



The Physiologist

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Basic Biomedical Research and the Public's Health

Cost...Time...Focus

Robert S. Fitzgerald
Johns Hopkins University

In last December's *The Physiologist* Rebecca Osthus and Dale Benos reported that lawmakers were asking what benefits came from an investment in the NIH of \$30 billion/year (4). This is a very reasonable question from those who are responsible for distributing the nation's financial reserves in the interest of the entire country. The country has many priorities, but it would seem fair to say that the nation's health is certainly at or near the top of the list. From a political perspective the legislator who can point to bills (s)he has introduced or supported which related to improving the nation's health will certainly improve his/her political status considerably.

Osthus and Benos single out three diseases—Parkinson's disease, Cholera, Cystic Fibrosis—and show how a basic understanding of pathophysiology led to significant advances in disease treatment. They also showed the positive correlation between the increase in Life Expectancy and the billions of dollars in the NIH budget between 1990 and 2003. So just in terms of increasing life expectancy (in the face of rampant heart and lung disease, and cancer) it would seem like the NIH budget allocation is a very good investment for the public's welfare.

A different approach was taken in Raiten's and Berman's 1993 study entitled: "Can the Impact of Basic Biomedical Research be Measured?: A

Case Study Approach" (6). This study should clearly be of value to legislators who have the responsibility of deciding how the taxpayers' money should be allocated in addressing the nation's needs. Do the benefits of **basic** biomedical research justify the costs? This was the question. The study is an economic evaluation of one very specific, limited procedure than currently in practice in terms of what it has cost and the benefits that came, are coming, and are derived from it. They traced the line from the early work in immunology (early in the 20th century) to the hybridoma technology described by Kohler and Milstein in 1975, generating the methodology for producing monoclonal antibodies (MAB). The cost of their original five year period (1971-1976) plus the current (1991) cost and the costs projected up to 1996 were estimated in total to be about \$6.23 billion. Their case-study was a single application of MAB technology to the screening of blood for HIV contamination. For the screening of blood for HIV contamination they used data supplied by the NIH.

They divided the benefits into primary and secondary. In their very careful and detailed analysis the primary benefits were measured in terms of (a) income losses avoided from lower production resulting from lost days of work including that due to accelerated mortality; (b) reduction in medical care costs which

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would otherwise have been incurred due to blood supply transmission of the HIV and subsequent development of AIDS. Secondary benefits were generated by the manufacture and use of the products, the output and employment of supporting manufacturing and services. The benefit to cost ratio for the initial investment in the development of a screening test for HIV contamination of the blood supply was estimated to be 19:1. From an economic perspective, clearly of very high importance for legislators, a 19:1 benefit/cost ratio seems to be a very desirable investment. It is important to emphasize that this is the analysis for just one single application of the investment in the development of MAb. Finally, an interesting finding in their study was the key role played in this development of non-mission directed, investigator-initiated basic biomedical research.

This last finding echoed perhaps the most resounding point made in the study of Drs. Julius Comroe and Robert Dripps, a superb, monumental two volume study published in 1977 (1). Comroe was Director of the Cardiovascular Research Institute at the University of California at San Francisco and Dripps was Professor of Anesthesia at the University of Pennsylvania. In the early 1970s responding to the then debate and anecdotal testimony in Congress on the relative value of targeted versus non-targeted and basic versus applied research, they sought to determine whether the objective techniques of scientific research could be used to obtain data that could be useful in designing a national biomedical science policy. Their study was very limited in that they restricted themselves to a field they both knew exceptionally well, cardiopulmonary physiology and medicine. Their study was also very existential in that their goal was to determine why, how, and where the research and development necessary for many important clinical advances in medicine and surgery of the preceding 30 years had come about. This intensive research appeared in a two volume masterpiece (1).

They wanted to avoid the anecdotal ("let-me-give-you-an-example") approach. They focused their attention exclusively on the important clinical advances in the cardiovascular and pulmonary fields. To eliminate, or at least minimize, their own bias they asked a panel of 90 physicians and surgeons to select the "top ten" advances that had "saved lives or greatly prolonged the lives of their patients, prevented disease, or greatly decreased suffering or disability." The panel selected: 1) Open-

heart surgery; 2) Blood vessel surgery; 3) Treatment of hypertension; 4) Management of coronary artery disease; 5) Prevention of poliomyelitis; 6) Chemotherapy of TB and acute rheumatic fever; 7) Cardiac resuscitation and cardiac pacemakers; 8) Oral diuretics (for treatment of high blood pressure and congestive heart failure); 9) Intensive care units; and 10) New diagnostic tests.

Comroe and Dripps screened 6,000 articles in these fields and picked more than 3,400 of them for special consideration. And with the help of a large team of consultants they carefully analyzed 663 key articles the group felt were essential for one or more of the top ten clinical advances. Comroe and Dripps go to extraordinary lengths to minimize their own bias; this is amply and persuasively documented in their study. They summarized some of their findings as follows:

1) 41.6 % of the 663 key articles reported research done by investigators whose goal at that time was unrelated to the later clinical advance. They sought knowledge for the sake of knowledge. The results were often unexpected, unpredictable, and usually greatly accelerated advance in many fields.

2) Viewed from another perspective 61.5% of the 663 key articles described "basic" research; these studies tried to determine mechanisms which account for the functions of living organisms (including man), or the mechanisms by which drugs act.

3) 20% presented descriptive clinical investigations with no experimental work on basic mechanisms. 16.5% dealt with development of new apparatus, techniques, operations, or procedures; and 2% presented review and synthesis of earlier work.

4) Better than 67% of the work was done in colleges and universities or their medical schools and associated hospitals, most of it being done in clinical or basic science departments of medical schools. But significant contributions also came from non-medical basic science units, including from agriculture, engineering, physics, plant physiology, and mathematics.

5) An interesting point made from their study is the attachment of a cure bearing the name of an individual to that individual alone by the public in general and even by scientists, when actually dozens, maybe hundreds, of investigators had participated in the discovery of the cure. A good example was the Salk vaccine for polio.

6) Of enormous importance to legislators is the issue of lag between the initial

discovery and its effective clinical application. Comroe and Dripps analyzed 111 such lags. One might reasonably expect a significant lag between the initial discoveries required for a successful prognosis in the clinical advance of open-heart surgery since no less than 25 pre-, intra, and post-surgical areas had to be mastered. However, except for an unusual instance like the clinical use of x-rays, lag times were surprisingly modest: 8% of the lags came to 0.1 to 1.0 year; another 18% were 1 to 10 years; 17% were 10 to 20 years; 39% were 21 to 50 years. Only 18% of the initial discoveries required more than 50 years for clinical application. And the reasons for the lags were many and sometimes somewhat humorous. For example, certain personal attributes of the scientist prevented early acceptance of his discovery. An investigator was arrogant, unpopular, aggressive, as apparently Carrel was, delaying the application of his vascular surgical feats in animals saw a delay in the application of his important work in animals to human trials. An investigator's previous work was incorrect. The investigator was little known as was the case with Gibbon and his pump-oxygenator. Sometimes the initial discovery was regarded as good science, but there was no perceived clinical need for it. There may have been an insufficient number of properly trained clinical investigators willing to apply the discovery.

From the studies considered so far it seems absolutely clear that research which is called "basic" has a critically important role to play in preserving and advancing the health of the public. To use the oft-quoted axiom: "We stand on the shoulders of giants." We are the recipients of an indescribable treasure. We are asked to contribute to it. How should whatever funds are allocated to "basic" biomedical research be distributed?

In trying to formulate the beginning of an answer to that question it would be helpful to consider briefly the highly interesting and informative article by Allen Cowley which appeared in *The Physiologist* (2). This article was first published in *IUPS Newsletter* (7: September, 2004). As President of the International Union of Physiological Sciences, Cowley had the opportunity to travel the world and consult with scientists from Europe, China, Japan, North America, and Brazil. He found an emerging recognition everywhere of the need to train a greater number of integrative systems physiologists. Our research must deepen our understanding of how the whole living organism responds. Our task is to wed functional genomics and

integrative physiology. The pure reductionist approach has found itself severely limited in trying to help us understand complex functions and their interactions on the organ, system, organism levels. There is a great need to support science and the training of scientists devoted to, and the training of scientists, addressing the health of the organism on the organ, system, organism levels. This area of basic research has, perhaps, been neglected for two decades or more as we sought to advance more deeply into the molecular biology of the cell and into the genome. Perhaps the time has arrived to extend and integrate the astounding and marvelous results of these studies into the organism at higher levels of organization—tissue, organs, systems, and organism.

Splendid examples of this in the field of cardiopulmonary control are the recent studies of Schultz and his colleagues (3, 5, 8). In brief, they observed in their rabbits, which suffered from pacing-induced heart failure, enhanced peripheral chemoreflex function due to decreased nitric oxide in the carotid bodies. They showed that gene transfer of adenovirus encoding nNOS (neuronal

nitric oxide synthase) into the carotid bodies reversed the enhanced activity and the increased sympathetic output resulting from it. Though basic biomedical research must continue along molecular lines, it would seem integrative systems physiology must receive increasing support to stimulate clinical applications in the interests of the public's health. Perhaps it might serve well to conclude with a quote from Professor Schmidt-Nielsen's review of the 1993 monograph *The Logic of Life: The Challenge of Integrative Physiology* (7): "I have chosen what I perceive as a consistent message in this book ... that physiology will be indispensable in putting together and interpreting the masses of detailed information emanating from the revolutionary progress in molecular biology. We must detach ourselves from the infatuation with more data and more information and remember that, in the end, all the interesting molecules come from, and belong in, living organisms."

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APS News

APS Council Holds Fall Council Meeting in Fort Lauderdale

The APS Council held their fall meeting at the Fort Lauderdale Marriott North Hotel, Fort Lauderdale, FL, November 5-7, 2006. Council was presented with reports from the Publications, Finance, Membership, Education, Careers Committees, and Public Affairs Committees. APS staff members Marsha Maytas, Robert Price, Alice Ra'anan, and Margaret Reich joined the meeting to assist with the committee report presentations.

The Publications Committee reported that the Journal Impact Factors made a strong showing in 2005 as they had in previous years, and that *Physiological Genomics'* impact factor went up to 4.636. The Committee also announced that three "Physiology in Medicine" articles have been published this year in the *Annals of Internal Medicine*. A series of articles that describe ways in which the classic physiology articles can be used for teaching are published in *Advances in Physiological Education*.

The Publications Committee reported that Thomas Kleyman has been appoint-

ed Editor of *AJP-Renal Physiology* and Curt Sigmund has been appointed as Editor of *AJP-Regulatory, Integrative and Comparative Physiology*. Their terms will begin in July 2007.

The Finance Committee presented Council with the projected final 2006 budget and the proposed 2007 budget, both of which were accepted and approved by Council.

The Education Department reported that, in 2007, there are going to be two sessions of the APS Professional Skills Training for Minority Students. The first course will be held in January in Orlando, FL, and the second will be in March in Bethesda, MD. These courses are designed for early graduate students and will concentrate on basic presentation skills.

APS Director of Government Affairs and Public Policy Alice Ra'anan reported that the Public Affairs department is trying to arrange for scientists, who are attending EB07 in Washington, DC, to meet with their Congressional representative to promote funding for biomedical

research. Any member interested in visiting his/her representative can contact the APS Office of Public Affairs for additional information at paffair@the-aps.org.

The Women in Physiology Committee reported that Barbara A. Horwitz, Distinguished Professor of Physiology and Vice Provost for Academic Personnel at the University of California, Davis, has been selected as the 2007 Bodil Schmidt-Nielsen Distinguished Mentor Awardee. Horwitz has had a tremendous mentoring career, having mentored 11 pre-doctoral students, eight postdoctoral fellows, and many undergraduate and high school students. Many of these mentees have gone on to a wide variety of positions, in academia as well as in medicine, and are leading successful scientific careers. Horwitz will receive her award at the EB07 meeting.

APS Executive Director Martin Frank reported that APS would be hosting an opening reception at EB07. The reception will immediately follow the Cannon Lecture on Saturday, April 28, 2007 at

7:00 pm. The reception replaces the APS mixer that was normally held later Saturday night at the EB meetings.

Council discussed the Strategic Plan and progress that has been made on implementing goals of the plan. The Animal Care Committee reported that they would be meeting to discuss priorities for their committee based on the Strategic Plan. During the 2006 summer Council meeting, Council mandated the creation of four task forces—Finance, Meetings, Conferences, Government—to help with the implementation of the Strategic Plan. Each of these task forces has since met by conference call and provided Council with the minutes of these calls. The task forces have additional calls scheduled, and several will be meeting at EB07.

Additional details of the Council's 2006 fall meeting will be presented to the membership at the 2007 APS Business Meeting. The Business Meeting will be held at EB07 on Tuesday, May 1, at 5:45 PM in the Washington D.C. Convention Center, Ballroom B. All APS members are encouraged to attend.

Council Action Items

Council approved the recommendations of the Finance Committee accept-

ing the 2006 estimated budget and approved the 2007 proposed budget.

Council unanimously approved a motion to transfer the following 13 regular members to emeritus membership status: Douglas K. Anderson, Christian Bauer, Mary Garrett, Raju G. Kammula, Rolf K.H. Kinne, David R. Lamb, Edward M. Lieberman, Sheilagh M. Martin, Jimmy D. Neill, Solbert Permutt, Louis Ramazzotto, Syed Saiduddin, and J. Stuart Soeldner.

Council unanimously approved the requests of 23 regular members for reinstatement: Sharon Anderson, Daniel E. Crocker, David Bates, Michael E.

Christe, Jonathan A. Dranoff, Nikolai Dulin, Marlowe W. Eldridge, Kendra J. Greenlee, Jens C.B. Jacobsen, Baoan Ji, Ju-Young Jung, Charles R. Kleeman, Steven Keteyian, Henry A. Lester, Motilal B. Pamnani, Maret J. Panzenbeck, Erling B. Pedersen, Vernon A. Ruffin, Machiko Shirahata, Chengwen Sun, Yvonne N. Tallini, Niu Tian, Erik Van Lunteren.

Council unanimously approved the selection of Norman C. Staub as the 2007 Daggs Awardee.

Council unanimously approved selection of Barbara Horwitz as the Bodil Schmidt-Nielsen Awardee. ❖



Front Row: Kim Barrett, Douglas Eaton, Dale Benos, Hannah Carey, Curt Sigmund; Second Row: Dee Silverthorn, Susan Barman, Carole Liedtke, Irving Zucker, Thomas Pressley; Third Row: Michael Portman, Ken Baldwin, Irving Joshua, Thomas Lohmeier, Gary Sieck, Peter Wagner, James Hicks, J. Michael Wyss, Robert Carroll.

APS Launches the Living History Project

Building upon a recommendation made by John West to Charles Tipton when he was a member of Council, the Society has initiated the Living History Project in an effort to chronicle the exploits and experiences of senior members of the Society. Over the last several years, we have lost a number of eminent physiologists who made significant contributions to the discipline of physiology and to the Society. In proposing this project to Council, Tipton hoped to capture the images, experiences and wisdom of our senior members for the benefit of future generations of physiologists.

As originally conceived, inclusion in the program required an individual to be nominated as worthy of being videotaped and featured and then selected for participation by a committee. As it currently stands, the Living History Video Project will not have a selection component. Instead, the membership is strongly urged to identify APS members 70 years of age or older at their institutions whose contributions are worthy of chronicling through videotape.

It is anticipated that individuals identified for inclusion in the Living History Project will be interviewed at facilities at their academic institution. Since the institution will also be interested in posting the video on its web site, it is hoped that the cost of videotaping will be borne by the institution. The interview should be conducted by a faculty colleague or a former student familiar with the individual's career. It is anticipated that the interview will last approximately 60 minutes and include the following: 1) a brief introduction; 2) a discussion on how and why he/she became a physiologist; 3) list individuals that were influential in the development of his/her career; 4) a discussion of the origin and significance of their accomplishments; and 5) advice for beginning physiologists.

At present, two APS members have been chronicled as part of the Living History Project. The videotapes for Maurice Burg and Bodil Schmidt-Nielsen can be viewed at <http://www.the-aps.org/livinghistory/index>

.htm. If you are interested in coordinating the interview of a senior physiologist, suggested names can be submitted by you or through your disciplinary section. However, all suggestions are to be submitted to Martin Frank (mfrank@the-aps.org) so various aspects of the process can be properly coordinated.

