative publications, and the names of at least three references to: Chair, Environmental Physiology Search Committee, The John B. Pierce Laboratory Inc., 290 Congress Avenue, New Haven, CT 06519. The review of applications will begin October 1, 2003, and continue until the position is filled. Visit us on the web at: http://www.jbpierce.org. [EOE/AA]

**Assistant/Associate/Full Professor-Cell Biologists and Physiologists:** The Department of Cell Biology and Physiology, University of New Mexico Health Sciences Center, Albuquerque, NM seeks to fill two tenure-track positions at the open rank (Assistant/Associate/Full Professor). Although applicants in all areas of vertebrate cell biology and physiology will be considered, preference will be given to candidates with outstanding publication records and extramural funding who complement existing research programs in the following areas: vascular, cardiac, pulmonary, or renal physiology, cell and developmental biology of the heart and vasculature, molecular cell biology and physiology of diabetes, cell growth, differentiation, and proliferation in cancer. Applicants must have a PhD and/or an MD or equivalent, and must have completed postdoctoral training. In addition to the establishment and maintenance of a highly productive research program, successful candidates will be expected to participate in medical school and graduate school teaching. For best consideration, applicants must submit a curriculum vita, research program description, and the names of three references by **November 15, 2003;** however, the positions will remain open until filled. Send or email applications to Ms. Melissa Nuttall, Search Coordinator, Department of Cell Biology and Physiology, University of New Mexico Health Sciences Center, Albuquerque, NM 87131. Email: mnuttall@salud.unm.edu. This position may be subject to criminal records screening in accordance with NM Law. [EEO/AA]

**Two Physiologists, Endowed Chair And Assistant/Associate Professor:** The Department of Biology, University Of Richmond, at this highly selective, private, primarily undergraduate university invites applications for two tenure-track positions. We seek candidates working on integrated physiological problems at the cellular/molecular level or through the extensive utilization of cellular/molecular techniques. One posi-

tion will be as the D.A. Kuyk Chair in Biology and the rank is open for the second position. These two faculty will join a growing department in a newly remodeled and expanded facility. Teaching excellence that includes participation in the introductory biology core, in an upper level elective in area of specialization, and in general education is expected. A doctoral degree, postdoctoral training (preferred), and a record of research productivity are required. The successful candidates will be expected to maintain a research program that attracts extramural funding and actively engages undergraduates. Applicants should submit a curriculum vitae, up to three recent publications, and separate statements of (*1*) teaching philosophy and experience and (*2*) research interests and plans, to: Dr. Roni J. Kingsley, Department of Biology, University of Richmond, VA 23173. Junior faculty applicants should also arrange for three letters of recommendation to be sent to the same address. Senior faculty applicants should provide a list of at least three references who would be willing to provide letters on request. Review of applications will begin October 24 with an anticipated starting date of August 2004. The University of Richmond is committed to increasing the diversity of our faculty and strongly encourages applications from women and minorities. For more information on the department, resources, and teaching assignment, see (http://biology.richmond.edu/)

---

**Instructor-Faculty Position In Integrative Physiology:** The Department of Integrative Physiology, University of Colorado, Boulder, is searching to fill a non-tenure track Instructor position to start January 1, 2004. The applicant must have an earned doctorate with expertise in human and/or comparative physiology. The duties of this position will be to oversee the laboratories of Human Physiology, Cell Physiology, and Comparative Animal Physiology courses; maintain the laboratory manuals and teaching materials for these courses; develop new laboratory exercises as needed; troubleshoot, repair and integrate new laboratory equipment as needed; handle and euthanize laboratory animals; supervise up to 15 graduate teaching assistants per semester; and serve as point-of-contact for students enrolled in these courses. Teaching experience is desirable. Proficiency with Macintosh-based software, hardware, and PowerLab data-acquisition systems is necessary. General information: the Department of Integrative Physiology is newly formed from the previously existing Kinesiology and Applied Physiology Department and from some faculty members moving from the Department of Environmental, Population and Organismic Biology. It includes 19 tenured and tenure-track faculty and several instructors. The undergraduate and graduate programs comprise about 650 and 60 students, respectively. For more details on the Department and the University, visit our website (http://www.colorado.edu/kines). The Boulder campus is one of four in the University of Colorado system, and is approximately 35 miles from the Health Sciences Center in Denver. Application Procedure: Send an application letter, a current curriculum vita and at least one reference letter to: Melanie Evans, Program Assistant, Department of Integrative Physiology, University of Colorado, Boulder, CO 80309-0354. Review of the applications will begin on October 15, 2003, and will continue until the position is filled. Additional information can be obtained by phone: 303-492-3122; fax: 303-492-4009; Email: melanie.evans@colorado.edu. The University of Colorado at Boulder is committed to diversity and equality in education and employment.

---

**Assistant Professor:** University of Kansas's Department of Health, Sport and Exercise Sciences (HSES) is searching for an Assistant Professor in exercise physiology (earned doctorate required) for a full-time (9-month) tenure track position starting August 2004. Expertise in exercise biochemistry/molecular or muscle physiology applications will be given preference. Experience in college level teaching, research, and service are expected. Duties include: teaching graduate/undergraduate courses, mentoring graduate students, developing a line of research, and service activities. Letter of interest, curriculum vitae, and the names, addresses, and phone numbers of at least three references should be mailed to: Dr. Mike Godard, Search Committee Chair, Dept. of HSES, 1301 Sunnyside Ave., University of Kansas, Lawrence, KS 66045. Priority will be given to applications received by October 17, 2003 with the search continuing until the position is filled. [AA/EOE]

---

**Assistant Professors:** The Department of Biology at California State University, Northridge invites applications to fill two tenure-track positions, Immunologist (*1*) and Mammalian Physiologist (*2*), starting August 2004. We seek broadly trained scientists with a PhD or equivalent degree in Biology or related field, and postdoctoral experience. The successful candidates are expected to develop strong research programs involving undergraduate and graduate (MS) students, seek external funding for their research programs, and exhibit potential for excellence in teaching. The Immunologist is expected to teach Immunology; the Mammalian Physiologist is expected to teach Human Physiology. Additional teaching responsibilities may include cell biology, specialty, or introductory biology courses. Applicants should specify desired position; send a curriculum vitae, summary of teaching experience, statements of teaching philosophy and of research interests, reprints of up to three publications; and arrange for three letters of recommendation to be sent to Chair, Department of Biology, California State University, 18111 Nordhoff St., Northridge, CA 91330-8303. Screening of applications will commence on October 24, 2003, with the positions open until filled. The positions are subject to budgetary approval. [EEO]