The archival component of the Living History Project, which originally included a published biographical profile in *Advances in Physiology Education*, will be retained but "uncoupled" from the video component in that yearly recommendations will be originated from the Sections. It is envisioned that each year at the Experimental Biology Meeting, Sections will nominate a deserving senior member and forward his/her name to Charles Tipton, Historical Perspective Editor, *Advances in Physiology Education*. You can help facilitate this sectional function by forwarding your recommendation and rationale to the sectional chair well in advance of the Experimental Biology Meeting. ❖

11th Annual Iowa Physiological Society Meeting

The 11th annual meeting of the Iowa Physiological Society was held on September 22-23, 2006 at the Herbert Hoover Presidential Library and Museum in West Branch, IA. This year's meeting marked the 10th anniversary of the Iowa Physiological Society, which was established in 1996 with the goal of providing a regional venue for scientific exchange and the opportunity to develop new friendships and collaborations. This year's meeting attracted approximately 60 participants from Iowa and neighboring states, reflecting continued success of the Society in achieving this goal. The focus of this year's meeting was "The role of oxidative species in cardiovascular control," and included four keynote speakers that addressed reactive oxygen species in neural and vascular control of arterial pressure. The first speaker was Greg Fink from Michigan State University, who provided the APS-sponsored lecture "Reactive Oxygen Species In The Central And Peripheral Nervous Systems In Salt-Sensitive Hypertension," after which Donald Heistad from the University of Iowa presented a talk on "Reactive Oxygen Species in Blood Vessels." On Saturday John Osborn from the University of Minnesota gave the second APS-sponsored lecture "Salt and hypertension: Could it all be in your head?," after which Mark Chapleau from the University of Iowa presented the talk "Reactive oxygen species signaling in the autonomic nervous system: From disease to ion channel." The lectures were highly stimulating and a major highlight of the meeting.

A second purpose of the annual Iowa Physiological Society meeting is to recognize ongoing research at institutions in Iowa and neighboring states. This year's meeting featured poster sessions over the two-day period in which 24 abstracts were presented. These submissions represented five regional institutions, including large universities and small liberal arts institutions. From these abstracts eight trainees were selected as finalists for the Society's trainee award competition. All finalists gave oral presentations and the winners were selected based on the trainee's presentation and ability to field questions from the audience. This year's winners were Brandon T. Larsen, a graduate student in David D. Gutterman's laboratory at the Medical College of Wisconsin, who presented the talk "NADPH Oxidase-Derived Reactive Oxygen Species Reduce Cytochrome P450-Mediated Dilation Of Human Coronary Arterioles," and Amanda Langager, a graduate student in Harald Stauss' laboratory at the University of Iowa, who presented the talk "Importance Of L-Type Ca⁺⁺-Channel Dependent Mechanisms For Very Low Frequency Blood Pressure Variability."

Other highlights of the meeting included a barbecue on Friday night, which was a great success and provided a highly relaxed atmosphere for continued discussion and a time to celebrate ten years since the Iowa Physiological Society was founded. On Saturday Gale Davy, Executive Director of States United for Biomedical Research, gave a presentation on the organization's goal

of promoting public awareness of the importance of animal research. Harold Schultz from the Nebraska Physiological Society gave a presentation on holding a joint meeting with the Iowa Physiological Society in 2007. This meeting will mark the 10th anniversary of the Nebraska Physiological Society, and will allow the two societies to jointly celebrate our established histories and collaborations. A combined meeting will also increase regional awareness of the Iowa and Nebraska Physiological Societies, and better expose students and young investigators to the important advances that are being made in physiology research and education in our region.

In summary, the 11th annual Iowa Physiological Society's meeting was a tremendous success and I look forward to next year's joint meeting with the Nebraska Physiological Society. The conclusion of this year's meeting also marked the end of my tenure as president of the society, and Robert Dunbar from Buena Vista University officially assumed this position. I would like to take this opportunity to thank the society's board members for their help with planning this year's event, and wish to extend a special word of appreciation to Harald Stauss, the former society president, for his tremendous assistance in making this meeting a success. ❖

Scott H. Carlson
President, Iowa Physiological Society

A Workshop on:
Omics: Assembling Systems-Biology

Chair:
Martin Flück (Berne, CH)
Francisco Andrade (USA)
Ewald Weibel (Berne, CH)
Hans Hoppeler (Berne, CH)

Centro Stefano Franscini
Ascona (Switzerland)
24-28th June 2007

www.omics.ch

New Regular Members

*Transferred from Student Membership

Gabriela Aleman*

Inst. Natl. De Ciencias Med., Mexico

Khaled Alhoms

Massachusetts Gen. Hosp.

Jeff Erick Angermann

Univ. of Nevada, Reno

Matthais Barton

Univ. Hosp., Zurich, Switzerland

Patrice Moira Becker

Johns Hopkins Univ., MD

Ibrahim Fadil Benter

Kuwait Univ. Fac. Med., Kuwait

Annie Beuve

UMDNJ, Newark, NJ

David Trumbull Blake

Medical College of Georgia

Barry Joseph Bradford

Kansas State Univ.

Elizabeth L. Brandon

Univ. of Mississippi Med. Ctr.

Kirsten Brukamp

Massachusetts Gen. Hosp.

Rebecca D. Burdine

Princeton Univ., NJ

Tanya Lee Butler

Childrens Hosp., Westmead, Australia

Alejandro Caicedo

Univ. of Miami, FL

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Univ. of Melbourne, Australia

Anantha Vijay R. Santhanam

Mayo Clinic, MN

Manuela M. Santos

CHUM Hosp. Notre-Dame, Canada

Monica Akemi Sato*

Faculdade de Med, Santo Andre, Brazil

Simon Schenk*

Univ. of California, San Diego

Gregg L. Semenza

Johns Hopkins Univ. Sch. Med., MD

Bhawana Sharma

Appolo Clinic, Pitampura, India

Pengxiang She

Penn State Coll. Med.

Jeremy A. Simpson

Queen's Univ., Kingston, Canada

Inderjit Singh

Medical Univ. of South Carolina

Mahipal Singh

East Tennessee State Univ.

Om V. Singh

Johns Hopkins Sch. Med., MD

D. Max Snodderly

Univ. of Texas, Austin

Wen-Jie Song

Kumamoto Univ. Sch. Med., Japan

Abdelilah Soussi Gounni

Univ. of Manitoba, Winnipeg, Canada

Arohan R. Subramanya

Univ. of Maryland

Veronica A. Swystun

Univ. of Calgary, Canada

Keiji Tanaka

RIKEN Brain Science Inst., Japan

Indu Taneja

New York Med. Coll.

Ann Adaeze Tobin

Medical College of Wisconsin

Jason R. Treberg*

Mem. Univ. Newfoundland, Canada

Arul Veerappan

Cornell Univ., NY

Neeraj Vij

Johns Hopkins Univ., MD

Ai Ling Wang

Northwestern Univ., IL

Qin Wang

Columbia Univ., New York

Sheldon Weinbaum

City College of New York

Adam T. Whaley-Connell

Univ. of Missouri-Columbia Sch. Med.

Jonathan E. Wingo*

Inst. Exercise/Environ. Med., TX

Ian C. Wood

Univ. of Leeds, United Kingdom

David C. Wright*

Univ. of Alberta, Canada

Jun Xie

Univ. of Oklahoma HSC

Binbin Yan

Univ. of Central Florida

Weimin Yang

East Carolina Univ., NC

Yifan Yang*

Univ. of California, Irvine

Stanley D. Yokota

West Virginia Univ.

Han-Gang Yu

West Virginia Univ.

Yidan D. Zhao

Univ. of Illinois

You-Yang Zhao

Univ. of Illinois, Chicago

Fuwen Zhou

Univ. of Tennessee HSC

Yi Zhun Zhu

Fudan Univ., Shanghai, China

Jian Zhuge

Mt. Sinai Sch. Med., NY

New Student Members

Olusoji Adalumo

Ladoke Akintola Univ. of Tech., Nigeria

Mirna Alameddine

Univ. of Sao Paulo, Brazil

Mohammed Ali

Medical College of Georgia

Md. Shahrir Amin

Univ. of Ottawa, Canada

Abhishek Banerjee

Univ. of Oxford, UK

Lauren Bell

Indiana Univ. Sch. of Med.

Kiersten Berggren

Univ. of Wisconsin, Milwaukee

Stewart Berry

Colorado St. Univ.

Nicole Bies-Hernandez

Fayetteville State Univ., NC

Jeremy Bjorlie

Univ. of Oklahoma

Glenn Booker

Drexel Univ., PA

Timothy Bradshaw

Univ. of Kentucky

Alexander Braun

Mt. Sinai Sch. of Med., NY

Robert Buresh

Univ. of Nebraska Med. Ctr.

Keith Burley

Northern Michigan Univ.

Sarah Burris

Saint Louis Univ., MO

Xian Cao

Michigan St. Univ.

Aaron Cardon

Baylor College of Medicine, TX

Samuel Carmichael

Univ. of Kentucky

Shanon Casperson

Univ. of Texas Medical Branch

Heidy Castellon

California Poly Tech., Pomona

Jason Collett

Univ. of Kentucky

Silvana Constantinescu

Univ. of Southern California

Robin Craig

Kansas State Univ.

Patricia Cross

James H. Quillen Coll. Med., TN

Michael Dattilo

SUNY Downstate Med. Ctr., NY

Michael Davanzo

East Carolina Univ., NC

Elise Demitrack

Univ. of Cincinnati, OH

Sue Ebanks

Univ. of Miami, FL

Sherif Elbasiouny

Univ. of Edmonton, Alberta, Canada

Chijioko Ezekunie

Univ. of Lagos, Nigeria

Dhanvnjaya Gaddam

Univ. of Georgia

Barbara Gajda

Univ. of British Columbia

Jorge Gamboa

Univ. of Kentucky

Joel Charles Geerling

Washington Univ. Sch. of Med.

Hassan Gorji

Queens Univ., Canada

Jennifer Guimbellot

Univ. of Alabama, Birmingham

Bilal Haider

Yale Univ., CT

Young Han

Mayo Clinic Coll. Med., MN

Tanoya Harris

Univ. of Toledo, OH

Rachael Harrison

Univ. of Florida

Leighton Hinkley

Univ. of California, Davis

Benjamin Hodnett

Univ. of Mississippi

Deanna Hostler

Univ. of Pittsburgh, PA

Wei-Li Hsu

Univ. of Delaware

Wenjuan Jobgen

Texas A&M Univ.

Scott Kelly

Univ. of California, Riverside

Sheng Kia

Shin Chien Univ., Taiwan

Anders Kristensen

Aarhus Univ., Denmark

Michael La Fountaine

Columbia Univ., NY

Melissa Laird

Medical College of Georgia

James Lang

Pennsylvania State Univ.

Dongmei Liu

Univ. of Maryland

Andrew Ludlow

Univ. of Maryland

Sivagnanasundaram Mahindan

Carleton Univ., PA

Marlina Manhiani

Medical College of Georgia

Eric Marrotte

Michigan State Univ.

Jeremy Mauldin

Univ. of Virginia

Joseph McClure

Wayne St. Univ., MI

Lachlan McDowall

Univ. of Sydney

Michael Mestek

Auburn Univ., AL

Mark Miedel

Univ. of Pittsburgh, PA

Supriya Mocherla

Virginia Commonwealth Univ.

Ethan Mohns

Univ. of Iowa

Jasmine Nelson

Univ. of Missouri, Columbia

Gladys Ngho

Univ. of Louisville, KY

Nicloe Nichols

Wright St. Univ., OH

Yvonne Niederbracht

Univ. of Maryland

Jessica Otis

Univ. of Wisconsin, Madison

Madhusudhan Papasani

Univ. of Idaho

Dipan Patel

Massachusetts Coll. of Pharmacy

Aaron Polichnowski

Medical College of Wisconsin

Peter Rasmussen

Univ. of Copenhagen, Denmark

Theresa Ray

Univ. of Massachusetts, Amherst

Kyle Root

Colorado State Univ.

Odrick Rosas

Univ. of Puerto Rico, Sch. of Med.

Matthew Rose

Baylor College of Medicine, TX

Dorothea Rosenberger

Univ. of Louisville, KY

Anna RozenBoyn

SUNY, Downstate, NY

William Sagastegui

Univ. Nacional De Trujillo-Peru

Jacob Samba

SUNY, Downstate, NY

Ciprian Sandu

Univ. of Tuebingen, Germany

Jose Santiago

Univ. of Puerto Rico, Sch. of Med.

Joshua Scallan

Univ. of Missouri, Columbia

Lucia Seminario-Vidal

Univ. of North Carolina

Rahamthulla Shaik

West Virginia St. Univ.

Patricia Shamhart

Northeastern Ohio Univ. Coll of Med.

Tabitha Shen

SUNY, Stony Brook, NY

Ryan Sheppard

Univ. of Maryland

Alexis Simpkins

Medical College Georgia

Thomas Smith

Univ. of Oxford, UK

Matt Stock

Univ. of Nevada, Las Vegas

Kin Ki Tai

Univ. of Hong Kong

Misty Thompson

Univ. of Arkansas

Inimary Toby

Childrens' Res. Inst., OH

Alia Toro

Ponce School of Med., Puerto Rico

Johanne Tremblay

Univ. of Montreal

Martin Tresguerres

Univ. of Alberta, Canada

Radhika Vaishnav

Univ. of Kentucky

Norma Velazquez-Ulloa

Univ. of California, San Diego

Lisa Vislocky

Univ. of Connecticut

Pei-Jen Wang

Natl. Chung Hsing Univ., Taiwan

Nolan Wildfire

Elon Univ., NC

Crystal Ybanez

Texas A&M Univ., Corpus Christi

Zinta Zarins

Univ. of California, Berkeley

Xueping Zhou

West Virginia Univ.

Lixin Zhu

Univ. of California, Berkeley

New Affiliate Members

Richard L. Faircloth

Anne Arundel Comm. College, MD

Leanne M. Wier

Rose State College, OK

Recently Deceased Members

Herman Cohen

Irvington, VA

D. Eugene Copeland

Woods Hole, MA

Gary A. Dudley

Athens, Ga

Henry P. Mauck, Jr.

Richmond, VA

Manuel Schwartz

Louisville, KY

Aloysius H.J. Visschedijk

The Netherlands

Fred N. White

San Antonio, TX

2006 APS Intersociety Meeting Comparative Physiology 2006: Integrating Diversity October 8-11, 2006, Virginia Beach, VA

The 2006 APS Intersociety Meeting: Comparative Physiology 2006: Integrating Diversity was held in the seaside city of Virginia Beach, VA. The meeting took place over four days at the modern Virginia Beach Convention Center, which was a short distance from the sandy beaches, lapping waves, and the oceanfront boardwalk. The Organizing Committee, chaired by David Goldstein, Wright State University, included Jon Harrison, Arizona State University; Harvey Lillywhite, University of Florida; Berry Pinshow, Ben Gurion University of the Negev; and Nora Terwilliger, University of Oregon. The organizers worked together to select the wide array of different symposia, plenary lectures, speakers, topics, and social networking opportunities in order to make this meeting exciting and productive for the attendees.

The conference was attended by 363 total registrants, of whom 35% of registrants were represented by young scientists, including 23 postdoctoral and 104 students. Fifty-eight attendees were APS members (16%), 53 attendees were nonmembers (15%), and invited chairs and speakers made up the remaining 122 registrants (33%). Table 1 (below) shows the breakdown of the different registration types. The meeting program also attracted a large group of registrants from outside of the United States. Out of the 363 registrants, 129 (36%) represented countries from Australia, Argentina, Canada, Denmark, Finland, France, Germany, Israel, Italy, Japan, Mexico, Nigeria, Norway, Taiwan, The Netherlands, Turkey, South Africa, Sweden, and the United Kingdom.

The meeting program consisted of a series of concurrent symposia each morning on a wide variety of topics. The audience was encouraged to share their

ideas and thoughts with the speakers at the end of their talks. Each afternoon the attendees were invited to listen to distinguished keynote lecturers in the field of comparative physiology in the plenary sessions. The plenary lecturers were Theunis Piersma, University of Groningen; Tyrone Hayes, University of California, Berkeley; Terrie Williams, University of California, Santa Cruz; and Carlos Martinez del Rio from the University of Wyoming, respectively. The meeting also had several social activities including a Welcome and Opening Reception, which gave the attendees a chance to meet with long time colleagues and enjoy some hot and cold hors d'oeuvres and wine. There were also four poster sessions where scientists presented their work. A social event held on Monday at the Virginia Aquarium and Marine Science Center provided registrants with an opportunity to view many different underwater animals including, sea turtles, seals, and numerous species of fish. The evening was concluded with a 3-D Imax Presentation of The Deep, which took the audience on an underwater tour of some of our deepest oceans.

A total of 292 abstracts were submitted for the meeting. A hundred and ninety-one of these abstracts were programmed as poster presentations. The remaining 101 abstracts were submitted by invited speakers. Of the abstracts submitted for the meeting, 73 (20%) had a female first author;



Meeting Organizer, David Goldstein at the Banquet and Awards Dinner.