**Visiting Assistant Professor of Biology:** The Department of Biology at Harvey Mudd College is seeking a Visiting Assistant Professor with teaching and research expertise in animal physiology. The successful candidate will participate in teaching courses including animal physiology with lab, introductory biology lab, and an advanced seminar course on selected topics in physiology. In addition, the successful candidate will mentor undergraduate researchers during the academic year and summer. We prefer that the appointment be for 1.5 years, beginning January 2004, and continuing through May 2005. However, we will consider strong candidates who may be available for only one or two of the three semesters. Harvey Mudd College, a member of the Claremont Colleges, is a small and highly selective private undergraduate college of science and engineering. Claremont is situated approximately 35 miles east of downtown Los Angeles. A PhD in an appropriate discipline is required. Applicants should submit a CV, a statement of teaching and research experience and interests, and the names and contact information of at least three professional references. Send all materials to: Dr. Mary E. Williams, Chair of the Search Committee, Department of Biology, Harvey Mudd College, 301 E. 12th St., Claremont, CA 91711 (Mary_Williams @hmc.edu). Review of applications will begin immediately and continue until the position is filled. Harvey Mudd College is an equal opportunity employer and is committed to the recruitment of candidates historically underrepresented on college faculties. http://www2.hmc.edu/www_common/biology/index.html.

---

**Assistant Professor:** The Movement Science and Education Program in the Department of Biobehavioral Sciences at Teachers College, Columbia University is seeking an applied exercise physiologist. Responsibilities: teach graduate courses (e.g., exercise testing and prescription, assessment of physical activity, physical activity and health, physical activity in children and youth); supervise graduate student research; and conduct a focused 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, cover letter, three representative publications, and the names and contact information of three references to Professor Stephen Silverman, Search Committee Chair, Box 126. Review of applications will begin October 1, 2003 and continue until the search is completed. Appointment begins September 2004. 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. Teachers College, Columbia University, 525 West 120th Street, New York, N.Y., 10027; http://www.tc.columbia.edu.

---

**Assistant/Associate Professor:** The Institute of Maternal-Fetal Biology at the University of Kansas School of Medicine invites applications for a tenure-track faculty position. The appointment will be at the rank of Assistant or Associate Professor. We seek a scientist investigating signaling mechanisms controlling cell growth, differentiation, and/or cell death in maternal, extraembryonic, or embryonic tissues. Individuals utilizing mutant animal models for studying diseases of pregnancy or fetal development are encouraged to apply. Minimum requirements include a PhD degree in the biological sciences and/or an MD degree, and relevant postdoctoral research experience. Additional information about the institute can be found on our website: http://www.imfb.org. Applications will be reviewed as they are received and will be accepted until the position is filled. Interested parties should send a curriculum vitae, a one page statement of research interests, and the names and addresses, including Email addresses, of three references to: Stacy McClure, Administrative Assistant, Institute of Maternal-Fetal Biology, University of Kansas Medical Center, 3901 Rainbow Blvd., Mail Stop 1053, Kansas City, KS 66160; Tel: 913-588-5774; Fax: 913-588-8287; Email: smcclure@kumc.edu. [EEO]

---

**Assistant/Associate/Full Professor Positions:** Environmental Physiologist, Open Rank: The John B. Pierce Laboratory, an endowed research institute affiliated with Yale Univer-sity, seeks an outstanding scientist with an active research program in environmental physiology. Possible areas of research interest include, but are not restricted to, thermoregulation, fluid balance, cardiovascular responses to microgravity, and microcirculatory/macrocirculatory responses to heat and/or exercise. The level of the appointment is open, although a mid-level to senior-level scientist is preferred. Joint appointment is anticipated in the Department of Epidemiology and Public Health, Yale University School of Medicine. The Laboratory offers competitive salary, benefits, and start-up, as well as an outstanding work environment. Applicants should submit a CV, a description of research interests, a set of representative publications, and the names of at least three references to: Chair, Environmental Physiology Search Committee, The John B. Pierce Laboratory Inc., 290 Congress Avenue, New Haven, CT 06519. The review of applications will begin October 1, 2003, and continue until the position is filled. EOE/AA Visit us on the web at: http://www.jbpierce.org.

**Faculty Positions:** The Department of Biological Sciences, Simon Fraser University, seeks to fill several tenure-track faculty positions in the areas of cell biology, physiology, and developmental biology. Appointments will be made at the Assistant Professor level, but in exceptional circumstances a higher rank or nomination for a Canada Research Chair will be considered. Successful candidates will pursue vigorous, externally funded research programs that include the training of graduate students. They will be expected to contribute to the teaching of current core undergraduate courses, as well as developing graduate courses, in their areas of expertise. Review of applications will begin on December 1 2003, and the search will remain active until the positions are filled. Applicants should send a curriculum vitae, three representative reprints, a one-page summary of their research objectives, and contact details for three referees to: Dr. Tony D. Williams, Chair, Department of Biological Sciences, Simon Fraser University, 8888 University Blvd., Burnaby, B.C. V5A 1S6, Canada; Fax: 604-291-4312. All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority. The appointment is subject to final budgetary approval by the University. Simon Fraser University, located in the greater Vancouver area, is committed to employment equity, welcomes diversity in the workplace, and encourages applications from all qualified individuals including women, members of visible minorities, aboriginal persons, and persons with disabilities.

---

**Chair of Physiology:** We are looking for an outstanding leader and educator to serve as Chair of the Department of Physiology located at its basic science campus in Dominica. We offer an atmosphere without any of the diversions common to an ordinary academic career. At Ross University, it's that philosophy that has enabled us to develop an educational program equal in scope and quality to programs offered anywhere in the world. Founded in 1978 and located on the beautiful Caribbean island of Dominica, Ross is affiliated with teaching hospitals throughout the US and they welcome our students as medical clerks and our graduates as medical residents. Since our inception, we have been recognized over and over for our contribution to medicine and have received multiple state approvals including Florida, California, New York and New Jersey. Our unspoiled Caribbean location enables our teachers and students to truly enjoy nature's splendor, which may be your only distraction. Physiology is taught three times a year, to each of three entering classes per year. It is a 15 week second trimester course, taught by lectures, small group sessions, problem based learning cases, student counseling by faculty, and exams which monitor student progress, evaluate quality of instruction, and develop problem solving abilities. Opportunities and Responsibilities: The Chair will have the opportunity to develop a strong teaching department with a full-time faculty of six, supplemented by additional visiting faculty. The Chair will be responsible for the management of all departmental affairs, supervision of all departmental personnel, evaluation and mentoring of departmental faculty members, and recruitment as necessary; As a senior member of the faculty, the chair will participate significantly in the academic leadership of the School. Qualifications and Characteristics: A PhD degree in physiology, or a closely related discipline, academic qualifications that have led to the rank of professor, or at least senior associate professor, experience and excellence in teaching physiology in an American medical school, experience in academic administration, leadership ability and experience, ability to relate well to colleagues and students, high energy level and strong work ethic, high degree of organization and attention to detail. Positions are offered on a one to two year contract basis, renewable. Compensation is comparable to US prevailing rates with significant tax advantages, relocation assistance to and from the island of Dominica, deferred pension program and medical benefits. Opportunities for professional development are provided along with 25 days of paid annual leave. To submit applications, CVs and nominations please contact: Alexander, Wollman & Stark, Attn: Harry Wollman, MD, 1835 Market Street, Suite 1140, Philadelphia, PA 19103, Fax: 267-256-0725; Email: alexwollstark@aol.com. Visit us on the web at: http://www.rossmed.edu.