109 (37%) were submitted from institutions outside of the United States, including 46 from Canada, 36 from Europe, eight from Australia, seven from Taiwan, as well as abstracts from Argentina, Israel, Iran, Nigeria, and South Africa.

On Wednesday evening, Goldstein hosted the Banquet and Awards Presentation dinner, which also included the Scholander Lecture. Attendees gathered at the Sheraton Oceanfront ballroom for evening dinner, wine and conversation with new and old colleagues. After much anticipation, the winner of the highly competitive Scholander Competition was announced. The first place winner was Rudolf Schilder from Pennsylvania State University. Schilder received a certificate, waived registration, and a

Table 1. Registration Statistics.

Registration Type	Number of Attendees (%)
APS Member	58 (16)
APS Retired Member	2 (1)
Nonmember	53 (15)
Postdoctoral	23 (6)
Student	104 (29)
Invited Chairs/Speakers	122 (33)
Total	363



APS President-Elect, Hannah Carey and co-organizer, Jon Harrison congratulate the Scholander Award winner (Schilder) and runner-ups. L-R: Hannah Carey, Rudolf Schilder, Sami Noujaim, Peter Piermarini, Maria Serrat, and Jon Harrison.



Attendees discuss their work during the poster sessions.

cash prize. Three runner-ups were also recognized at the presentation for their work presented in the competition, including Maria Serrat, Kent State University; Peter Piermarini, Cornell University; and Sami Noujaim, SUNY, Upstate. Each received a cash prize and a certificate. The banquet concluded with the Scholander Lecture which was presented by David Jones of the University of British Columbia.

There were 42 recipients of the Research Recognition Award for Outstanding Abstract by a Graduate Student or Postdoctoral Fellow presented earlier in the meeting. The following awardees were presented with a certificate and cash prize: Gisela Lannig, Alfred Wegner Institute, Germany; Leslie Babonis, University of Florida; Tomasz Owerkowicz, University of Adelaide, Australia; Julia Rein, University of Potsdam, Germany; Timothy Muir, Miami University; Kenneth Welch, University of California, Santa Barbara; Bettina Schewe, University of Potsdam, Germany; Cheng-Hao Tang, National Chung-Hsing University, Taiwan; Niv Palgi, Ben Gurion University, Israel; Pei-Jen Wang, National Chung-Hsing University, Taiwan; I-Dar Shen, National Chung-Hsing University, Taiwan; Francois Vezina, Royal Netherlands Institute for Sea Research, The Netherlands; Amanda Szucsik, University of California, Irvine; Nathan Miller, Michigan State University; Lobke Vaanholt, University of Groningen, The Netherlands; Jody Wujcik, University of Maine;

Dominique Maillet, University of Ottawa; Catalina Reyes, University of British Columbia; Michael Elnitsky, Miami University; Susan Smith, University of Rhode Island; Patrick Baker, Miami University; Johannes Overgaard, National Environment Research Institute, Denmark; Jill Prewitt, University of Alaska, Anchorage; Keri Lestyk, University of Alaska, Anchorage; Blazej Andziak, City College of New York; Gian Paolo Volpato, Massachusetts General Hosp.; Andrew Carroll, Harvard University; L. Elaine Epperson, University of Colorado Health Science Center; T. Todd Jones, University of British Columbia; Rashpal Dhillon, Queen's University, Canada; Emanuel Azizi, Brown University; Brian Bostrom, University of British Columbia; Mette Hagensen, University of Aarhus, Denmark; Kristin Schubert, University of Groningen, The Netherlands; Elizabeth Orr, University of Alberta; Chun-Yen Huang, Tunghai University, Taiwan; Nann Fangue, University of British Columbia; Lene Petersen, Memorial University of Newfoundland; Alexander Gerson, University of Western Ontario; and Rebecca Watson, University of California, San Diego. Graham Scott of the University of British Columbia and C. Jaco Klok of Arizona State University were awarded the August Krogh Research Recognition Travel Award. In addition, Sydella Blatch, Arizona State University; Andrew Clark, University of California, Irvine; Sue Ebanks, University of Florida; Erica Gonzalez, Baylor College of Medicine; Mervin Hastings, University of British Columbia; and Adrienne Prysock of the Georgia Institute of Technology were the recipients of the Porter Physiology Development Committee's Minority Travel Fellowship Award, which is provided to encourage participation of under-represented minority students. With support from the National Institutes of Diabetes and Digestive and Kidney Diseases (NIDDK), the fellowship provides reimbursement of all expenses associated with travel and participation in the conference. The recipients were matched with the following APS members: Gregory Florant, Colorado State University; Holly

Shiels, University of Manchester; Siribhinya Benyajati, University of Oklahoma Health Science Center; Alice Villalobos, University of Rochester; Amanda Southwood, University of North Carolina, Wilmington; and Thomas Roberts, Brown University, who were attending the conference, offered guidance and made introductions to the other scientists.

The American Physiological Society and the Organizing Committee gratefully acknowledges the financial support provided through generous educational grants from NIH-NIDDK, National Science Foundation, The Society for Integrative and Comparative Biology, the European Society for Comparative Physiology and Biochemistry, Sable Systems International, *Comparative Biochemistry and Physiology Journal*, *Journal of Experimental Biology*, *Physiological and Biochemical Zoology Journal* and the *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology*. ❖



David Jones presented the Scholander Lecture during the banquet.

2006 APS Conference Physiological Genomics and Proteomics of Lung Disease November 2-5, 2006, Fort Lauderdale, FL

The 2006 APS Conference: Physiological Genomics and Proteomics of Lung Disease, was held in sunny Fort Lauderdale, FL. The meeting took place over four days at the Marriott Fort Lauderdale North hotel, which was a short distance from the sandy beaches of Lauderdale-by-the-Sea, the delightful upscale Las Olas Boulevard, with its quaint shops and gourmet restaurants, and the numerous golf courses. The Organizing Committee, chaired by Usha Raj, Harbor-University of California, Los Angeles, and included Kenneth Adler, North Carolina State University; Jahar Bhattacharya, Columbia University; Joe Garcia, University of Chicago Medical Center; Michael Matthay, University of California, San Francisco; Thomas Martin, Seattle VA Medical Center; Brooke Mossman, University of Vermont, College of Medicine; and Bruce Pitt, University of Pittsburgh. The organizers worked together to select the wide array of different symposia,



Usha Raj congratulates the student winners of the Research Recognition Award for Outstanding Abstract, from L-R: Mathieu Marino, Xiaoming Gong, Melanie Konigshoff, Vihasa Vasu, Stephanie Kaestle, and Usha Raj.

keynote lectures, speakers, topics, and social networking opportunities in order to make this meeting exciting and productive for the attendees.

The conference was attended by 138 total registrants, of whom 15% of regis-

trants were represented by young scientists, including nine postdoctoral and 11 students. Twenty-six attendees were APS members (19%), 48 attendees were non-members (34%), and invited chairs and speakers made up the remaining 44 registrants (32%). Table 1 (below) shows the breakdown of the different registration types. The meeting program also attracted a large group of registrants from outside of the United States. Out of the 138 registrants, 19 (14%) represented countries from Brazil, Canada, Germany, Iceland, Ireland, Mexico, Portugal, South Korea, and the United Kingdom.

The meeting program consisted of five symposia on a wide variety of topics. The audience was encouraged to share ideas and thoughts with the speakers at the end of their talks. There were also two sessions that included short oral presentations of submitted abstracts that gave postdoctoral fellows and students the opportunity to present their work to their peers. During the meeting there were two keynote lectures that were



Meeting organizer Usha Raj (right), congratulates the postdoctoral fellows winners of the Research Recognition Award for Outstanding Abstract. From L-R: Judie Howrylak, Om Singh, Jeffrey Lande, and Usha Raj.

presented. Allen Cowley, Jr., of the Medical College of Wisconsin discussed a topic entitled, "Genomic Approaches to Complex Diseases," and David Schwartz of National Institute of Environmental Health Sciences, NIH presented, "Environmental Genomics and Human Health." The meeting also had several social activities including a Welcome and Opening Reception, which gave the attendees a chance to meet with long time colleagues and enjoy some hot and cold hors d'oeuvres and wine. There were also two poster sessions where scientists presented their work.

A total of 58 abstracts were submitted for the meeting. Fifty of these abstracts were programmed as poster presentations. The remaining eight abstracts were submitted by invited speakers. Of the abstracts submitted for the meeting, 19 (33%) had a female first author; 11 (19%) were submitted from institutions outside of the United States, including eight from Europe, two from South Korea, and one from Brazil.

On Saturday evening, Raj hosted the Banquet and Awards Presentation dinner. Attendees gathered at the hotel's

Table 1. Registration Statistics.

Registration Type	Number of Attendees (%)
APS Member	26 (19)
Nonmember	48 (34)
Postdoctoral	9 (7)
Student	11 (8)
Invited Chairs/Speakers	44 (32)
Total	138

ballroom for evening dinner, wine, and conversation with new and old colleagues. During the dinner, eight postdoctoral fellows and students were recognized as the recipients of the Research Recognition Award for Outstanding Abstract by a Graduate Student or

Postdoctoral Fellow. The following individuals were presented with a certificate and cash prize: Jeffrey Lande, University of Minnesota; Om Singh, Johns Hopkins School of Medicine; J u d i e H o w r y l a k , University of Pittsburgh; Stephanie Kaestle, Charite University of Medicine, Berlin, Germany; Vihas V a s u , University of California, Davis; Melanie Konigshoff, University of Giessen

Lung Center, Germany; Xiaoming Gong, Cleveland Clinic Foundation; and Mathieu Marino, University of Geneva, Switzerland. In addition, Jessenia Alcocer, Universidad Metropolitana, Puerto Rico and Arnaldo Pica, University of Medicine & Dentistry of New Jersey, were the recipients of the Porter Physiology Development Committee's Minority Travel Fellowship Award, which is provided to encourage participation of under-represented minority students. With support from the National Institutes of Diabetes and Digestive and Kidney Diseases



Raj presents Jessenia Alcocer a certificate for the Porter Physiology Development Committee's Minority Travel Fellowship Award.

(NIDDK), the fellowship provides reimbursement of all expenses associated with travel and participation in the conference. The recipients were matched with two APS members: Thomas Schmidt, University of Iowa, and Oliver Eickelberg, University of Giessen, Germany, who were attending the conference, offered guidance and made introductions to the other scientists.

The American Physiological Society and the Organizing Committee gratefully acknowledges the financial support provided through generous educational grants from NIH-NIDDK, NIH-NHLBI, NIH-NIEHS, and Sepracor, Inc. ❖

Horwitz Receives Fourth Schmidt-Nielsen Distinguished Mentor and Scientist Award



Barbara A. Horwitz

The APS Women in Physiology Committee is pleased to announce that Barbara A. Horwitz, Distinguished Professor of Physiology and Vice Provost for Academic Personnel at the University of California, Davis, has been selected as the fourth recipient of the Bodil M. Schmidt-Nielsen Distinguished Mentor and Scientist Award. The Committee was extremely impressed with both her mentoring excellence and her outstanding contributions to physiological research.

Horwitz received her PhD at Emory University. She did her postdoctoral training at the University of California, Los Angeles and Davis before being appointed Assistant Research

Physiologist in the Department of Physiological Sciences at Davis and subsequently, Assistant Professor in the Department of Animal Physiology. She rose through the academic ranks and in 1978 was named Professor of Physiology and in 2003, Distinguished Professor. She served as Chair of the Department of Animal Physiology from 1991-1993; and after the Department was reorganized/renamed as the Section of Neurobiology, Physiology and Behavior in 1993, she continued to serve as Chair of the Section until 1998. In 2001, she was named the Vice Provost for Academic Personnel, a position she continues to hold.

Horwitz has a very successful research program, contributing significantly to fundamental research in the field of genetic, neural, and hormonal regulation of energy balance. Her current research is focused on the underlying mechanisms associated with altered gene expression and brain regulation of energy balance in genetic and diet-induced animal models of obesity; the cellular and molecular mechanisms underlying sympathetic (adrenergic) stimulation of energy expenditure; the role of mitochondrial uncoupling proteins in energy balance and oxidative stress; and the physiological basis of altered metabolism during various stages of aging. For her research, she has received an NIH MERIT Award, as well as being named a Fellow of the AAAS.

Horwitz successfully mentored eight postdoctoral fellows, 11 predoctoral students, and countless undergraduates. A significant number of Horwitz's undergraduate mentees have obtained a PhD or other post baccalaureate/professional degrees. Her graduate student mentees

have gone on to a wide variety of positions, mostly in academia, and are leading successful scientific careers with national funding. The majority of Horwitz's mentees are also well respected college and university teachers, receiving teaching awards themselves. All of the people writing the supporting recommendation letters (many of whom started out as undergraduate students in Horwitz's classes) attested to Horwitz's dedication, commitment, her life-long hands-on mentoring, and her outstanding teaching ability. Horwitz is credited for her ability to instill students with fascination of science, passion for physiology, and strong scientific ethic. It was pointed out that she not only continues to mentor her own students long after graduation but also acts as a mentor to undergraduate and graduate students at University of California, Davis, studying physiology or nutrition, as well as students in the Initiative for Maximizing Student Diversity Program. She is a mentor of junior scientists, whether they are students just starting out, assistant professors establishing their laboratories, or full professors in need of some advice and guidance from a colleague. She has obtained two grants of national funding to develop instructional materials for undergraduate physiology courses and is a principal investigator on a NIH-funded mentoring program (in its ninth year) aimed at increasing the number of under-represented minorities in biomedical research.

Horwitz's teaching and mentoring excellence has been recognized with numerous awards, including the APS Arthur C. Guyton Physiology Teacher of the Year Award, the University of California Presidential Award for Excellence in Fostering Undergraduate Research, the University of California, Davis Prize for Teaching & Scholarly Achievement, and the University of California, Davis Academic Senate Distinguished Teaching Award.

Horwitz will give a talk on mentoring, followed by a reception, at the 2007 Experimental Biology meeting in Washington, DC, on Monday, April 30 at 12:00 pm at the Renaissance Hotel. All trainees and mentors are invited to attend.

APS congratulates Dr. Horwitz on this well-deserved honor.

Medical Physiology Course Directors Experimental Biology 2007 Meeting

Date: Tuesday, May 1

Time: 3:00 - 4:00 pm

Location: Renaissance Hotel, Room To be determined

If you are a medical physiology course director and planning to attend Experimental Biology 2007 in Washington, DC, mark your calendar for the Medical Physiology Course Directors meeting. Come to learn more about:

- the APS web site devoted to course directors;
- how to access information about courses at other institutions;
- how to post information about your course;
- find other resources that could be of use to you;
- talk with other course directors about issues of interest and importance.

APS Launches Second Professional Skills Training Program

APS, in conjunction with the American Society for Microbiology (ASM) and the Society for Developmental Biology (SDB), is pleased to announce the trainees who have been accepted to participate in the new Professional Skills Workshop on "Making Scientific Presentations: Critical First Skills" January 18-21, 2007 in Orlando, FL.

The trainees are:

Sunanda Baliga

Rutgers Univ.

Jose Manuel Ballesteros

Univ. of California, Davis

Betty Booker

Univ. of Alabama at Birmingham

Christina Bracken

Tufts Univ.

Sarah Kimberly Burris

Saint Louis Univ.

Nildris Cruz

Univ. of Puerto Rico

Marielly Cuevas

Ponce School of Medicine

Jessica Dries

East Carolina Univ.

Darah Esther Fontanez-Nuin

Ponce School of Medicine

Jorge L. Gamboa

Univ. of Kentucky

Jose Orlando Garcia

Univ. of Puerto Rico

Katia E. Garcia

Univ. of Puerto Rico

Lisa Gargano

Emory Univ.

Julie Elizabeth Getz

Northern Arizona Univ.

Erica Hutchins

Univ. at Albany

Francie Elizabeth Hyndman

Univ. of Colorado, Denver

Kathryn Jaques

Rutgers Univ./UMDNJ

Maria Kraemer

Mayo Clinic and Foundation

Jenny Rae Lenkowski

Tufts Univ.

Rachel Lindstrom

Univ. of Colorado

Diana Bahrani Marina

San Francisco State Univ.

Karl Dean Pendergrass

Wake Forest Univ.

Ana Eugenia Rodriguez

Univ. of Puerto Rico

Jessica Snow

Univ. of New Mexico

Samantha Steelman

Texas A&M

Amy Jean Steig

Univ. of Colorado

Alia Maria Toro

Ponce School of Medicine

Guermarie Velazquez

Univ. of Puerto Rico

Ixane Velazquez

Univ. of Puerto Rico

Jeffrey Thomas White

Louisiana State Univ.