---

**Faculty Physiology:** Ross University School of Medicine is looking for dedicated teachers who want to stay focused on their passion. We offer an atmosphere that allows you to concentrate on teaching without any of the diversions common to an ordinary academic career. At Ross University, it's that philosophy that has enabled us to develop an educational program equal to scope and quality to programs offered anywhere in the world. Founded in 1978 and located on the beautiful Caribbean Island of Dominica, Ross is affiliated with teaching hospitals throughout the US and they welcome our graduates as medical residents. Since our inception, we have been recognized over and over for our contribution to medicine and have received multiple state approvals including Florida, California, New York and New Jersey. Our unspoiled Caribbean location enables our teachers and students to truly enjoy nature splendor, which may be your only distraction. Currently we have a Faculty opportunity within the Department of Physiology. Applicants must have a doctorate degree in physiology or medicine and experience teaching physiology to medical students in American medical schools. Preference will be given to those individuals with a strong track record of teaching excellence, especially in the areas of cardiovascular, endocrine, cell, muscle or gastrointestinal physiology. The Department of Physiology at Ross University is currently undergoing redevelopment and redirection. Successful candidates for this position will be forming the foundation of a group of medical physiologists dedicat-

ed to teaching medical students and interested in developing and implementing creative teaching techniques to improve medical student understanding and appreciation of physiology. Individuals are encouraged to explore, design, and deliver innovative medical physiology curricula. Excellent opportunities exist for medical education research including long-distance training, computer based delivery and assessment of physiology curriculum, integration of clinical medicine with physiology basic science, and multiformat course design. The Physiology Department is in a unique position to rapidly evaluate changes to its physiology curriculum as well as dramatically influence international education in medical physiology. To apply for this position, please visit our website http://www.rossmed.edu go to Careers at RUSM and complete our online application process. Ross University offers competitive annual salary potentially tax-free, relocation assistance to and from the island of Dominica, deferred pension program and medical benefits. Opportunities for professional development are provided along with 25 days of paid annual leave. Professorial rank and salary will be commensurate with the successful candidate's qualifications and experience. Review of applications will continue until the position is filled. Position is available immediately for the September 2003 semester or January 2004. [EEO]

---

**Assistant Professor—Integrative Physiologist:** The Department of Physiological Science at UCLA (http://www.physci.ucla.edu) invites applications for a tenure-track faculty position at the level of Assistant Professor (or under exceptional circumstances at a higher level). Applicants should have postdoctoral experience and a record of creative and significant research in any area of physiology, although we have particular interest in evolutionary/comparative physiology. Integrative physiology involves understanding function at multiple levels, such as molecular, genetic, cellular, systems, and organismic. The successful candidate will be expected to participate in undergraduate and graduate teaching and to establish a vigorous, externally funded research program. Applicants should submit a curriculum vitae with a description of research plans, reprints or preprints of key publications and have three letters of recommendation sent by **October 31, 2003** to: Barney A. Schlinger, Search Committee Chair, Department of Physiological Science, UCLA, PO Box 951606, Los Angeles CA 90095-1606. [AA/EEO]

---

**Chair, Department of Anatomy and Physiology:** Applications and nominations are invited for the Chair of the Department of Anatomy and Physiology at the Wright State University School of Medicine and College of Science and Mathematics. The position offers a unique opportunity to direct and expand a newly combined department of more than 20 faculty. Research strengths include neuroscience, membrane transport, molecular and biophysical aspects of signaling, structure-function relationships, immunology and virology. Highly regarded undergraduate, graduate, and professional training programs incorporate initiatives to develop multimedia educational software. The department houses the Environmental and Hyperbaric Cell Biology Facility and plays an important role in the Center for Brain Research and the Biomedical Sciences PhD Program. The Chair will provide leadership to enhance extramural funding, research, teaching and interdisciplinary activities. The latter include fostering interactions with other basic science and clinical departments, universities and research institutes. Applicants should have a PhD, MD, or an equivalent doctoral degree, qualify for a tenured appointment as Professor, be a recognized scientific leader in an area that complements departmental strengths, and have an on-going record of competitive research funding. The successful candidate must have sufficient administrative experience with personnel and budgets to manage a productive and diverse basic science department. Candidates must have excellent interpersonal and communication skills, and a strong commitment to research, education, and teaching. A competitive start-up package and opportunities to hire new faculty will be available. Department faculty are appointed in both the School and the College, and, except for the chair, tenure-line faculty are collective bargaining unit members represented by AAUP. Please send a letter of application, curriculum vitae, the names and contact information for four or five references, and a one-page summary of research interests. Applications must be received by **December 1, 2003** to be assured of full consideration. Applications and nominations may be submitted electronically (documents in PDF or MS Word format) to Robert.weisman@wright.edu, or by mail to Robert Weisman, A&P Search Committee, 134 Oelman Hall, Wright State University, Dayton, OH 45435; Tel: 937-775-2696. Please visit http://www.med.wright.edu/anat-phys/chair to learn more about the department, the university and the Dayton area. [EEO/AA]

**Ryan W. Bavis** has joined the Department of Biology, Bates College, Lewiston, ME. Bavis previously had been with the Department of Comparative Bioscience, University of Wisconsin, Madison School of Veterinary Medicine, Madison, WI.

**Jerome William Breslin** is currently associated with the Department of Surgery and Medical Physiology, Texas University Health Science Center, Temple, TX. Prior to his new affiliation, Breslin was associated with the Department of Pharmacy and Physiology, University of Medicine and Dentistry of New Jersey, Newark, NJ.

**Dennis J. Cheek** has affiliated with the Harris School of Nursing, Texas Christian University, Fort Worth, TX. Cheek formerly was with the School of Nursing, University of North Carolina, Chapel Hill, NC.