Nazanin Yaghoobian

Univ. of Southern California

Barbara Jo-Anne Zaffo

Univ. at Albany

APS, ASM, and SDB members participating as mentors and instructors are as follows:

Dale Benos

Univ. of Alabama, Birmingham

Mary Anne Courtney

Univ. of Rochester (ASM)

Rayna Gonzales

Univ. of California, Irvine

Robert Hester

Univ. of Mississippi

L. Gabriel Navar

Tulane Univ.

Jane Reckelhoff

Univ. of Mississippi

Thomas Schmidt

Univ. of Iowa

Annabell Segarra

Univ. of Puerto Rico

The workshop is especially designed to attract underrepresented minority

students. It will bring together trainees from both APS and its partners, the American Society for Microbiology and the Society for Developmental Biology, with experienced mentors and scientists from the three societies.

During the course, trainees will receive hands-on training at developing and making scientific presentations. They are required to complete pre-workshop homework (readings, sending in a draft abstract and poster), as well as additional evening homework during the course.

The course is supported by a grant to APS from the National Institute of General Medical Sciences at the NIH (Grant #GM073062-01).

A second workshop on the same topic will be conducted again on March 8-11, 2007 in Bethesda, MD. For more information or to sign up for email notification of a future short course, see the Professional Skills website at <http://www.the-aps.org/education/professionalskills/>.

APS Trainee Symposia at EB

ASPET/APS Mentoring Workshop

"Being Heard: The Microinequities That Tilt the Playing Field" sponsored by the ASPET Women in Pharmacology and APS Women in Physiology Committees
Monday April 30, 2007, 8:00 -10:00 a.m.
Location to be determined.

APS Refresher Course on Gastrointestinal Physiology Experimental Biology 2007 Meeting

Date: Saturday, April 28; 8:00 am - 12:00 noon

Time: 3:00 - 4:00 pm

Location: Convention Center, Room 145B

Sponsored by the APS Education Committee

Organizers: P.K. Rangachari and L. Britt Wilson

Speakers:

Stephen M. Collins: "Modelling GI Disease: Translating Symptoms into Mechanisms"

Kenton M. Sanders: "Non-Neural Regulation of Motility"

Gary M. Mawe: "Enteric Neural Circuits: How They Work and What Happens When They Don't"

Kim E. Barrett: "New Ways of Thinking About (and Teaching About) Intestinal Epithelial function"

Patangi K. Rangachari: "The Past as Epilogue: Teaching Physiology circa 1907"

Organizers: Susan Steinberg and Holly Brevig (ASPET) and Kathleen Berecek (APS)

Speakers: Joan Steitz, "Beyond Bias and Barriers: A Report on the NAS Report on Women in Academic Science and Engineering;" Barbara Horwitz, Title to be determined; Jeanine D'Armiento, Title to be determined; Florence Haseltine, Title to be determined

APS Careers Symposium

"Guide for Successful Collaboration: From the Handshake to the Collaborative Research Agreement" sponsored by the APS Career Opportunities in Physiology Committee

Monday, April 30, 2:00 - 4:00 pm
Convention Center, Room 159A/B

Organizers: Douglas G. Johns and Catherine F. T. Uyehara

Speakers: Stephanie W. Watts, "Initiating Successful Collaborations: A How-to Guide;" Stephen A. Douglas, "The Many Facets of Collaboration with the Pharmaceutical Industry;" Jay Winchester, "Collaborative Research Agreements: Getting Through the Legal Hurdles;" Colonel Janet Harris, "Collaboration with the Military: Getting Access to Military Resources"

APS Trainee Symposium

"Multiple Career Paths for a Physiologist: Understand Your Options

and How to Get There" sponsored by the APS Trainee Advisory Committee

Tuesday, May 1, 8:00 - 10:00 am
Convention Center, Room 147B

Organizers: Erica Wehrwein, Jennifer Pluznick, and Sean Stocker

Speakers: Margaret Anderson, "Perspectives from a Small Undergraduate College;" Jelveh Lameh, "Opportunities in Industry: Small Pharmaceutical/Biotechnology Company;" Edward J. Zambraski, "Perspectives from a U.S. Government Scientist;" Keri Poi, "Insight into a Career in Scientific Writing." ❖

Twenty Precollege Teachers Participating in the 2006 Frontiers in Physiology Fellowship Program

Since April of 2006, 20 teachers have been participating in the year-long "Frontiers in Physiology" and "Explorations in Biomedicine" Professional Development Fellowship programs. These nationwide fellowship programs pair a middle or high school teacher with an APS member to conduct biomedical research during the summer of 2006. The Research Teachers (RTs) learn first-hand how the research process works.

In July, the RTs also spent an intensive workshop week attending the APS Science Teaching Forum at the Airlie Center in Warrenton, VA. The RTs explored inquiry- and equity-based teaching strategies, how to integrate technology into their classroom, and equity issues in science education. A vital component of the week-long Science Teaching Forum is the guidance provided by APS Members serving as the Physiologists-in-Residence and the Mentor/Instructor team composed of past RTs. They facilitated sessions using APS curriculum units and worked with the RTs one-on-one as they developed their own lab/lessons. The Mentor/Instructors work with the 2006 RTs throughout the Fellowship year via email and online activities.

Two dynamic APS members served as Physiologists-in-Residence: Thomas Pressley, Professor of Physiology at Texas Tech Univ. Health Science Center in Lubbock, TX (2007 Education Committee Chair), and the APS' first K-12 Minority Outreach Fellow Mesia Moore Steed, a doctoral student in physiology at the Univ. of Louisville, KY. Pressley and Steed actively and effectively fielded the RTs'

numerous questions related to science content, the use of animals in research, and classroom equity issues. Both were also called on to assist the teachers as they began developing science labs and activities to use in their classrooms. The Lead Mentor/Instructor was Margaret Shain, who teaches middle school at Our Lady of Perpetual Help, New Albany, IN. Other Mentor/Instructors were: Lisa Bidelspach, Clear Creek High School, League City, TX; Isabelle Camille, Coral Reef Senior High School, Miami, FL; Charles Geach, El Paso Independent School District, TX; and Tonya Smith, Southeast Middle School, Hopkins, SC.

The RTs continued their fellowship in the autumn by field-testing their own inquiry-based activity in their classrooms. The RTs are currently participating in online professional development units and will be attending EB 2007 at the conclusion of their fellowship. Look for the special RT ribbons they will be wearing, and congratulate them for completing the year-long, intensive professional development fellowship program.

Over the last 16 years, the APS has partnered with many of the nation's leading biomedical academic, private, and government research facilities to provide research opportunities for more than 300 teachers. Applications for the 2007 Frontiers fellowship program are currently in review. For more information, visit the Frontiers in Physiology website at: <http://www.the-aps.org/education/frontiers/index.htm> or contact Mel Limson in the Education Office at mlimson@the-aps.org.

2006 RTs and Mentors

Robert Bartlett, Morton West High School, Berwyn, IL
Dorothy A. Hanck, PhD, Univ. of Chicago, Chicago

Stephen M. Biscotte, Blythewood High School, Blythewood, SC
Gregory L. Brower, DVM, PhD, Univ. of South Carolina School of Medicine, Columbia

Jason Cox, New Albany High School, New Albany, IN
Jeff C. Falcone, PhD, Univ. of Louisville Health Science Center

Sandra Cross, Camino Real Middle School, Las Cruces, NM
Marvin Bernstein, PhD, New Mexico State Univ., Las Cruces

Rebecca Evans, Granville Intermediate School, Granville, OH
Leif D. Nelin, MD, Columbus Children's Research Institute and The Ohio State Univ.

Tina M. Hale, Ockerman Middle School, Florence, KY
Manoocher Soleimani, MD, Univ. of Cincinnati College of Medicine, Cincinnati, OH

Kathryn Hedges, Campagna Academy Charter School, Schererville, IN
Stephen F. Echtenkamp, PhD, Indiana Univ. School of Medicine-Northwest, Gary

Clare F. Kennedy, Academies@Englewood, Englewood, NJ
Keith J. DiPetrillo, PhD, Novartis Institutes for Biomedical Research, Easter Hanover

Erin Knapp, Lawrence North High School, Indianapolis, IN
Frank A. Witzmann, PhD, Indiana Univ. School of Medicine, Indianapolis

Ramona Lundberg, Deuel High School, Clear Lake, SD
Kaia L. Kloster, PhD, Avera Research Institute/Univ. of South Dakota School of Medicine, Sioux Falls

Kathryn E. Madren, Lawrence Central/Lawrence North High Schools, Indianapolis, IN
Steven J. Miller, PhD, Indiana Univ. School of Medicine, Indianapolis

William Geoffrey Mahl, Seymour Middle School, Seymour, IN
Stephen A. Kempson, PhD, Indiana Univ. School of Medicine, Indianapolis

Robert Manriquez, Many High School, Many, LA
D. Neil Granger, PhD, Louisiana State Univ. Health Science Center, Shreveport

Brandi N. Odom, Verbum Dei High School, Los Angeles, CA
Kenneth D. Philipson, PhD, David Geffen School of Medicine at UCLA, Los Angeles

Melissa Parsons, Norwood Middle School, Norwood, OH
Manoocher Soleimani, MD, Univ. of Cincinnati College of Medicine

Cynthia Pfirrmann, Scotch Plains-Fanwood High School, Scotch Plains, NJ

Nancy R. Stevenson, PhD and Stephen J. Moorman, PhD, UMDNJ-Robert Wood Johnson Medical School, Piscataway

Clemontene Rountree, Northwestern High School, Hyattsville, MD

Georges E. Haddad, PhD, Howard Univ. College of Medicine, Washington, DC

Elmer Sanders, Arsenal Technical High School, Indianapolis, IN
C. Subah Packer, PhD, Indiana Univ. School of Medicine, Indianapolis

Tonya Williams, Kelly Miller Middle School, Washington, DC
Georges E. Haddad, PhD, Howard Univ. College of Medicine, Washington, DC

Maria L. Winston, Edgemont Jr./Sr. High School, Scarsdale, NY
Patric K. Stanton, PhD, New York Medical College, Valhalla

The American Physiological Society Medical Physiology Curriculum Objectives

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

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NEW UPDATES: Cardiovascular and Respiration Section

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

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

APS' PhUn Week Program Highlighted at International Science + Society Conference

In December 2006, the APS K-12 outreach program, Physiology Understanding Week (*PhUn Week*), was selected as one of 14 innovative science education programs to be highlighted at the *Science + Society: Closing the Gap* conference (<http://www.scienceandsociety-conference.com/>).

The Conference, held in Boston last month, is the first science-related event among scientists, educators, media professionals, policymakers and the public to discuss effective and practical ways to improve science communication and enhance science literacy. Participants included former Vice President Al Gore, executives from PBS' "NewsHour," NBC's "Law & Order," the Centers for Disease Control and Prevention, the Wellcome Trust and others.

The APS program *PhUn Week* was selected by conference organizers from among scores of entries received from throughout the United States. On January 20, Marsha Lakes Matyas, APS' Director of Education Programs, presented the strategies behind the program aimed at engaging school age children about physiology.

According to Matyas, *PhUn Week* is a distinctive program of science communication that brings teams of "citizen scientists"—comprised of a senior researcher and his or her undergraduate, graduate and/or postdoctoral students—to the classroom and uses a collaborative approach in working with classroom teachers. During *PhUn Week* classroom visits in November, researchers wear *PhUn Week* t-shirts and engage students in interactive, hands-on physiology activities. Through this real-life, face-to-face encounter with practicing scientists, students learn how scientific discoveries are made. "Initiatives like this impact children's lives and career choices, which can shape the discoveries of tomorrow," says Matyas.

In 2005, the APS initiated a small-scale pilot test of four events in four states that reached more than 500 students. In 2006, the APS Council supported a moderately expanded pilot test to 14 presentation events in nine states

that reached more than 1,000 students. In 2007, *PhUn Week* launches nationally during the week of November 5, with an open invitation to all APS members to participate. For more information, be sure to attend the *PhUn Week* training session on Sunday, April 29 at EB 2007.

PhUn Week is a project of the APS Education Committee, which conceptualized this initiative in 2005, and received support from the APS Council. In two short years, the program has created resources that allow APS members to implement it virtually anywhere. Members are encouraged to become a part of this innovative program. For more information, contact the APS Education Office at education@the-aps.org or 301-634-7132.

For more information about how you can get involved in *PhUn Week*, please visit: <http://www.PhUnWeek.org> and contact Mel Limson in the Education Office at MLimson@The-APS.org.

AAAS Mass Media Fellow Erin Cline Discovers Reporting and "Other Sciences"

Each year, the Society sponsors a fellow to participate in the American Association for the Advancement of Science (AAAS) Mass Media Science and Engineering Fellowship program. The 10-week program is designed to provide scientists with an inside view of the media while helping them sharpen their ability to communicate complex science to a general audience.

This year, with input from the Communications Committee, AAAS selected Erin Cline, who recently earned her PhD from Stanford University. Cline spent her summer working at the Los Angeles Times, the newspaper with the fourth-largest daily circulation in the US. Now that she's finished her newsroom stint, she describes her weeks at the Times:

By 2 p.m. on my first day as a Mass Media Fellow I had my first assignment. I was to write a brief summary of an article published in *Science* about some fossils of a bird called *Gansus yumenensis* that were found in China. I was shocked to be thrown into reporting so quickly. I had no idea of where to begin.

"Call the authors," my editor said. I couldn't believe it. The ink on my ID badge was barely dry. I was going to call

someone and introduce myself as a reporter from the *Los Angeles Times*. I was terrified.

What was I going to ask them? I have to admit that upon reading the paper, I thought "So what?" What more is there to say about a fossil find other than that they found some fossils? Where was the surprising mechanism? Where were the details to walk my readers through? What was I going to write?

But as I talked with the authors of the study, I got caught up in how exciting this finding really was. These guys had gone to an ancient lake bed to hunt for fossils, based on a hunch. They peeled layers and layers of rock away and finally they found something – fossils of the oldest ancestor of the modern bird. And what's more, the fossils were so well preserved that there was actually webbing left in the feet. This showed that *Gansus* had been an aquatic bird, which surprised everyone.

It was exciting to be involved with science that was outside the narrow scope of what I had worked on in graduate school. I had spent so long working on one thing; I had sort of forgotten why I got into science in the first place – the thrill of discovery. I may not have known anything about fossils, but I recognized the feeling that these paleontologists had. The tone of sheer joy in their voices conveyed the excitement of seeing something no one else had ever seen. I began to understand that my new job as a science writer was to let the readers in on all of this.

I interviewed every author on the paper and listened in on a press conference they gave. I tried to learn some quick background on birds and fossils. I started writing. And I wrote and I wrote and I wrote. What I initially thought was so simple and boring ended up taking me three days to complete – and it was only about 300 words long! I had to boil everything down into something that not just a non-expert, but also a non-scientist, could understand and be interested in. I started to get it—science writing is really hard.

Instead of writing about the subjects I had spent so many years studying as a cell biologist (as I had hoped), I ended up spending the summer writing about fossils, spider webs, bats, baby formula, secondhand smoke, celiac disease, ants with amputated legs, the feces of sea salp (similar to a jelly fish), infant screening, breast cancer, biofuel, bird



Erin Cline stands in front of the Los Angeles Times building, where she spent 10 weeks as a AAAS Mass Media Fellow.

beaks, global warming, genetically engineered goat milk, stem cells, bumble bees, Plan B (the morning-after pill), and AIDS drugs. This was the best thing that could have happened to me. Leaving my comfort zone allowed me to see science as the newspaper's readers do—a story that can be very interesting if told right.

The science the public is interested in is not necessarily the science scientists are interested in. I cannot count the number of times I was turned down when I pitched a story about a study that showed very elegantly how some important molecular biological process works. I finally came to understand that the public wants to know about things that will affect them in their daily

lives—"news you can use." They also seem to like stories that are about animals, as well as anything funny or gross.

I learned that no matter what the subject, science is pretty meaningless to the average person without context. On more than one occasion I wrapped up an hour-long phone interview with a study's author and reported back to my editor only to realize I didn't have an answer to his question "Why is this important?" It took me a while to realize that without the answer to this question appearing in the first few lines of my story, no one would ever read what I wrote, no matter how great a scientific discovery it was. I didn't just need to make people understand. I needed to make them care.

My summer as a Mass Media Fellow was spent learning about research I never imagined existed. I talked with scientists from around the world, calling them in their labs, in their offices, at their homes, in restaurants and even in their cars as they drove off on vacation.