**Mariana Cifuentes** recently moved to the Institute of Nutrition and Food Technology, University of Chile, Santiago, Chile. Cifuentes was previously with the Department of Nutritional Science, Rutgers University, New Brunswick, NJ.

**William A. Cupples** has transferred to the Center of Biomedical Research, University of Victoria, Victoria, British Columbia, Canada. Cupples was formerly associated with the Department of Medicine, SMBD-Jewish General Hospital, Montreal, Canada.

**Kam D. Dahlquist** is presently associated with the Department of Biology, Vassar College, Poughkeepsie, NY. Dahlquist was previously affiliated with the Gladstone Institute of Cardiovascular Disease, San Francisco, CA.

**Scott Lee Davis** accepted a position with the Institute of Exercise and Environmental Medicine, Presbyterian Hospital of Dallas, Plano, TX. Davis was formerly with the Department of Exercise and Sport Science, University of Utah, Salt Lake City, Utah.

**Kevin P. Davy** is presently associated with the Department of Human Nutrition, Food, and Exercise, Virginia Polytechnic Institute and State University, Blacksburg, VA. Previously, Davy was with the Department of Physiology and Biophysics, University of Mississippi Medical Center, Jackson, MS.

**Cristiane Del Corsso** joined the Department of Physiology, University of Nevada, Reno, NV. Formerly, Del Corsso was with the Department of Physiology, Faculty of Medicine of
Ribeira Preto, Sao Paulo, Brazil.

**Kevin Charles Dellsperger** moved to the Department of Internal Medicine, University of Missouri, Columbia, MO. Dellsperger had previously been Chief of Staff, affiliated with the VA Medical Center, Iowa City, IA.

**Joseph Gerald Duman** is currently affiliated with the Department of Physiology and Biophysics, University of Washington, Seattle, WA. Duman was formerly associated with the Department of Molecular Cell Biology, University of California, Berkeley, CA.

**Jeff G. Edwards** recently joined the Department of Molecular Pharmacology, Physiology, and Biotechnology, Brown University, Providence, RI. Formerly, Edwards was associated with the Department of Physiology, University of Utah, Salt Lake City, UT.

**Peter A. Farrell** accepted a position with the Department of Exercise and Sport Science, East Carolina University, Greenville, NC. Prior to his new position, Farrell had been associated with the Knoll Physiological Research Center, Pennsylvania State University, University Park, PA.

**Jason Fewell** is currently the Director of Biology and Pharmacology, Expression Genetics, Inc., Huntsville, AL. Prior to his new assignment, Fewell was Senior Scientist, Valentis Inc., The Woodlands, TX.

**Melissa A. Fleegal** is presently affiliated with the Department of Pharmacology, University of Arizona, Tucson, AZ. Fleegal was previously associated with the Department of Physiology and Functional Genomics, University of Florida, Gainesville, Fl.

**Henry Jay Forman** is currently a member of the Division of Natural Sciences, University of California, Merced, CA. Forman had been with the Department of Environmental Health Sciences, University of Alabama, Birmingham, AL.

**Joseph Francis** recently joined the Department of Comparative Biomedical Sciences, Louisiana State University, Baton Rouge, LA. Prior to his new affiliation, Francis was with the Department of Internal Medicine, Division Cardiovascular, Iowa City, IA.

**Joaquin U. Gonzales** is presently with the Department of Kinesiology, Health Education Center, University of Toledo, Toledo, OH. Previously, Gonzales was associated with the Department of Physiology, Texas Tech University Health Sciences Center, Lubbock, TX.

**Angela Jean Grippo** has moved to the Department of Pharmacology, Loyola University, Chicago, Maywood, IL. Grippo was previously with the Department of Psychology, University of Iowa, Iowa City, IA.

**Elaine L. Hall** has accepted a position with the Department of Pediatrics, Medical College of Georgia, Augusta, GA. Prior to her new association, Hall was with the Department of Recreation Studies and Exercise Science, Sault Sainte Marie, MI.

**John Daniel Hatle** is presently associated with the Biology Department, University of North Florida, Jacksonville, FL. Hatle had been affiliated with the Department of Biological Sciences, Illinois State University, Normal, IL.

**Thomas James Hawke** affiliated with the Department of Kinesiology and Health Science, York University, North York, Ontario, Canada. Prior to his new position, Hawke was associated with the Department of Internal Medicine, Division of Cardiology, University of Texas Southwestern Medical Center, Dallas, TX.

**Kimberly Ann Huey** joined the Department of Kinesiology, University of Illinois, Urbana-Champaign, Urbana, IL. Huey was previously associated with the Department of Kinesiology, Arizona State University, Tempe, AZ.

**Patricia Denise Hurn** has affiliated with the Department of Anesthesiology, Oregon Health Sciences University, Portland, OR. Hurn previously had been

affiliated with the Department of Anesthesiology, Johns Hopkins Medical Institute, Baltimore, MD.

**Brant Edward Isakson** joined the Department of Molecular Physiology and Biological Physics, University of Virginia, Charlottesville, VA. Formerly, Isakson had been affiliated with the Department of Zoology and Physiology, University of Wyoming, Laramie, WY.

**Richard J. Johnson** recently moved to the Department of Medicine and Nephrology, University of Florida, Gainesville, FL. Johnson was formerly with the Department of Medicine and Nephrology, Baylor College of Medicine, Houston, TX.

**Jack H. Kaplan** is currently the Benjamin Goldberg Professor and Head, Department of Biochemistry and Molecular Genetics, University of Illinois, Chicago, IL. Kaplan had previously been Professor and Chair, Department of Biochemistry and Molecular Biology, Oregon Health and Science University, Portland, OR

**Joanne K. Kelleher** accepted a position of Visiting Professor, Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA. Kelleher was previously affiliated with the Department of Physiology, George Washington University, Washington, DC.

**Andrew John Lawrence** is currently affiliated with the Howard Florey Institute, University of Melbourne, Parkville, Victoria, Australia. Prior to his new position, Lawrence was associated with the Department of Pharmacology, Monash University, Clayton, Victoria, Australia.

**Alan R. Light** became a member of the Department of Anesthesiology, University of Utah, Salt Lake City, UT. Previously, Light was with the Department of Physiology, University of North Carolina, Chapel. Hill, NC.

**Roslyn M. London** has joined the Storr Liver Unit, University of Sydney, Westmead, Australia. Prior to her latest position, London was affiliated with the Department of Pharmacology, University of Missouri, Columbia, MO.

**Vicente Martinez** recently affiliated with the Department of Integrative Pharmacology, Gastrointestinal Biology, AstraZeneca Research & Development, Molndal, Sweden. Martinez had been associated with Novartis Pharma AG, Basel, Switzerland.