I grilled a spokesperson from the NIH and was excited to have asked a tough enough question that he had to say "No comment." I drove around L.A. like a madwoman, reporter's notebook in hand, trying to get that one little quote that would improve a story that was due by 5 p.m.

The whole thing was one of the most exciting experiences of my life. I feel like every day I learned something new about science, the way the news is reported and about myself. Moving from the bench to the reporter's cubicle gave me a renewed interest in science in general and a better understanding of how important it is for the public to understand it.

Cline is now making plans for a post-doc. She hopes to get the chance to do some freelance science writing before starting the next phase of her training and is also finding time to plan for her wedding in March, which she notes "is like a full time job sometimes." ❖

Post-Doctoral Research Physiologist

The Military Nutrition Division of the U.S. Army Research Institute of Environmental Medicine invites applications for a post-doctoral scientist position in the area of exercise metabolism, biochemistry and nutrition as it relates to optimizing human performance. The successful candidate will join a multi-disciplinary research team investigating physiological mechanisms regulating metabolism during exercise, and nutritional countermeasures to sustain and enhance human health and performance during exposure to operational stress, environmental extremes and dietary restrictions. Although a scientist whose research experience involves human subjects is preferred, researchers whose experience involves experimental animal models will be considered. Applicants must have a doctoral degree, a strong background in integrative physiology, exercise-biochemistry, and nutrition, and proficiency with appropriate laboratory methodologies and statistical analyses. Skill in writing and presenting research findings as evidenced through publications is an important selection factor. Applicants must be U.S. Citizens, qualified for and willing to accept a Commission as an Officer in Medical Service Corps of the United States Army, with a commitment to serve on active duty for 3 years. Benefits include salary (including housing and cost of living allowances) of about \$68,000, 30 days plus 10 federal holidays of paid annual leave, medical & dental care for you and eligible family members. Applicants should send a CV and cover letter outlining interest and qualifications to: Dr. Andrew J. Young, Chief, Military Nutrition Division, USARIEM, Natick, MA 01760, or andrew.young@na.amedd.army.mil

APS Offers “Roadmap” Ideas

With the first round of projects funded under the NIH Roadmap for Medical Research coming to an end, the agency put out a call for input from the community for the next set of initiatives. On November 17, 2006 the APS submitted a proposal for “Systems and Integrative Biology: A Collaborative Approach to Translational Research.” The following are excerpts from the APS submission.

“Research into the fundamental molecular components of life has provided the raw materials for understanding the functions of cells, tissues, organ systems, whole organisms and even populations. However, despite tremendous gains in biomedical research there remains a need to apply the findings of molecular biology to organisms in all of their physiological complexity. Doing so will lead to a better understanding of human health and disease, and facilitate the development of new treatments and prevention strategies. To bridge this knowledge gap, we propose a Systems and Integrative Biology (SIB) plan that involves broad coordination of research and training efforts between scientists working at various levels of biological complexity.

“Bringing together reductionist approaches to biological processes with research into whole organism functioning will transform biomedical research and enable strides in translational research. Infrastructure building, investigator-initiated research and training will all be necessary investments for the enterprise in the long-term.

“Animal models are a critical step when moving from basic, *in vitro* or *in silico* experiments to human disease research. Any SIB initiative should support the development of animal models of disease, as well as building infrastructure such as animal housing and new technologies such as live animal imaging. We propose a series of National Research Centers that will support research and training for work with animal models, both small and large. While work with mouse models has generated substantial gains, there is still a need to train investigators to make physiological measurements in such models. Further, mice do not faithfully mimic all aspects of human disease and thus capacity to use larger animal models must be sustained.

“The current NIH structure favors proposals that fall neatly under the mission of single institutes. Integrative proposals may be difficult to categorize, leading to lower success rates. In addition, the complexity of the research often mandates a longer period of time to generate definitive results as compared to other experimental systems. A Roadmap initiative would address these challenges by supporting investigator-initiated SIB research. Resources should be provided for collaborations among physiology, pharmacology, molecular biology, and bioinformatics, among others. By supporting the uniquely collaborative field of integrative biology, a Roadmap initiative will allow researchers to advance their careers and train others, thereby further establishing their presence in the scientific community. When the initiative phases out, the progress made should have established the promise and validity of the research, encouraging more scientists to pursue this area.

“Currently researchers are trained to approach biological problems at a reductionist level, but in order to confirm insights and apply findings from less complex systems (i.e., *in vitro* models) to whole organisms, researchers need to develop a set of skills that combines knowledge of molecular biology with *in vivo* systems. The key to bridging this knowledge gap lies in providing training programs and opportunities in SIB. Education should focus on bringing together scientists with diverse skills and expertise to exchange knowledge, i.e. scientists who focus on the description of molecular events would benefit from working with researchers who define mechanisms in animal models and *vice versa*. The next generation of researchers will need diverse skills to carry out translational research, bridging basic and clinical science. Training should be offered at all levels, from undergraduate to continuing professional education.

“A successful SIB initiative will enhance the research enterprise by facilitating collaboration between disciplines and moving translational research forward. One of the overarching goals in biomedical research is to use basic research findings to improve human health. By incorporating studies of biological functioning at the molecular level into the larger context of organ systems, whole animals, and even human subjects translational research will be

advanced dramatically. The outcomes of the proposed initiative will benefit the missions of all NIH institutes and centers by creating a generation of researchers with diverse skills and collaborative research programs. Because the proposed initiative depends on researchers, both basic and clinical, from diverse fields working together, it would be difficult for any one institute or center to fund making it an appropriate and ideal candidate for a Roadmap initiative.”

Congress Approves NIH Reauthorization

One of the last actions of the 109th Congress was to approve the first NIH reauthorization bill since 1993. The legislation, HR 6164, had been one of the highest priorities for House Energy and Commerce Committee Chairman Joe Barton (R-TX). The bill passed the House on September 26, 2006 by voice vote. A modified version was cleared the Senate on December 8 and got final approval from the House in the early hours of December 9, 2006. The National Institutes of Health Reform Act of 2006 recommends funding levels for the next three years, establishes a Common Fund to support trans-NIH research initiatives, and revises the agency’s reporting requirements.

All expenditures by government agencies must be authorized by Congress. However, because the NIH also operates under the permanent authority of the Public Health Service Act, the agency can function without separate legislation. That has been the case since 1993 as a series of attempts to generate authorizing legislation got bogged down due to controversial provisions, such as human embryonic stem cell research and a host of disease specific initiatives. During the same period, Congressional appropriators filled the gap by giving the agency direction in the report language that accompanies funding legislation. This was where things stood when Rep. Barton assumed the role of Energy and Commerce Committee Chair in 2004. Barton generated the momentum behind the NIH Reform Act of 2006 as he sought to ensure that all agencies within his new committee’s purview were operating under appropriate legislative authority. Chairman Barton cited the doubling of the agency’s bud-

et and recent troubles with conflict of interest as important reasons for reauthorization, and he and his staff worked intensively with the scientific community to win passage of the legislation. Even after the Republicans lost control of the House and the Senate in the mid-term elections, Chairman Barton worked hard to keep the legislation free of disease specific initiatives despite efforts in both chambers to add such provisions.

FASEB and the APS supported H.R. 6164 because of Barton's commitment to support higher funding levels and the addition of reporting requirements to increase transparency in terms of how the budget is being utilized. FASEB was heavily involved in the discussions that produced the legislation and sought to maintain an emphasis on investigator initiated research and the peer review process. The rationale for supporting the NIH Reform Act was to produce legislation that would show strong Congressional support for the NIH while demonstrating to Congress that the agency can be managed in a more efficient and transparent manner.

Key provisions of the final legislation are outlined below.

Funding levels

The NIH Reform Act of 2006 authorizes NIH funding at \$30.3 billion for fiscal year 2007 (a 6% increase over '06), \$32.8 billion for FY 2008 (an 8% increase over the proposed '07 level) and "such sums as necessary" for FY 2009. The term "such sums as necessary" allows appropriators to decide at a later time how much money to allocate. It is important to note that appropriators are not obligated to provide the level of funding specified in an authorization bill. Nevertheless, the recommended increases represent a strong Congressional endorsement of the NIH and its programs.

The "Common Fund"

HR 6164 authorizes the creation of a Common Fund to support research initiatives involving more than one institute or center. Early versions of the bill would have required that 50% of all new funds allocated to the agency go to the Common Fund. When the bill reached the Senate, this provision was removed in the face of pressure from appropriators who did not want to be forced to allocate half of all new monies to the Common Fund. The final version of the bill does not include a specific amount

for the Common Fund, but does require that the amount allocated to the fund will not decrease from year to year as a percentage of total appropriations. If the Common Fund reaches 5% of the total NIH budget, the agency will be required to submit an evaluation report to Congress. Decisions about how the money in the Common Fund will be spent will be made by the Council of Councils, a new advisory board in the office of the Director.

Restructuring

The NIH Reform Act creates a Scientific Management Review Board to review the organization of NIH as a whole and recommend structural changes if needed. There must be a formal review at least every seven years, and the board's reports must be made available to the public. Changes to the structure of the NIH as a whole will be subject to Congressional approval and a public consultation process. The bill also caps the total number of institutes and centers (ICs) at 27, which is the current number. Reorganization within the Office of the Director will be at the discretion of the NIH director, subject to approval by the Secretary of Health and Human Services. Individual IC directors will have authority to make changes within their own ICs, with the consent of the NIH Director.

Reporting Requirements

The NIH Reform Act of 2006 requires the NIH Director to make a biennial report to Congress on NIH activities and the state of biomedical research. The report must also include a strategic plan and recommendations for future research. A number of "categorical" reports are also required on topics such as cancer, neuroscience, autoimmune disease, genomics, infectious disease and minority health and health disparities. The bill requires a report on NIH-funded graduate student education programs and the establishment of a new system to electronically code grants. In addition to the above requirements, each institute and center must submit a yearly report on the percent of its budget that was devoted to trans-NIH activities. The NIH director can waive this requirement if this is deemed inappropriate in light of the IC's mission. However, ICs that fail to comply without receiving a waiver could become ineligible to receive a budget increase the following year.

Animal Enterprise Bill Signed into Law

November 27, 2006, President Bush signed the Animal Enterprise Terrorism Act (AETA) (<http://www.the-aps.org/pa/resources/archives/highlights/AETA.htm>) into law, ensuring stronger protection for the nation's biomedical researchers. The Senate passed the AETA by unanimous consent September 30, 2006 just before Congress went into recess for the election. The measure then went to the House, which passed it by voice vote on November 13, 2006 the first day of the post-election lame duck session. National Association for Biomedical Research (NABR) President Frankie Trull hailed the measure as a "momentous step" and described the legislation as "a key milestone on the path to protecting researchers and their families from intimidation and harassment by extremists."

The passage of the AETA comes at a time when escalations in extremist attacks have placed biomedical researchers in considerable danger. In recent years, anti-research extremists have grown more violent and have expanded their targets beyond animal facilities themselves. In some cases they have targeted not only researchers and other employees but also family members and even businesses that are marginally associated with animal facilities. The AETA enables federal law enforcement to prosecute violence and threats against persons due to their association with research or other activities involving animals.

Opponents claimed that the AETA would have a chilling effect on legitimate protest. House Judiciary Committee Chairman James Sensenbrenner (R-WI) countered this argument on the House floor by pointing out that the language of the bill had been revised to address these concerns. He read the section of the bill that specifically exempts First Amendment protected activities and went on to note that the ACLU had withdrawn its earlier opposition. Senator Patrick Leahy of Vermont, who had originally opposed the act, said that with the revised language "peaceful conduct is not chilled by the threat of federal prosecution."

Humane Society Grows in Budget, Influence

The Humane Society of the United States (HSUS) brought in \$119.9 million in revenue in FY2006, according to the latest edition of the independent publication *Animal People*.

Animal People's "Who Gets the Money?" feature, released each December, advises animal-cause donors on which animal-focused organizations are making good use of their funds. Some of the HSUS increase in income derives from its recent mergers with the Doris Day Animal League, as well as Fund for Animals. The latter group was originally formed after a split with HSUS. Some \$20 million of the HSUS receipts are estimated to be from special contributions for animals affected by Hurricanes Katrina and Rita.

Five years ago, the combined total budgets of the twelve most prominent activist groups involved in biomedical research issues was \$97.6 million. This year the budget of the HSUS alone is \$86 million, a sum not matched by the combined total budgets of the next ten groups.

On November 7, 2006, the *Wall Street Journal* published a front-page article describing the political influence of HSUS. The *Journal* reported that HSUS, with more than twice the membership of the NRA, was putting its political strength to work by trying to elect sympathetic candidates from both parties. According to HumaneUSA.org, the HSUS Political Action Committee endorsed 343 national candidates. Of them, only 34 were defeated. With an average of 23,000 members in each House District, an HSUS endorsement could have played a significant role in some close races.

HSUS CEO Wayne Pacelle told the *Wall Street Journal* that his organization spent money in the closest races where he believed "he can swing about 5% of the vote." All told, HSUS spent \$3.4 million in national campaigns and ballot initiatives and contributed \$150,000 to congressional candidates. The *Journal* noted that HSUS spent more on campaigns than Exxon Mobil and gave more contributions than Halliburton Co.

Pacelle said of HSUS, "We can be an incredibly influential political organization, as powerful as the Chamber of Commerce."

NIH Seeks Input on Data Sharing Policies

On August 30, 2006, the National Institutes of Health (NIH) issued a request for information on a proposed data sharing policy for NIH-funded genome wide association studies (GWAS). The proposed policy would require NIH-funded investigators conducting GWAS to deposit resulting data in a central repository where it would be available for use by other scientists. Individual patient's genotype and phenotype data would be de-identified by the submitting investigators before being placed in the repository and access to the data would be controlled by a data access committee (DAC) at the NIH. Investigators who submit data would have a nine month period of publication exclusivity. During this period, other researchers could access and analyze the information, but would be prohibited from publishing their findings. Scientists who utilize data from the repository would also be required to acknowledge the submitting investigators in their publications.

The NIH held a town hall meeting in December 2006 to hear concerns from the stakeholder community and expects to issue a final policy in the spring of 2007. There remain significant outstanding concerns about informed consent, protection of patient privacy as well as the ability of NIH to enforce rules for those who access the data, but are not funded by the NIH.

The following are excerpts from the APS response to the RFI that was submitted on November 29, 2006.

"Providing access to data generated from government supported research is important to advancing medical science, which is a central part of the NIH mission. The creation of a central repository will facilitate data submission and maintenance, and will also provide a uniform mechanism for ensuring the protection of research participants. While such an endeavor may be costly, providing access through a standardized database platform in the proposed manner is an effective way to access data from multiple research studies and will result in significant benefits to researchers, making it an appropriate use of NIH resources. Currently, data is gathered by reviewing individual published articles and extracting the data from either the article itself or from any

available supplemental materials. Developing a centralized database will be much more efficient than mining data from individual studies.

"There are many possible benefits for scientists who choose to participate in this effort and deposit data in the GWAS repository, including wider recognition of their research and contribution to the knowledge base of the field. However, there are also risks that should be minimized through careful control of access to the repository. The most obvious threat is that other scientists may be able to gain access to the deposited data before the contributing investigator has a chance to publish their findings. Contributing investigators must be allowed ample time to analyze and publish based on the data they generate before it is released for general access. Another risk is that users may fail to acknowledge the original data contributors when they publish their work. The APS urges the NIH to consider ways to prevent and reduce these risks.

"The benefits to those who access the data are clear – researchers will have access to patient data that they otherwise might not be able to collect and analyze. However, because the data will be generated from multiple sources it will be a challenge to ensure the quality, accuracy and reproducibility of the results. Standardization and quality control of data submission will be essential to minimizing that risk. In addition, because researchers wishing to access data will require the approval of their institution's internal review board (IRB), the NIH should be sure to provide adequate training and resources to help institutional IRBs as they deal with this new area.

"For research subjects and patients who choose to participate in GWAS where data will be deposited for wider use, informed consent and privacy protection are critical areas that must be fully addressed. It is important that the informed consent address the many possible end uses of the data generated from submission to the repository. Patients should be made fully aware that their genetic and phenotypic data will be deposited for public use by researchers, and that the data may be used in research that is outside the scope of the current project they have agreed to participate in.

"Allowing access to a patient's genetic information, even after removal of identifying information, creates risk that can

only be minimized within the limits of currently available technology. Despite de-identification of the data, publication of marker data at multiple informative loci constitutes identification of individuals. Recent high profile breaches of sensitive data by government agencies highlight the need to minimize this threat through a careful evaluation of security measures. In addition to ensuring that computer systems and coding protect patient identities, the possibility of experiencing discrimination based on genetic information would be minimized through the passage of genetic non-discrimination legislation. While the APS realizes that this decision rests with the United States Congress and not with the NIH, we take this opportunity to emphasize the importance of this legislation.”

NIH Committee Recommends Against Revising the *Guide*

A National Institute of Health expert committee has determined that the current edition of the *Guide for the Care and Use of Laboratory Animals (Guide)* “continue[s] to be relevant and support[s] the Public Health Service commitment to animal welfare.” The *Guide* was originally published in 1963 and has been revised six times, most recently in 1996. The NIH-convened committee of 12 scientists and veterinarians reviewed comments provided in response to a November 9, 2005 Request for Information. After a year-long review process, during which the committee evaluated 132 reference items submitted by 39 respondents, it concluded unanimously that there was “no scientific evidence that would warrant revising the associated performance standards of the 1996 *Guide*.”

Nevertheless, the committee did make a number of recommendations as far as

updating reference materials. It proposed that the *Guide* become a “living,” web-based document, to enhance the ease with which its appendices may be updated. The committee further recommended that Appendix A be periodically revised using a critical peer-review process so that it will include an updated bibliography of best-practices. The committee also recommended the inclusion of reviews and guidelines of societies such as of the American Veterinary Medical Association (AVMA) and the Ornithological Council and called for an improved dialogue between such societies and ILAR to “help ensure consistency.” It also recommended that, as the body of peer-reviewed literature on new topics accrues that specialized documents be developed, similar to the *ILAR Guidelines for the Care and Use of Mammals on Neuroscience and Behavior*. By doing so, these reference documents could fill gaps in Appendix A of the *Guide*. ❖

Worried about dwindling federal support for biomedical research?

Plan now to visit Congress during EB 2007!

Experimental Biology meeting will be held in Washington, DC this year, providing an excellent opportunity for physiologists to tell members of Congress about the importance of sustained support for biomedical research. The APS Public Affairs Committee and staff are already organizing so that members can easily plan visits to Capitol Hill during EB 2007. See our website: <http://www.the-aps.org/pa/ebweb/> for more details.

To learn more, plan to attend these Public Policy Events:

NIH at the Crossroads: How Diminished Funds Will Impact Biomedical Research and What Scientists Can Do About It, featuring NIH Director Dr. Elias Zerhouni and the Honorable John Porter, former Congressman and longtime NIH champion. Monday, April 30 from 12:45-1:45 pm

Making the case for federally-funded research:

Communicating with Congress

Saturday, April 28, 1 pm-3 pm

For more information on these and all our Public Policy events at EB 2007, go to:

<http://www.the-aps.org/meetings/eb07/program.htm#pa>.



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

Frances Mary Ashcroft
Univ. of Oxford

*"ATP-sensitive K-channels
and Disease: From Molecule
to Malady"*

SATURDAY, APRIL 28, 5:45 PM

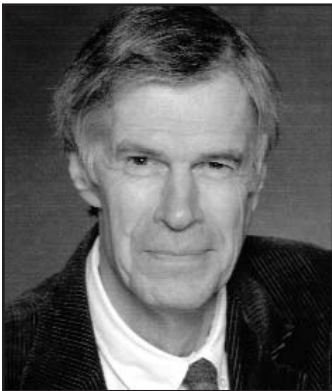


HENRY PICKERING BOWDITCH
AWARD LECTURE

James D. Stockand
Univ. of Texas

*"New Insight Into the
Regulation of ENaC by
Small G Proteins and
Phosphatidylinositides"*

SUNDAY, APRIL 29, 5:45 PM



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

John Andrew Armour
Univ. of Montreal

*"The Little Brain on the
Heart"*

SUNDAY, APRIL 29, 8:00 AM



ROBERT M. BERNE
DISTINGUISHED LECTURESHIP
OF THE CARDIOVASCULAR
SECTION

William C. Sessa
Yale Univ. School of Medicine

*"Regulation of Endothelial
Nitric Oxide Synthase: Cell
Biology to Function"*

SUNDAY, APRIL 29, 10:30 AM



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

Roger D. Cone
Oregon Health and Science
University

*"From Color to Calor: The
Diverse Physiological Roles of
the Melanocortin Peptides"*

SUNDAY, APRIL 29, 2:00 PM

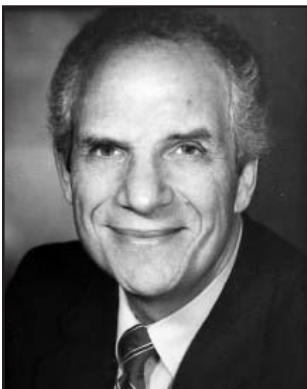


JULIUS H. COMROE, JR.
DISTINGUISHED LECTURESHIP
OF THE RESPIRATION SECTION

Brigid Hogan
Duke Univ. Medical Center

*"Genetic Regulation of Lung
Development and Repair"*

SUNDAY, APRIL 29, 3:15 PM



CLAUDE BERNARD
DISTINGUISHED LECTURESHIP
OF THE TEACHING OF
PHYSIOLOGY SECTION

Hilliard Jason
Univ. of Colorado

*"Becoming a Truly Helpful
Teacher: Considerably More
Challenging—and Potentially
Far More Fun—Than Merely
Doing Business as Usual"*

MONDAY, APRIL 30, 8:00 AM



HUGH DAVSON
DISTINGUISHED LECTURESHIP
OF THE CELL AND MOLECULAR
PHYSIOLOGY SECTION

David Clapham
Harvard Medical School

*"Ion Channels:
Bacteria to Brain"*

MONDAY, APRIL 30, 10:30 AM

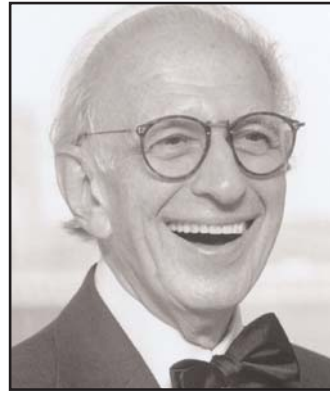


AUGUST KROGH
DISTINGUISHED LECTURESHIP
OF THE COMPARATIVE &
EVOLUTIONARY PHYSIOLOGY
SECTION

David R. Jones
Killam Univ.

"Extra Cardiac Chambers"

MONDAY, APRIL 30, 2:00 PM

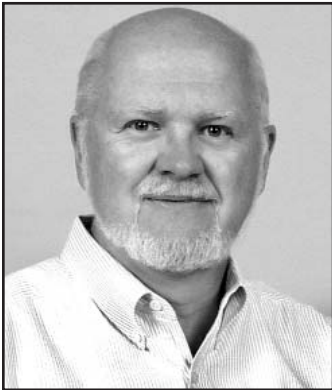


JOSEPH ERLANGER
DISTINGUISHED LECTURESHIP OF
THE CENTRAL NERVOUS SYSTEM
SECTION

Eric Kandel
Columbia Univ.

*"The Long and Short of Long-
Term Memory: Molecular
Mechanisms for Perpetuating
Learning Specific Growth"*

MONDAY, APRIL 30, 3:15 PM



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

Jack A. Boulant
Ohio State Univ.

*"Hypothalamic Neurons and
the Regulation of Body
Temperature"*

TUESDAY, MAY 1, 9:00 AM



CARL W. GOTTSCHALK
DISTINGUISHED LECTURESHIP
OF THE RENAL SECTION

Chris Baylis
Univ. of Florida

*"Nitric Oxide Deficiency
in Renal Disease"*

TUESDAY, MAY 1, 10:30 AM



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

Pedro Jose
Georgetown University,
Children's Medical Center

*"Salt Sensitive Hypertension,
A Problem of
Communication"*

TUESDAY, MAY 1, 2:00 PM



HORACE W. DAVENPORT
DISTINGUISHED LECTURESHIP
OF THE GASTROINTESTINAL &
LIVER SECTION

Mark Donowitz
Johns Hopkins Univ.
School of Medicine

*"NHE3 and its Signaling
Complexes: How a
Transporter is Regulated"*

TUESDAY, MAY 1, 3:15 PM

WALTER C. RANDALL LECTURER IN BIOMEDICAL ETHICS

The Dark Side



Sandra L. Titus
US Dept. Health & Human Services, Office of Research Integrity

*"Research Misconduct:
How to Avoid, Prevent, Detect and Report"*

David Prentice
Family Research Council

*"Motives, Ethics,
and Responsibility in Research"*

TUESDAY, MAY 1, 2:00 PM



Saturday April 28, 2007

Ballroom B	(5:45-6:45 PM): Physiology in Perspective: The Walter B. Cannon Memorial Award Ashcroft	
145B	(8:00 AM-12:00 PM): Refresher Course in GI Physiology Rangachari and Wilson	
146A	(12:30-2:30 PM): Workshop: Emerging Techniques for Ion Channel Studies Hwang and Krafte	(3:00-5:00 PM): Workshop: Chronic Instrumentation in Conscious Small Animals Haywood and Mulrone
146B	(3:00-5:00 PM): MCS President's Symposium: Frontiers of Microcirculation Secomb	(5:30-10:00 PM): MCS Business Meeting and Social
147B	(3:15-5:15 PM): Symp: Human Subject Research Ethics: Issues for Going from Bench to Bedside Portman and Miller	
154A	(4:00-6:45 PM): AFMR Translational Research Development Workshop Zucker	
154B	(4:00-5:15 pm): WEH Trainee Finalist Awards Symp: Brooks	
155	(1:00-3:00 PM): Symp: Making the Case for Federally-funded Research: Communicating with Congress. Worried about Funding Trends? Learn What You Can Do about It. Belloni	

Bowditch Award Lecture

The Bowditch Lectureship is awarded to a regular member, under 42 years of age, for original and outstanding accomplishments in the field of physiology. Selected by the APS President, the recipient presents a lecture at the Experimental Biology meeting, which is considered for publication in the Society journal of their choosing. The recipient receives an honorarium of \$2,500, reimbursement of expenses incurred while participating in the Experimental Biology meeting, and a plaque. The membership is invited to submit nominations for the Bowditch Lecturer. A nomination shall be accompanied by a candidate's curriculum vitae and one letter detailing the individual's status, contributions, and potential.

More information on the award and nomination procedures are available at <http://www.the-aps.org>. Nominations should be sent to: The APS Bowditch Lecture Award, c/o Linda Jean Dresser, 9650 Rockville Pike, Bethesda, MD 20814-3991; or submitted online at http://www.the-aps.org/cgi-bin/Election/Lecture_form.htm.

Physiology in Perspective

Walter B. Cannon Memorial Lecture

The Cannon Memorial Lecture, sponsored by the Grass Foundation, honors Walter B. Cannon, President of the Society from 1913-1916, and is presented annually at the spring meeting to an outstanding physiological scientist, domestic or foreign, as selected by the President-Elect with the consent of Council. The recipient presents a lecture on "Physiology in Perspective," addressing Cannon's concepts of "The Wisdom of the Body." The lecture is considered for publication in the Society journal of their choosing. The recipient receives an honorarium of \$4,000, a plaque, and reimbursement of expenses incurred in association with delivery of the lecture. The membership is invited to submit nominations for this lecture. A nomination shall be accompanied by a candidate's curriculum vitae and one letter detailing the individual's status and contributions.

More information on the award and nomination procedures are available at <http://www.the-aps.org>. Nominations should be sent to: The APS Cannon Lecture Award, c/o Linda Jean Dresser, 9650 Rockville Pike, Bethesda, MD 20814-3991; or submitted online at http://www.the-aps.org/cgi-bin/Election/Lecture_form.htm.

Sunday April 29, 2007

	8:00-10:00 AM	10:30 AM-12:30 PM	3:15-5:15 PM
Ballroom B	Symp: Linking Molecular Profile to Physiology Liang and Lee	Robert M. Berne Distinguished Lectureship of the APS Cardiovascular Section Sessa	Symp: Teaching About Evolution in a Biomedical Context Harrison (5:45-6:45 PM) Henry Pickering Bowditch Award Stockand
145A	Symp: Mechanotransduction Mechanisms of Muscle Hypertrophy: Translation from Rodent to Human Studies Bamman	Symp: Stem Cells in Physiology and Drug Discovery Montrose-Rafizadeh and Hogan	(2:00-3:00 PM): Solomon A. Berson Distinguished Lectureship Cone Symp: Insulin Resistance and the Cardiometabolic Syndrome: Adipose Tissue and Skeletal Muscle Factors Sowers and Stump
145B	Symp: Interrelations Between Transcellular Ion Transport Function and Paracellular Tight Junctional Properties in Lung Epithelial and Endothelial Barriers Kim and Lewis	FT: Epithelial Ion Channels Snyder and Cormet-Boyaka	Donald Reis Memorial Featured Topic Scheuer
146A	Symp: Pharmacogenomics of Estrogen and Cardiovascular Disease Miller and Harman		Phys InFocus: Novel Technologies in Physiology and Medicine. Novel Approaches to Structure-Function Relations in Membrane Transport Proteins Miller
146B	Symp: Protein O-linked N-acetylglucosamine (O-GlcNAc): Nutrient Sensor and Modulator of Cardiovascular Function Davidoff and Seymour	Symp: PPAR γ : a Novel Molecular Target in Lung Disease Hart	(3:15-4:15 PM): MCS Landis Award Lecture TBA
146C	(8:00-9:00 AM): Carl Ludwig Distinguished Lectureship of the APS Neural Control & Autonomic Regulation Section Armor Minisymposium: Neurocardiology: How a Big Heart Engaged Neural Complexity and Opened Our Eyes Ardell	Symp: Connexins and the Kidney Peti-Peterdi and Willecke	(3:15-4:15 PM): Julius H. Comroe, Jr. Distinguished Lectureship Hogan (4:15-6:00 PM): Graduate Student Highlights in Respiration Physiology Margulies and Neubauer
147A	Symp: Transport-Metabolism Coupling through AMPK Hallows and McDonough	Symp: Respiratory Control in Insects: Integration from the Gene to the Organism Kirkton	Symp: Breakthroughs in Protection of the Ischemic Heart Jones and Murphy
147B	Symp: Emerging Insights into the Purinergic Signaling in Renal, Pulmonary and Microvascular Physiology and Pathophysiology Kishore and Inscho	FT: Growth Factors, Proliferation and Differentiation in the Gastrointestinal System Zavros	SEBM Symp: Nanotechnology, Biology, and Medicine in SEBM's Second Century Sobel and Blake
154A	FT: Emerging Properties and Concepts in Respiratory Rhythm Generation McCrimmon and Milsom	Tutorial: Publishing 101: Dos and Don'ts of Publishing in APS Journals Barrett	FT: Muscle Fatigue Renaud and Nosek
154B	Symp: Physiological Genomics: From Bench to Bedside Old and Dwinell	Symp: Alternatives to Animal Experimentation Revisited Toth	CVS YIA FT: Diabetic Vascular Disease: Pathology and Mechanisms Chitale
155	FT: Circadian Rhythms: From Animals to Humans Refinetti	FT: Neural-Glial-Vascular Communication in the Brain Filosa and Newman	FT: Osmoregulatory Signaling Burg

Monday April 30, 2007

	8:00-10:00 AM	10:30 AM-12:30 PM	3:15-5:15 PM
Ballroom B	Phys InFocus: Novel Technologies in Physiology and Medicine. Experimental Evolution as a Tool of Physiological Analysis Rose	(10:30-11:30 AM): Hugh Davson Distinguished Lectureship of the APS Cell & Molecular Physiology Section Clapham	(3:15-4:15 PM): Joseph Erlanger Distinguished Lectureship of the APS Central Nervous System Section Kandel
145A	FT: Endothelial and Epithelial Signaling in Lung Bhattacharya	MCS Young Investigator Symp: Computational Microcirculation Wu	Symp: Intercellular Regulation of Smooth Muscle Contraction Sanderson and Gunst
145B	(8:00-9:00 AM): Claude Bernard Distinguished Lectureship of the APS Teaching of Physiology Section Jason	FT: Hypertension: Integrated Mechanisms and Sequelae Navar and Granger	FT: O2 Sensing by Central Nervous System Solomon and Neubauer
146A	Symp: Functional Imaging of Autonomic Circuits: New Frontiers in Optical Approaches and Applications Potts and Rogers	Symp: New Horizons in Cardiovascular Aging Kaley and Ungvari	Symp: Use of Genome Variation in Understanding Complex Disease and Genome Regulation Kwitek and Stoll
146B	BMES Symp: Endothelial Cell Mechanotransduction: Roles of Glycocalyx, Membrane, and Cytoskeleton Butler and Tarbell	Symp: Obesity and the Central Nervous System Mifflin and Strack	(2:00-3:00 PM): August Krogh Distinguished Lectureship Jones FT: Renal Ion Transport Kohan and Ma
146C	Symp: Hypoxia and Cancer Semenza	Symp: Molecular Regulation of Renal Epithelial Transport Proteins in the Nephron: Lessons from Ontogeny and Disease Kim and Satlin	Symp: Novel Aspects of the Regulation and Physiology of NHE1 Barber and Pedersen
147A	FT: Activity-Dependent Gene Expression Hood	Symp: Understanding the Role of the Pancreas in Digestion: Placing Current Understanding in a Historical Perspective Williams and Adelson	Symp: Suspended Animation – Fact or Fiction? Leon and Ryan
147B	Symp: Frontiers in the Cellular and Molecular Physiology of the Hepatic Microcirculation Brock and Fox-Robichaud	FT: Energy Balance, Exercise and Cancer Nosek	Symp: Muscle Mechanics: Molecular Properties to Contractile Function Campbell
154A	FT: Angiogenesis and Cell-Based Therapies Cai and Bischoff	Symp: Effective Use of Course Management Systems to Enhance Student Learning Kibble	BMES Symp: Engineering Vascular Cell Function using Nanoscale Cues Helmke and Price
154B	FT: Epithelial Transporters McDonough and Pastor-Soler	FT: Mitochondrial Mechanisms in Cerebrovascular Function in Health and Disease Busija	FT: Roles of Intestinal Epithelia and Bacteria in Inflammatory Disease Turner
155	FT: Role of L-Arginine Metabolism in Cardiovascular/Renal Disease Johnson	FT: Gap Junctions Mediating Cell-Cell Communication in the Vascular Wall Isakson	FT: Receptor Biology and Intracellular Signaling Flavahan
159AB			(2:00-4:00 PM): Careers Symp: Guide for Successful Collaboration: From the Handshake to the Collaborative Research Agreement Johns and Uyehara