**Sheldon S. Miller** accepted the position of Scientific Director, National Eye Institute, NIH, Bethesda, MD. Miller had been the Scientific Director, Department of Optometry, Molecular and Cell Biology, University of California, Berkeley, CA.

**Katsuki Nakamura** joined the Department of Animal Models for Human Disease, National Institute of Neuroscience, Kodaira, Tokyo, Japan. Nakamura was previously affiliated with the Department of Behavioral and Brain Science, Primate Research Institute, Kyoto University, Inuyama, Aichi, Japan.

**Ivan Rubio-Gayosso** is presently associated with the Department of Molecular Physiology and Biological Physics, University of Virginia, Charlottesville, VA. Prior to his new affiliation, he was with the Department of Physiology, Faculty of Medicine, University Autonoma, San Luis Potosi School of Medicine, Province, San Luis Potosi, Mexico.

**Barry W. Scheuermann** has joined the Department of Kinesiology, University of Toledo, Toledo, OH. Scheuermann had been affiliated with the Department of Health, Exercise and Sport Science, Texas Tech University, Lubbock, TX.

**Stanley G. Schultz**, Professor, Department of Integrative Biology and Pharmacology, University of Texas Medical School, Houston, TX, has recently been named Interim Dean of the University of Texas Houston Medical School, Houston, TX.

**Minoru Shinohara** has affiliated with the Department of Integrative Physiology, University of Colorado at Boulder, Neural Control of Movement Lab, Boulder, CO. Shinohara was previously associated with the Department of Kinesiology, Penn State University, University Park, PA.

**Jena J. Steinle** accepted a position with the Department of Physiology, Southern Illinois University College of Medicine, Carbondale, IL. Steinle was formerly associated with the Department of Medical Physiology, Texas A&M University System Health Science Center, Temple, TX.

**Suresh C. Tyagi** recently joined the Department of Physiology and Biophysics, University of Louisville, Louisville, KY. Tyagi was formerly with the Department of Physiology and Biophysics, University of Mississippi Medical Center, Jackson, MS.

**Fivos Vogalis** has affiliated with the Department of Physiology, University of Utah, Salt Lake City, UT. Formerly, Vogalis had been associated with the Department of Anatomy and Cell Biology, University of Melbourne, Melbourne, Australia.

**Susan A. Ward** is currently Professor and Head, School of Sport and Exercise Sciences, University of Leeds, Leeds, UK. Ward had been Professor and Head, Centre for Exercise Science and Medicine, University of Glasgow, Glasgow, UK,

**H. Richard Winn** moved to the Department of Neurosurgery, Mt. Sinai School of Medicine, New York, NY. Winn had been affiliated with the Department of Neurosurgery, Harborview Medical Center, Seattle, WA

**Zhizhang Z. Yang** joined the Department of Rheumatology and Immunology, Mayo Clinic, Rochester, MN. Yang moved from the Department of Physiology, Medical College of Wisconsin, Milwaukee, WI.

**Edward J. Zambraski** has affiliated with the Department of Cell Biology and Neuroscience, US Army Research Institute Environmental Medicine, Natick, MA. Zambraski had been associated with the Department of Cell Biology and Neuroscience, Rutgers University, Nelson Labs, Piscataway, NJ.

**Yun-Ping Zhou** has accepted a position with Merck and Company, Inc., Rahway, NJ. Zhou had been with the Department of Insulin Secretion Genomic, Metabolex Inc., Hayward, CA.

**Xinsheng Zhu** has joined the Department of Cardiovascular Research Center, Massachusetts General Hospital, Charlestown, MA. Prior to his current affiliation, Zhu was associated with the Department of Physiology, University of Wisconsin, Madison, WI.

## Letters to Edgar Folk

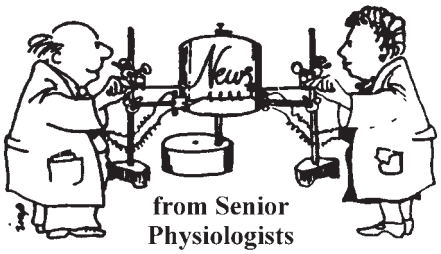
**William Carl Kaufman** writes: "Thank you for your kind and thoughtful letter welcoming me to the ranks of the Senior Survivors, the Realm of the Ancients. A retired cardiologist colleague sent me a baseball cap with the logo, 'How the hell did I get this old?' A retired airline pilot friend admonished me, 'Do not regret growing older. It is a privilege denied to many. I think of both statements regularly.

"I am remiss in not answering promptly. I apologize. Retirement, which began a second time in September 1987, was going well until my beloved wife, critic and editor , Patricia, became seriously ill. After a long and courageous struggle with diabetes, a malicious disease, she died about a year ago. Such an event raises many questions and requirements for which one is not prepared. All are time consuming and many require a detailed response. Being a master procrastinator by nature I have found it easy to put other things off .

"Notes about my career: My interest in physiology began during WW II in the military when I was a bomber pilot and became fascinated with the methods of protection against cold and hypoxia and devices for escape from disabled aircraft. My experiences left an enduring interest in aviation and its associated physiological problems.

"At the end of the war I returned to the University of Minnesota and a study of biology and chemistry and continued to fly in the Air Force Reserve. At the end of the war most of the cadre of scientifically trained personnel in the Air Corps returned to their civilian pursuits. This left a need for capable trained officers as instructors and researchers in the 'physiology of flight.' In 1950 with a BA degree in Zoology and Chemistry I returned to active duty as a pilot and became a Physiological Training Officer to train flight crews in the use of oxygen equipment and survival techniques and equipment.

"An MS was completed with John Marbarger at the University of Illinois and later a PhD with Loren Carlson at the University of Washington. (I had visited UCLA and, I think it was Allen




Hemingway who said, 'There's a fellow up at Washington who, during the war, rode around in the back seat of a piggyback P-38. He would have a lab suitable for Air Force training.') That fellow was Carlson.

"The school assignments were interspersed with flying assignments and three tours at the Aerospace Medical Research Laboratory at Wright-Patterson AFB, OH, and an administrative assignment at the Aeromedical Laboratory at Holloman AFB, NM.

"My research, mostly applied, was on the responses to the extreme environments that flight crews might encounter, extremes of altitude and speed, heat, cold, acceleration, and exposure to nuclear weapons. And one very interesting study of how African chameleons change their skin color.

I visited laboratories at Point Barrow and Johannesburg and, there, descended 6,000 feet below the surface in a gold mine. I flew to 43,000 feet in an F-86 and spent four hours in a prototype altitude suit at 55,000 ft in an altitude chamber. I survived a jet accident and a balloon accident and made a parachute jump. It was all satisfying and exciting. I saw most of the major cities in western Europe. I had the opportunity to work in some of the finest laboratories of their kind and fly the finest airplanes.