Tuesday May 1, 2007

	8:00-10:00 AM	10:30 AM-12:30 PM	3:15-5:15 PM
Ballroom B	Phys InFocus: Novel Technologies in Physiology and Medicine. Forensic Medicine Davis	Symp: The SLC26 Transporter Family and Epithelial Function Gray	(5:45-7:00 PM): APS Business Meeting
145A	ALACF Symp: Neuroimmuno Interactions Rettori and Antunes-Rodrigues	Symp: Two-Pore Domain Potassium Channels: Vascular Control by a Newly Discovered Channel Family Bryan, Jr. and Weston	(2:00-3:00 PM): Walter C. Randall Lecture on Biomedical Ethics Prentice and Titus Symp: Metabolomic Approaches to Study Cardiovascular Disease Mechanisms and Diagnosis Hardin and Newgard
145B	FT: Renal Section 2007 Young Investigator Award Vallon	Symp: Epithelial Development, Disease, and Regeneration Sussman	A. Clifford Barger Memorial Symp: Control Mechanisms of Renin Synthesis and Release: a 21st Century Perspective Persson and Ehmke
146A	(9:00-10:00 AM): Edward F. Adolph Distinguished Lectureship Boulant	Symp: Comparative Genomics: Linking Noncoding DNA to Biology and Disease Nobrega	Phys InFocus: Novel Technologies in Physiology and Medicine. Novel Technologies and Approaches in Imaging Bell and Komlosi
146B	FT: Integrated Cardiovascular Physiology of Metabolic Syndrome and Diabetes Brands and Busija	(10:30-11:30 AM): Carl W. Gottschalk Distinguished Lectureship Baylis	(2:00-3:00 PM): Ernest H. Starling Distinguished Lectureship Jose (3:15-4:15 PM): Horace W. Davenport Distinguished Lectureship Donowitz
146C	Symp: Drug Discovery Efforts for Pain Indications: Ion Channels and GPCRs Finley and Martin	CVS Wiggers Award FT: Cardiac Electrophysiology and Arrhythmias Antzelevitch	AFMR Symp: Role of Adipose Tissue Macrophages in Obesity-Induced Insulin Resistance Hawkins
147A	Symp: Neural Plasticity of the Hypoxic Reflex: Carotid Bodies, NTS and Pons Poon and Kline	Symp: Ultra Fast and Ultra Active: The Strange Life of Extraocular Muscles Andrade	FT: Scientific Principles for Education Research Goodman
147B	Symp: Multiple Career Paths for a Physiologist: Understand your Options and How to Get There Pluznick and Wehrwein	FT: Osmoregulatory Function in Health and Disease Stocker and Schreihofner	FT: Regulation of Renal Hemodynamics Inscho and Pluznick
154A	FT: Phenotype and Functional Plasticity of Pulmonary Airway and Vascular Smooth Muscle Cells in Health and Disease Halayko and Stenmark	FT: Adipocyte Hormones Samson	FT: NCAR Trainee Featured Topic Sartor and Ray
154B	FT: Molecular Physiology of Cation-Coupled Bicarbonate Transporters Bevensee and Grichtchenko	FT: Disorders of the Enteric Nervous System Srinivasan	FT: Current Concepts in the Control of Skin Blood Flow in Humans Crandall and Johnson
155	FT: New Insights on Adaptations to Environmental and Metabolic Stress From Genomics and Proteomic Studies Kirchner and Ferraris	FT: Role of ATP Receptors in Respiratory Responses Point/Counter-point: ATP Receptors underlie Central CO ₂ Sensitivity (or not) Funk and Gauda	FT: The Vascular Supply during Aging Segal

Wednesday May 2, 2007

8:00-10:00 AM

10:30 AM-12:30 PM

3:15-5:15 PM

145A AFMR Symp: Biomarkers of Acute Kidney Injury- Early Diagnosis, Pathogenesis and Recovery

Parikh

145B FT: Sex Steroids in Cardiovascular-Renal Physiology

Reckelhoff and Maric

146B Symp: Heart Failure and Exercise: Autonomic and Cardiovascular Responses

Crandall and Sinoway

147A BMES Symp: Mechanotransduction in Cell Migration

Li

FT: Experimental and Computational Approaches for Integrating Genotype, Phenotype, and Gene Expression: Toward Biological and Disease Networks

Lum

147B JPhys Symp: Exercise Hyperemia: Are there any Answers Yet?

Joyner

AFMR Symp: Calcific Aortic Valve Disease: A Disease Process Comes of Age?

O'Brien and Mohler III

154A FT: Endocrine Hypertension

Samson

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

Neubauer and Gaultier

154B FT: Novel Ion Channels in Neuro-Cardiovascular Regulation: Focus on ASIC and TRP Channels

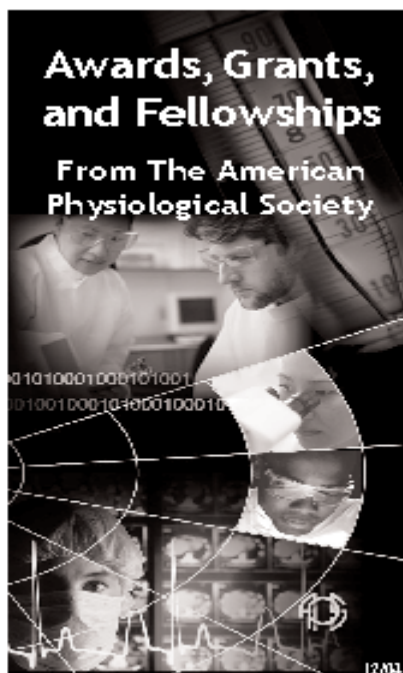
Abboud

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

Sweazea and Braun

155 FT: Control of Coronary Blood Flow

Chilian



**Awards, Grants,
and Fellowships**

**From The American
Physiological Society**

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

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

For Full Details or Questions

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

www.the-aps.org/awards

Postdoctoral Positions

Postdoctoral Position: A postdoctoral position is presently available in Dr. Julie L. Lavoie's laboratory in Montreal, Quebec, Canada at a University of Montreal Research Centre (CHUM). Proposed project regards the role of the renin-angiotensin system in adipose tissue. To do so, novel transgenic mice will be produced using knock-in/knock-out technologies. Produced models will be characterized physiologically looking both at blood pressure and obesity, as well as various related components such as vascular reactivity and lipid metabolism. Candidates should have a PhD degree (or equivalent) and would ideally have experience in molecular biology and physiology. Experience with cloning and use of Es cells is considered a plus. This is an industry-funded project; hence, candidates may consider this as an opportunity for future projects. Interested applicants should send a cover letter, curriculum vitae, and names of three references to: Dr. Julie L. Lavoie, CHUM-Research Centre/Angus, 2901 Rachel East, Montreal, Quebec, Canada, H1W 4A4, Email: Julie.Lavoie.3@umontreal.ca.

Postdoctoral Positions and Graduate Research Assistantships:

The University of Kansas and Children's Mercy Hospital have established a new 14,000 ft sq state-of-the-art facility to investigate energy balance and develop evidence based community programs to promote physical activity and nutrition and diminish obesity and comorbid diseases in children. Graduate research assistantships are available for individuals pursuing MS or PhD. Postdoctoral positions are available for one to three years. We have research and program funding from NIH, industry, and private foundations. Additionally, we maintain four behaviorally based weight management clinics for adults. To view full position descriptions visit <http://ebl.ku.edu>. Applications are accepted on an ongoing basis. Contact: Dr. Joseph E. Donnelly, University of Kansas, Lawrence, KS, 66045; Tel.: 785-864-0797; Fax: 785-864-2009; Email: jdonnelly@ku.edu. [EO/AA]

Postdoctoral Associate: Department of Surgery, University of Minnesota

Medical School. We are seeking a Postdoctoral Associate for an exciting project in stem cell research, focusing on the development of enteroendocrine cells. Interested MDs and PhDs must possess a background in molecular biology with cloning and tissue culture skills. Prior postdoctoral experience is preferred. Applications will be reviewed upon receipt and the position will remain open until filled. Submit your application to the University of Minnesota's online employment system at: <http://employment.umn.edu/applicants/Central?quickFind=53295>. Also, please submit a CV to Sayeed Ikramuddin, MD, MMC 195, 420 Delaware Street SE, Minneapolis MN 55455; Email: ikram001@umn.edu. [EOE/AA]

Postdoctoral Position: Smooth Muscle Research Group, Faculty of Medicine, University of Calgary, Calgary, Alberta, Canada. We are seeking a Postdoctoral Associate for an innovative project to study Ca²⁺ waves and their influence on ion channel activity and cell-cell communication in the resistance vasculature. This project will involve the use of electrophysiological and Ca²⁺ imaging techniques on resistance arteries in which siRNA or dominant negative constructs have been employed to alter channel expression/activity. This multi-disciplinary project provides an excellent training opportunity in vascular biology. Qualified candidates will have a PhD in a biological science discipline and should have some experience with electrophysiology and/or molecular biology techniques. Previous postdoctoral experience is an asset. Competitive salary (related to experience) plus benefits package provided. Applicants should send a cover letter, curriculum vitae and the names of two references to Dr. Donald Welsh, HMRB-G86, Smooth Muscle Research Group, Faculty of Medicine, University of Calgary, 3330 Hospital Dr. N.W. Calgary, Alberta, Canada, T2N-4N1; Email: dwelsh@ucalgary.ca; website: <http://www.ucalgary.ca/smrg/dwelsh.htm>.

Postdoctoral Position: The Lung Cell Laboratory in the Medical University of Graz has an opening for Postdoctoral position. In our laboratory, we aim to discover the molecular mechanism of oxygen-sensing in fetal and adult pul-

monary arteries (Olschewski et al., 2002, *N Eng J Med*; Olschewski et al., 2006, *Circ Res*) using electrophysiology, molecular biology and animal models. Required skills: highly motivated individuals with an enthusiastic interest in our research program are invited to apply. Applicants should possess a PhD and/or MD degree in biological sciences and a strong background in various imaging technologies (e.g., Ca²⁺-imaging, ROS detection) in tissue culture. Highly effective organisational, interpersonal and communication skills, the ability to work individually and in a multi-disciplinary team and thorough computer literacy are also essential. The subsidized housing is available. The annual salary is approximately \$66,000/year depending upon qualifications. The post is full-time and available immediately for two years in the first instance. Interested individuals should send a brief statement of research interests and career goals, a CV, and the names and contacts for three references by Email to Prof. Dr. Andrea Olschewski, andrea.olschewski@meduni-graz.at.

Postdoctoral positions: Two postdoctoral positions are available in the laboratory of Professor Bernard Rossier in the Department of Pharmacology and Toxicology of the University of Lausanne, Switzerland. The posts are supported by grants from the Fonds National Suisse de la Recherche and private foundations. Membrane-bound serine proteases (Channel Activating Proteases: CAPs) (Vallet et al *Nature*, 389, 607-610, 1997) may be of critical importance in the activation of the epithelial sodium channel ENaC in different organs, such as the kidney, the lung, the colon or the cochlea (Rossier, *Proc Am Thorac Soc*. 1(1):4-9 2004). Our general working hypothesis postulates the existence of a complex intra- and extra-cellular pathway involving different CAPs and associated proteins that will activate ENaC by promoting its assembly and/or trafficking to and/or its activation at the apical membrane of epithelial cells. Our aim is to identify ENaC as substrate for CAPs and to understand their roles in ENaC assembly, trafficking and activation at the plasma membrane in vitro and in vivo. Applicants should possess a PhD and/or MD degree in biological sciences. A background in molecular/cell biology and genetics would be advantageous. The

positions are full time and available as soon as March 2007. Interested individuals should send their CV and the names (and Email contacts) of three references to: Bernard.Rossier@unil.ch.

Postdoctoral Fellow: Division of Nephrology. A postdoctoral fellowship position is available to investigate renal hemodynamics, autoregulation, BP mediated renal damage and the progression of chronic kidney disease and diabetic nephropathy using animal models. The candidate should have a strong background in experimental integrative physiology. Salary is competitive and commensurate with experience. Please send a cover letter, curriculum vitae including the names of three references and statement of research interests to: Dr. Karen A. Griffin, MD, Professor, Department of Medicine, Loyola University Medical Center and Hines VA Hospital; 2160 South First Avenue, Maywood, IL 60153; Tel.: 708-202-4120; Fax 708-202-7978; Email: kgriffi@lumc.edu [AA/EOE]

Faculty Positions

Assistant Professor of Biology, Animal Physiology: The Department of Biology at San Francisco State University (SFSU) invites applications for a tenure-track physiologist position at the Assistant Professor level. We seek applicants working in all areas of vertebrate or invertebrate physiology. Preference will be given to candidates whose research interests compliment existing strengths in the Department, which include endocrinology, neurobiology, and ecological physiology. The successful candidate will be expected to participate in undergraduate and graduate teaching in physiology and to establish a vigorous, externally funded research program. Qualifications for this position are a PhD degree, postdoctoral training, a proven research record and teaching experience. Applications should include curriculum vitae, separate statements of research and teaching interests and copies of significant publications. Applicants should send application materials and arrange to have three reference letters sent to:

Chair, Animal Physiology Search Committee, Dept. of Biology, San Francisco State University, 1600 Holloway Ave., San Francisco, CA 94132. Review of applications begins 15 November 2006 and continues until a suitable candidate is chosen. San Francisco State University, a member of the California State University system, serves a diverse student body of 29,000 undergraduate and graduate (master's level) students. The mission of the University is to promote scholarship, freedom, human diversity, excellence in instruction, and intellectual accomplishment. SFSU faculty members are expected to be effective teachers and demonstrate professional achievement and growth through continued research, publications, and/or creative activities. SFSU and the Department of Biology are strongly committed to a diverse professoriate that includes women and individuals from underrepresented minority groups. More information about this position and the Department of Biology can be found through the website: <http://www.sfsu.edu/~biology>. The anticipated start for this position is August 2007 (fall semester). [EOE/AA]

Associate Professor, Neurobiology of Movement: Northeastern University, Boston, MA. The Department of Biology at Northeastern University is seeking applicants with specializations in the Neurobiology of Movement for a position at the Associate Professor level. Exceptionally well-qualified Assistant Professors may be considered for the Associate rank. Individuals working on systems related to the neural control of movement at any level from pre-motor function to motor neuron output and using any techniques will be considered. In addition to research areas related directly to motor control, we will consider individuals working on development, degeneration, regeneration, restoration of function, sensorimotor integration, muscle function and other areas related to movement and the motor system. Northeastern University is a highly selective research University in the heart of Boston. The successful candidate will join a group of faculty in the Department of Biology and across the University with interests in the biomechanics and neural control of movement.