"When I retired from the Air Force in 1968, I had the good fortune to obtain an NIH Senior Scientist Fellowship with the Medical Research Council in London, England, where I spent a year in Sir Peter Medawar's organization with Drs. Edholm, Fox and Reg Whitney. I had money to travel and visit laboratories on the continent. It was an excellent preparation for becoming a faculty member at a new campus being opened by the University of Wisconsin where Fred Sargent was Dean. There I had grants from NASA and industry and taught undergraduate Human and Comparative Physiology. And I am delighted to report that we had great success in placing students in medical, dental and graduate schools. That period of my life ended in retirement in 1987.

"There has been some name dropping here but knowing people like James Hardy and Dr Ted Hammel—and meeting Dr. Folk on a field trip to Alaska—were one of the very enjoyable aspects of a career in Applied Physiology. The international travel and the visits to various laboratories were always accompanied by outstanding and genuine scientific and social camaraderie.

"I feel very fortunate for having the career I did.

"What am I doing: I take care of the household duties and yard work on an acre, part of which is natural with 70-foot firs, tend 40 Bonsai plants, exercise six mornings a week, watch the birds at my feeder, participate in the Cornell Laboratory Feeder Watch, cook a bit (not very well), read mysteries, *Science News*, *Science Times*—and *The Physiologist*—and contemplate rejuvenating the Lotus Elan we brought back from England. I participate in a fiction writing workshop. I sit in on liberal arts courses at the local branch campus. I am thinking about another short paper on windchill. And I am pleased to announce that I enjoy very good health.

"Advice to young physiologists: I would recommend that they not ignore the opportunities that might be offered by the Military Services or the government agencies. Other than that, as Davenport said, 'Physiology is fun.' There were bad days, of course, but in general I looked forward to going to work every day, a laboratory is a wonderful toy and teaching is a gratifying experience."

**Howard N. Jacobson** writes: "Two events overlapped this summer. First, after 50+ years of unusual employment, I finally retired on May 31. Second, as you noted, I turned 80. Over this span I have been most fortu-

nate with respect to both my working circumstances and the professionals colleagues, starting with my postdoctoral assignments in that small but potent Department of Physiology at Harvard Medical School. Headed by Eugene Landis, the faculty—who let us join in their brown-bag lunches—included John Pappenheimer, Cliff Barger, Ernst Knobil, Ralph Kellogg, and Paul Chatfield. The nature of my fellowship called for the Department of Obstetrics to take overall responsibility and for me to work in the Friday afternoon "Family Clinic" conducted by the Department of Maternal and Child Health (MCH), Harvard School of Public Health. Remarkably, it has been possible to combine the perspectives of all three disciplines in varying proportions in my university assignments over the years. Through it all my main field of work has concerned health professional education—with a core philosophy learned from Harold Stuart, Professor of MCH, HSPH, namely, 'what do healthy people do?'

"Having said all that, I have been able to stay fully employed and more or less healthy over the entire span. It has been interesting to watch the working calendar change over this span. When I began, June, July, and August were months when faculty could catch up on unfinished business, rest up, and prepare for the year ahead. These days, health professional education is nearly non-stop across the year.

"As I noted, health professional education has been my central theme throughout and will also be my focus in my retirement, though unpredictably. Trained as I was in obstetrics/gynecology and MCH, my first major assignment was with the Federal Children's Bureau in the preparation of the background information needed for a proposed White House Conference on Maternity Care to be held in 1964. The data raised all sorts of questions about what the workforce would be in a national maternal and infant care program. The potential role of the nurse in MCH services was one of the chief issues to be addressed. This effort furnished the stimulus to study selected European midwifery models of the MCH teams and their focus on healthy families. The model that stood out, to which I returned in the late 90s, was that of Sweden. Workforce issues were major concerns in the late 60s and early 70s with the arrival ofMedicare and Medicaid, and a proposed universal health care program aimed at the early 70s. With midwives seen as essential, where would they be prepared, and what would be their connections with their physician counterparts? In this connection, I was appointed Director of the Macy Program at Harvard Medical School in 1969 with the task of finding the most favorable Nursing education program to collaborate with us. We were fortunate to come along at just the right time and Boston College School of Nursing joined. The goal was to prepare the basics of the health team in maternity care. A question that arose then and which has still (2003) not been resolved concerns for a health team to be successful the practitioners must learn from each other in as early a part of their training as possible. We elected to attempt to match up physicians at the residency level with nurses in a master degree program. This had the virtue of matching students in the terminal parts of the educational process. We realized that it was late in the professionalization process but it was the best we could do at the time. The abandonment of a national health plan in the early seventies led to the decline of interest in the MCH health team. The seventies and eighties were largely holding-times for major initiatives, although efforts to promote health care teams persisted. The recognition in 1969 of 'Hunger' in the USA led to major national efforts focused on the poor. Out of this came a variety of food programs and a renewed interest in nutrition education as part of clinical training. I became Director of the Institute of Nutrition of the University of North Carolina (UNC) in 1978 and had the happy assignment 'to get the University of North Carolina involved in the nutritional concerns of its constituents (the taxpayers) in as visible a manner as possible.' It was on my retirement in 1988 and subsequent appointment in the Department of Community and Family Health in the College of Public Health, University of South Florida, Tampa, that my efforts to help clarify the health care team resumed. It began with Florida's Healthy Start Program for 'all pregnant women' and infants which was enacted in 1991. Immediately questions arose about who would provide the care 'for all,', and interest in midwifery re-emerged.

"The Clinton Health Plan of 1993 opened the door to the plethora of approaches to health care we deal with today. The question for health professional education, in turn, becomes even more difficult—how to prepare students for an unknown and fast changing future. When should members of a future health care team begin to learn about each other and learn together? For the past seven years I have been a faculty member in a pilot program aimed at preparing interdisciplinary members of a health care team to provide culturally sensitive health care. We found that the fIrst challenge was to deal with the professional cultures themselves. The nurses and social worker were recruited from masters degree programs in their respective colleges, and turned out to be seasoned experienced practitioners. The only physician trainees available for the program turned out to be students between the first and second years in medical school.

"At the same time we were exploring interdisciplinary health professional education, the health care arena itself was spinning off in all directions until today we have an array of approaches in primary health care that ranges from a more classical team of physicians, nurses, social workers, nutritionists on one end to a more biotech genome-based approach on the other. In between are a variety of HMOs and Managed Care approaches ranging from a web-based electronic approach to a 'boutique' model on the other. At the same time, health care organizational designs are equally on the move, with outsourcing, and Professional Employers Organizations

*(continued on page 344)*

*(continued from page 343)*
(PEOs) One report cites the case that an X ray taken in California may be transmitted digitally and read by a radiologist in Bangalore, India. When one picks up a phone to 'dial-a-nurse,' who knows where that nurse may be located—also India? Indeed, the new President of the American Association for the Advancement of Science (AAAS) a physician and neuropharmacologist, in his Presidential Address reported that, 'The US health system is failing in front of our eyes.. The current system can scarcely meet today's needs...' and 'Scientists must now unite to insist that the system be prepared for the discoveries of the future, ..' (*Science*, 13 June, 2003, p 1680).

All of this raises questions about what should we prepare our health professional students to do, 15-20 years from now? That question, in turn, asks how does physiology as a discipline contribute? Who decides? Who will teach that new kind of physiology? Will it be outsourced? The rising generations do have their work cut out for themselves..

"Well, there you are. I am currently settling down to share my experiences along these lines. The hope is that it might shed some light on the paths taken so far, and make it easier to plan for the next phases that are already upon us." ❖

# Announcements

## European Respiratory Society Launches New Series of Courses

The European Respiratory Society (ERS) invites partners ni the field of respiratory medicine to take advantage of a new series of educational courses.

In response to inquiries and to strengthen working partnerships, the ERS school has reserved some places to enable industry-sponsored participants to attend these courses. More information and course information is available at http://www.ersnet.org/3/6/3_6_1.asp.

**Advanced Pediatric Respiratory Medicine**: Barcelona, Spain, November 20-23, 2003. This is an interactive course requiring the active participation of attendees. The sessions are case-oriented with daily discussions based on problem cases submitted by participants. The course is intended for trainees or recently qualified specialists in pediatric respiratory medicine and respiratory physicians with an interest in pediatric respiratory medicine.

Topics covered:
- Pediatric respiratory imaging
- Lung function, exercise
- Chronic respiratory failure in children and its management
- Diagnosis and treatment of asthma (evidence-based) TB in children
- Congenital lung disease Cystic Fibrosis

For a complete brochure, go to http://www.ersnet.org/3/6/Peadiatrics.pdf.

**Lung Cancer**: Lausanne, Switzerland, November 27-30, 2003. This course is targeted at physicians training in chest medicine and chest physicians requiring updated knowledge in this area. It offers a full basic training in thoracic oncology and, to both postgraduate and practicing chest physicians, a knowledge update in the mangement of lung cancer.

Topics covered:
- Clinical presentation
- Staging: locoregional, distant, PET scan
- Endoscopic treatment
- Surgery
- Systemic chemotherapy
- New drugs

For a complete brochure, go to http://www.ersnet.ort/3/6/Lung_Cancer.pdf.

Accreditation Statement: The European Respiratory Society is accredited by the European Board of Accreditation in Pneumology (EBAP) and the Eurpoean Accreditation Council for Continuing Medical Education (EACCME) to provide CME activity for medical specialists. The EACCME is an institution of the European Union of Medical Specialists (UEMS). EACCME credits are recognised Europe-wide and can be exchanged for National CME credits by contacting your National CME Authority. In the USA, EACCME Credits are automatically converted into American Medical Association (AMA) credits upon presentation of the certificate of attendance including the EACCME formula to the AMA. ❖

## 20th Annual Computed Body Tomography 2004: The Cutting Edge

February 12-15, 2004
Disney Yacht and Beach Club Hotel
Lake Buena Vista, Orlando, FL
Sponsored by: Johns Hopkins School of Medicine, The Russell H. Morgan Department of Radiology and Radiological Science

This seminar, for the radiologist, will provide a comprehensive review of recent advances in computed body tomography with some correlation with Magnetic Resonance Imaging (MRI). A series of 30-minute lectures has been designed to concentrate on specific topics in-depth. Participants will have the opportunity to expand their knowledge of the latest concepts in multidetector-row CT, CT angiography, the value of high resolution CT in the chest, the uses of CT in the GI tract, clincial application of musculoskeletal CT, cardiac CT and Pet/CT in oncology. There will be time for questions and discussion.

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 take responsibility for the content, quality and scientific integrity of this CME activity.

For more information, please contact: Office of Continuing Medical Education, Johns Hopkins University School of Medicine, Tuner 20, 720 Rutland Avenue, Baltimore, MD 21205; Tel: 410-955-2959; Fax: 410-955-0807; or Email: cmenet@jhmi.edu. ❖

## Call for Nominations
## FASEB Excellence in Science Lecture and Award 2005

**Selection Criteria and Eligibility:** Sponsored by Eli Lilly and Company to recognize outstanding achievement by women in biological science. All women who are members of one or more of the societies of FASEB will be eligible for nomination. Nominations recognize a woman whose career achievements have contributed significantly to further our understanding of a particular discipline by excellence in research.

Nominations may be updated adn resubmitted for a three-year period following the nomination procedures.

Nomination packets including all letters of reference for the 2005 Excellence in Science Award must be received no later than March 1, 2004.

Nominations must be made in the form of a letter, original and sixteen (16) copies, setting forth in detail:

- the contribution(s) to the field that represents the nominee's outstanding achievement in science
- leadership and mentorship
- evidence of national recognition
- honors and awards
- synopsis of selected bibliography
- sixteen (16) copies of the curriculum vitae, including all publications
- sixteen (16) copies of no more than five (5) reprints
- sixteen (16) copies of each additional letter of support; recommendations from former trainees are encouraged.

**Award Presentation:** The awardee will present an Excellence in Science Lecture. The award will be presented at an annual meeting of a FASEB member society. The award includes a $10,000 unrestricted research grant, funded by Eli Lilly and Company, travel expenses, complimentary registration at the meeting, and a plaque in recognition of the award.

To download the nomination form, go to http://www.faseb.org/excell_sci_2005.pdf.

Mail complete registration packets to: Ms. Tia B. Poole, FASEB Excellence in Science Award, 9650 Rockville Pike, Bethesda, MD 20814-3998. Tel: 301-634-7090; Email: tpoole@faseb.org.

## Get Involved With APS Committees!

The American Physiological Society provides its membership with opportunities to be involved with the Society through service on its various committees. Committees and committee members are appointed by the Council of APS at the recommendation of the Committee on Committees. Members are appointed to a three-year term commencing on January 1. Committee appointments are staggered so that only a limited number of the members rotate off a committee at the end of each year.

Members interested in committee service should complete the nomination form and submit it for consideration by Committee on Committees and Council. The form is available to be downloaded at http://www.the-aps.org/committees.

Deadline for receipt of Candidate Information and Endorsement Forms is **January 15, 2004**. ❖

## Arthur C. Guyton Physiology Educator of the Year Award

The Teaching Section of APS invites you to nominate a fellow physiology educator for the Twelfth 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 American Physiological Society. The Selection Committee will look for independent evidence of: (*1*) excellence in classroom teaching over a number of years at undergraduate, graduate, or professional levels; (*2*) commitment to the improvement of physiology teaching within the candidate's own institution; and (*3*) contributions to physiology education at the local community, national or international levels.

In the past, all nominees have shown excellence in teaching 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 should send a preliminary letter outlining the qualifications of the nominee to the Chairman of the Award Selection Committee, postmarked no later than **Friday November 14, 2003.** In addition, the nominator will be asked to submit a portfolio on behalf of the nominee that includes letters of support from colleagues and students, summaries of student evaluations, teaching honors and awards, and evidence of education-related activities outside the classroom.

The person selected will receive the award during the APS business meeting at the April 2004 annual meeting of the American Physiological Society (Experimental Biology 2004, April 17-21 in Washington, DC). The Arthur C. Guyton Physiology Educator of the Year will receive a framed, inscribed certificate, an honorarium of $1,000 and expenses of up to $600 to attend the meeting. The awardee is requested to write an essay on his/her philosophy of education for publication in *The Physiologist*.

The Chairman of the Guyton Award Selection Committee is William Cliff, Department of Biology, Box 2032, Niagara University, Lewiston Road, Lewiston, NY 14109-2032. Tel: 716-286-8243; Fax: 716-286-8254; Email: bcliff@niagara.edu. ❖

## American Physiological Society David S. Bruce Undergraduate Research Award

The annual David S. Bruce Awards for Excellence in Undergraduate Research (provides $500 award) will be granted to up to four currently enrolled undergraduate students who are presenting a poster at the meeting. To be considered for the award, the undergraduate student must be the first author of an abstract submitted to APS and either the candidate or the abstract sponsor must be a member of APS. The student must: *1*) be enrolled as an undergraduate student at the time of the application and at the time of the EB meeting; *2*) be the first author on a submitted abstract for the EB meeting (students may not submit more than one abstract for the award competition each year); *3*) be working with an APS member who attests that the student is deserving of the first authorship; *4*) submit a one-page letter that discusses his/her role in the research, the significance of the research, and his/her career plans; and *5*) have not previously won the Bruce Award. Abstracts will be reviewed by the David S. Bruce Award Committee prior to the meeting. The Award Committee will select 12-15 finalists. These students will be notified of their finalist status well in advance of the meeting. Successful abstracts typically include: a clearly stated hypothesis or aim; the technical approach to the study; the pertinent results obtained with quantitative and statistical comparisons, when appropriate; and a clearly stated conclusion, including the significance of the results to the field. At EB, all undergraduate students will be invited to present their research posters not only during their regular scientific session but also at a special poster session. Prior to the poster session, the finalists will be asked to set up their posters and will be interviewed by the Award Committee. Posters will be judged on quality of the poster and oral presentation, Quality of graphics used, organization of the poster, creativity used in displaying and describing the research as well as in the development of the research project, novelty of the research project, and the student's display of his/her understanding of the work and its significance. After the interviews, the Committee will determine the final awardees. All finalists will receive certificates. ❖

*November 1-5*
**The 24th Congress of the International Association for Breast Cancer Research, Sacramento Convention Center and Sheraton Grand Hotel, Sacramento, CA.** *Information:* http://www.cme.ucdavis.edu/iabcr.htm.

*November 6-7*
**National Institutes of Health Biomedical Information Science and Technology Initiative (BISTI), Natcher Conference Center, NIH, Bethesda, MD.** *Information:* Internet: http://www.bisti.nih.gov/2003meeting.

*November 6-8*
**Laser Florence: the Renaissance of Art, Science and Friendship, Florence, Italy.** *Information:* Internet: http://www.laserflorence.org/about.htm

*November 18-21*
**1st International Conference on Polyphenols and Health, Vichy, France.** *Information:* Internet: http://www.evicevents.com/polyphenols/index.html.

## 2004

*February 14-18*
**48th Annual Meeting of the Biophysical Society, Baltimore, MD.** *Information:* Internet: http://www.biophysics.org.

*March 5-6*
**The Third Gulf Coast Physiological Society Meeting, Mobile, AL.** *Information:* Internet: http://www.physiology.usouthal.edu/gulfcoast/.

*March 7-12*
**Molecular Mechanisms in Lymphatic Function and Disease Gordon Research Conference, Ventura, CA.** *Information:* Internet: http://grc.org/programs/2004/lymphat.htm.

*May 15-21*
**Twelfth Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine, Kyoto, Japan.** *Information:* International Society for Magnetic Resonance in Medicine, 2118 Milvia Street, Suite 201, Berkeley, CA. Tel.: +1 510 841 1899; Fax: +1 510 841 2340; Email: info@ismrm.org; Internet: http://www.ismrm.org.

*May 31-June 5*
**31st Annual Meeting of the International Society for the Study of the Lumbar Spine, Porto, Portugal.** *Information:* Secretary, Dr. Scott Boden, Sunnybrook and Women's Health Science Center, Room MG 323, 2075 Bayview Avenue, Toronto, Canada, M4N 3M5. Internet: http://www.issls.org.

*June 12*
**CSPS 7th Annual Symposium on Pharmaceutical Sciences, Vancouver, British Columbia, Canada.** *Information:* Canadian Society for Pharmaceutical Sciences, Journal of Pharmacy & Pharmaceutical Sciences, 3118 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/~csps.

*July 2-10*
**4th International Congress of the African Association of Physiological Sciences, Tangier, Morocco.** *Information:* Email: aapsmorocco04@yahoo.com

*August 15-20*
**Macromolecular Organization and Cell Function, Oxford, UK.** *Information:* Gordon Research Conferences, P.O. Box 984, West Kingston, RI 02892-0984 USA. Email: hardinc@missouri.edu; Internet: http://www.missouri.edu/~physch/GRC/CRG2004.htm.

*August 31- September 4*
**12th International Congress of Endocrinology, Lisbon, Portugal.** *Information:* Internet: http://www.ice2004.com.

*September 4-8*
**European Respiratory Society Annual Congress, Glasgow, Scotland.** *Information*: ERS Headquarters, 4, av. Sainte-Luce, CH-1003 Lausanne, Switzerland. Fax: 41 21 213 01 00. Internet: http://www.ersnet.org.

## 2005

*March 31-April 5*
**35th Congress of the International Union of Physiological Sciences (IUPS), San Diego, CA.** *Information:* Internet: http://www.iups2005.org.