We anticipate further strengthening of this area in subsequent years. Qualifications include a strong record of scientific achievements and extramural funding commensurate with the level of the appointment and a willingness to contribute to undergraduate and graduate teaching. Earliest start date: January 2008. Applicants should submit the following via email as PDF files: cover letter, a curriculum vitae, statements of research and teaching interests, and three representative publications. The cover letter should include the names of at least four individuals who may subsequently, with the applicant's permission, be contacted to provide letters of reference. Letters should be addressed to Neurobiology Search Committee, Department of Biology, Northeastern University, Boston, MA 02115; Email: biojobs@neu.edu. Review of applications will begin December 1, 2006 and continue until the position is filled. Positions are subject to financial approval by the Board of Trustees. [EOE/AA/Title IX University] Women and minority candidates are encouraged to apply.

Assistant Professor-Biology: The Department of Biology at Shippensburg University invites applications for a tenure track Vertebrate Physiologist position starting August 2007. Responsibilities include instruction of the following: a junior/senior level Animal Physiology course, an upper division undergraduate/graduate course in the area of candidate's specialty, and introductory courses for majors and non-majors. The successful candidate will be expected to have a PhD from an accredited institution completed by December 31, 2006. A successful demonstration of teaching effectiveness, a scholarly seminar, and evidence of a commitment to understanding diverse populations, will be required as part of the on-campus interview. Applicants should send curriculum vitae, copies of transcripts (both graduate and undergraduate), a brief statement of teaching philosophy and research interests, plus the names, addresses and telephone numbers of three references to Biology Search Committee, 1871 Old Main Drive, Shippensburg, PA 17257. Review of application materials will begin on

November 15, 2006 and will continue until the position is filled. All applicants must furnish proof of eligibility to work in the US upon appointment. [EEO/AA]

Assistant Professor: Physiologist: Tenure-track, Assistant Professor, Fall 2007. PhD and commitment to teaching undergraduates required; postdoctoral research preferred. Responsibilities include teaching human anatomy and physiology, upper-level animal physiology and a course of candidate's choice, as well as supervising undergraduate research/internships. Submit letter of application, curriculum vitae, undergraduate and graduate transcripts, statements of teaching philosophy and research interests, and three letters of recommendation to: Dr. Mary Mulcahy (biology@upb.pitt.edu), Search Committee Chair, University of Pittsburgh at Bradford, 300 Campus Drive, Bradford, PA 16701 (<http://www.upb.pitt.edu>). Review of completed applications will begin November 13, 2006, and continue until the position is filled. Women and minorities are encouraged to apply. [AA/EOE]

Faculty Positions in Vascular Development: Applications are invited for new tenure track or tenured positions to create a Center for Vascular Biology at Cincinnati Children's Hospital Medical Center (CCHMC). Appointment at the senior faculty level could include significant leadership opportunity for further recruitment in this area. Candidates can hold MD, MD/PhD, or PhD degrees. The group will be expected to carry out basic and translational research on the molecular, cellular, and genetic mechanisms of normal and abnormal vascular development, which will be applicable in the future to childhood disorders of the vascular system. Research facilities at CCHMC are outstanding. There is a critical mass of developmental biologists working in many areas of organogenesis, as well as active clinical research programs on congenital and acquired vascular disorders of children. Interested candidates should send an application letter, two-page statement of research interests including past accomplishments and future goals, CV, and the names and

addresses of three references to DOSpositions@cchmc.org. [AA/EOE] Women and minorities are encouraged to apply. Please visit our web site at: <http://www.cincinnatichildrens.org/research/div/dev-biology>.

Assistant Professor: The Department of Human Physiology, University of Oregon, invites applications for a tenure-track position at the level of Assistant Professor created to enhance teaching and research in a program with strengths in biomechanics, physiology, motor control, and athletic training. The ideal candidate will contribute directly to one or more of these sub-disciplines, provide expertise that will bridge across existing programs, and/or contribute in synergistic areas that are not currently represented in the department. A PhD in a related field (physiology, kinesiology, exercise physiology, biomechanics) or an MD is required, as are at least two years of postdoctoral training or independent university research experience. Candidates are expected to demonstrate a proven record of research investigating physiological functions in human subjects as well as demonstrated ability or high potential to attract external funding. Previous university-level teaching experience is highly desirable. The successful applicant will be expected to establish a vigorous research program supported by extramural funding, contribute to the mission of the department in undergraduate and graduate teaching, and engage in departmental and university service. The ability to work effectively with faculty, staff and students from a variety of diverse backgrounds is required. Competitive salary support and start-up funds will be made available. The University of Oregon is located in Eugene, OR, home to more than 145,000 people and Oregon's third largest city. Within only a few hours drive are the ocean beaches, lakes, rivers, forests, high desert, and the Cascade and Coast mountain ranges. The Willamette River runs through the heart of the city and joins the McKenzie River north of town. Mild winters, long growing seasons and few drastic weather changes are characteristic. Eugene has a high percentage of professionals, including doctors, lawyers, architects, and educators and is home to the Hult

Center for the Performing Arts, which regularly hosts the Oregon Bach Festival, the Eugene Symphony, the Eugene Ballet, and the Eugene Opera, among other cultural offerings. Applicants should submit a curriculum vitae, a statement describing their research goals and teaching philosophy, representative recent publications, and names and addresses of three references to: Search Committee, Department of Human Physiology, 1240 University of Oregon, Eugene, OR 97403-1240. Review of applications will begin December 15, 2006 and will continue until a suitable candidate is hired.

Anatomy Faculty Position, Whittier College: The Biology Department at Whittier College is seeking applicants for a tenure-track faculty position beginning September 2007 (rank commensurate with experience). The successful candidate will possess a PhD, be committed to excellence in undergraduate education, and maintain an active externally-funded research program involving undergraduates. Teaching responsibilities will include upper-division anatomy (both human and comparative) and introductory courses in organismal biology. The ability to work with students in the field would be a significant advantage, as would the ability to occasionally teach a course that might be of interest to Environmental Science students. The successful candidate will also have the opportunity to participate in the College's Liberal Education Program, such as teaching First-year Writing Seminar, courses in quantitative literacy, "paired" courses, and/or science and society courses. Whittier College is a small private undergraduate liberal arts college located 18 miles southeast of Los Angeles, with a highly diverse student population. The college is committed to increasing opportunities for collaborative student research and internships. Applicants should submit curriculum vitae, research and teaching statements, and three letters of reference to: Dr. David Bourgaize, Chair, Biology Department, Whittier College, PO Box 634, Whittier, CA 90608. All applications received by December 10, 2006 will receive full consideration. We seek to attract and retain a highly qualified and diverse faculty [AA/EO]

Tenure Track Position: Department of Biology, Millikin University, Decatur, IL, a city of nearly 100,000 near the center of the state, a two or three hour drive from St. Louis, Chicago and Indianapolis. Major industries include ADM agriculture processing plant, Tate & Lyle agricultural processing, and Caterpillar manufacturing. A low cost of living, two public high schools, a junior college and several shopping areas including a shopping mall. The Millikin University Biology Department seeks a tenure track faculty member with a major emphasis in animal physiology, starting fall 2007. With nine biologists, a lab coordinator and support staff, the Biology Department delivers programming in three tracks: traditional biology, molecular/cell biology, and allied health. The Department seeks a teacher/scholar, dedicated to undergraduate teaching and to conducting research with undergraduates. Teaching assignment will include upper level Animal Physiology, non-major Human Biology, introductory Human Anatomy and Physiology, plus opportunities to develop an interdepartmental seminar and to offer courses within an area of expertise. Additional responsibilities include service to the department and university. Rank will be assigned according to credentials. Ideal candidates will have a PhD from a recognized program in Animal Physiology with a strong background at the cell and molecular level. Preference will be given to candidates with undergraduate teaching experience and an established research agenda. Application materials must include curriculum vitae, copies of graduate transcripts, statement of teaching philosophy, two recent syllabi, statement of research interests, and three letters of reference. For full consideration, applications should be received, either electronically or as a hard copy, by January 15, 2007. Address inquires and applications to: Dr. Judy Parrish, Chair, Biology Department, Millikin University, 1184 W Main Street, Decatur, IL 62522; Email: jparrish@mail.millikin.edu; Tel.: 217-424-6235. [EO/AA]

Faculty Biology Position: Fresno Pacific University. (Faculty at FPU are unranked). The Biology Department has an opening for a full-time faculty position beginning August, 2007. Duties

include: instruct human physiology, human anatomy & introductory biology; develop and lead research projects with students; mentor and advise students in pre-health fields. Requirements include: potential for excellent college-level instruction; a doctorate (or nearly completed doctorate) in a field of biological science; and commitment to the University's mission of Christ-centered teaching and learning. Full position description, application, and procedures are available at: http://www.fpu.edu/hr/open_positions/faculty/biology.asp Questions regarding the position can be addressed to: Michael Kunz, Biology Program Director, at mkunz@fresno.edu.

Assistant Professor, Integrative/Comparative Animal Biologist: The Department of Biology and Marine Biology at the University of North Carolina Wilmington invites applications for a tenure-track position starting August, 2007. The successful candidate will contribute to undergraduate and graduate courses in either cell/molecular biology, biochemistry, immunology, physiology, virology or a related course, maintain a vigorous, extramurally funded research program, and mentor graduate students. The Department offers BS, MS and PhD degrees. Excellent support for research is provided in Departmental facilities on campus (<http://www.uncw.edu/bio/>) and at the Center for Marine Science (<http://www.uncw.edu/cmsr/>). Candidates must have a PhD and postdoctoral experience. To apply, complete the online application available at <http://consensus.uncw.edu> by electronically submitting separately 1) a letter of application including brief statements of teaching and research interests, 2) a curriculum vitae, and 3) contact information for three references. MS Word or Adobe PDF attachments are preferred. For questions about the position, contact Dr. Stephen Kinsey, Integrative/Comparative Animal Biologist Search Chair; Email: kinseys@uncw.edu; Tel.: 910-962-7398. For questions about the online application process, contact Tracie Chadwick at chadwickt@uncw.edu, 910-962-3536. Application review will begin January 3, 2007. Under North Carolina law, applications and related materials are confi-

dential personnel documents and not subject to public release. UNCW conducts criminal background checks on finalists prior to offers of employment. [AA/EOE]

Assistant Professor Exercise Physiology: The Department of Exercise Science at Syracuse University seeks a tenure-track Assistant Professor to begin in August 2007. Candidates should hold an earned doctorate in exercise physiology or related discipline; postdoctoral experience is highly preferred. The successful candidate will be expected to develop a solid, extramurally funded research program, contribute to undergraduate and graduate teaching, and to advise MS and PhD student research. Outstanding candidates in all areas of physiology will be considered; special consideration will be given to investigators that complement a new institutional commitment in disability, such as those who study exercise and disability (intellectual, physical, disease- or age-related disability) at any level (basic or applied science). Unique opportunities exist for participation in translational exercise research and interdisciplinary research in collaboration with the basic science departments, gerontology center, disability studies, SUNY Upstate Medical University, and the Institute for Human Performance. Send letter of application outlining past research accomplishments and future directions, CV, and three letters of recommendation to Dr. Lori Ploutz-Snyder, Search Committee Chair, Exercise Science, 820 Comstock Ave, Room 201, Syracuse University, Syracuse, NY 13244-5040; Email: llploutz@syr.edu; Tel.: 315-443-2114; Fax: 315-443-9375; http://soeweb.syr.edu/academics/grad/exercise_science. [AA/EOE]

Assistant/Associate Professor: Spelman College invites applications for Assistant/Associate Professor in Physiology, a tenure-track position to begin in August 2007. The ideal candidate will be able to teach an advanced course in mammalian/human physiology and contribute to an introductory Organismal Form and Function course. The candidate will also be able to establish an active research program that will

involve undergraduates in mentored research. Founded in 1881, Spelman College is a private four-year liberal arts college located in Atlanta, GA. Spelman is a member of Atlanta University Center, and is the oldest predominantly black college for women in the United States. The Biology Department is housed in the Albro-Falconer-Manley Science Center, a state-of-the-art 150,000 square foot research and training facility, fully equipped to support contemporary life sciences research. For more information, go to: <http://www.spelman.edu/academics/programs/biology/index.shtml>. Applicants must have a PhD or equivalent in the biological sciences, post-doctoral research experience, and strong interest in undergraduate teaching, mentoring, and research. Spelman Biology faculty maintain independently funded research programs and engage in active research with students. Competitive start-up packages are available for new faculty. With one of the largest majors at Spelman, the Biology Department is nationally recognized for its role in training women of color for graduate and professional studies in the sciences. The successful candidates will assist in developing and teaching introductory and advanced elective courses in their area of specialization, participate in student advising, and establish a productive research program. Applicants committed to teaching and mentoring science students in a liberal arts environment should send current *curriculum vitae*, statement of teaching philosophy, statement of research interest, transcripts and three reference letters to: Office of the Provost, Attn: Biology Search Committee Chair, Spelman College, 350 Spelman Lane SW, Atlanta, GA 30314-4399. Review of applications will begin December 1, 2006 and will continue until the positions are filled.

Assistant Professor: Faculty Position in Cardiovascular or Pulmonary Physiology. The Department of Molecular Pharmacology, Physiology & Biotechnology at Brown University invites applications for a tenure-track position in cardiovascular or pulmonary physiology. The anticipated start date is as early as July 1, 2007. Research space will be provided in a newly renovated

laboratory with access to modern core facilities. Applicants will be expected to develop an independent, externally funded research program in cellular and molecular physiology with translational applications to systems physiology; preference will be given to candidates with experience in cardiovascular or pulmonary physiology. Potential research programs of interest include cell growth and differentiation, gene expression, physiological genomics and proteomics, inflammation, or signal transduction. Collaborations with Brown Medical School affiliated hospitals are encouraged. Candidates should have a PhD and/or MD degree and relevant postdoctoral research training. Successful candidates must be committed to excellence in medical school, undergraduate, and graduate teaching in physiology. Review of applications will commence on December 1, 2006, and will continue until the position is filled. Candidates should submit a curriculum vitae, recent representative publications, a description of career objectives, future research plans, a teaching statement, and three letters of recommendation either electronically to: MPPB@brown.edu, or by mail to: Physiology Search Committee, Department of Molecular Pharmacology, Physiology & Biotechnology, Brown University, Box G-B3, Providence, RI 02912. Electronic submission in pdf format is encouraged. [EOE/AA]

Assistant Professor: Bridgewater College, Bridgewater, VA: Bridgewater College is seeking applications for a number of faculty positions. The College invites applications from individuals with broad intellectual interests who are committed to teaching excellence and professional growth in a dynamic liberal arts environment. All faculty members are expected to participate in an active advising program that emphasizes the personal development of each student. Scholarship and professional development are expected. The College emphasizes innovation and creativity in pedagogy, research and curriculum. Bridgewater College is committed to a diverse faculty and welcomes applications from women, minorities, and persons from other traditionally underrepresented groups. Review of applications will begin immediately and continue

until the positions have been filled. The starting date for faculty positions is August 2007. Assistant Professors of Biology (2): Tenure Track. PhD and evidence of successful undergraduate teaching and ongoing scholarship required. The successful candidate will teach both courses in the general education curriculum and courses in their area of specialization (detailed below). For position one, the Department of Biology seeks a candidate to teach botany, plant physiology and a third course based on area of interest (advanced botany, environmental botany, etc.). For position two, the Department of Biology seeks a candidate to teach human and advanced/comparative physiology and a third course based on area of interest (strong preference will be given to a candidate who could teach developmental biology). Founded in 1880 with historic ties to the Church of the Brethren, Bridgewater College is an independent, co-educational, liberal arts college located in the scenic and historic Shenandoah Valley of Virginia; the quality of life is exceptional. We have a stable enrollment of approximately 1525 students, 80% of whom are residential. Please send a letter addressing interest and qualifications for the position, a curriculum vitae, at least three letters of reference and copies of graduate transcripts to Dr. Arthur C. Hessler, Vice President for Academic Affairs and Dean of the College, Bridgewater College, Bridgewater, VA 22812. Visit us at <http://www.bridgewater.edu> for more information. A departmental contact person for each faculty position will be listed. Electronic submission needs to be in Microsoft Word or PDF format.

Assistant Professor: The Department of Biology at The University of Texas at Tyler invites applications for a tenure-track assistant professor position with a specialty in animal organismal physiology. Instructional responsibilities are in the area of anatomy and physiology and upper-level undergraduate and graduate courses in his/her area of expertise. The successful candidate will mentor master-level graduate and undergraduate students, participate in departmental and university service, and develop an externally funded research program.

Research area is open, but should complement our graduate program. Applicants should submit curriculum vitae, summary of research accomplishments, description of future research plans, summary of teaching philosophy, unofficial transcripts, and contact information of at least three references (with email addresses) from which letters of recommendation can be solicited. All application materials should be submitted electronically (.pdf or .doc files preferred) to Dr. Neil Ford (nford@uttyler.edu), Search Committee Chair, Department of Biology, The University of Texas at Tyler, 3900 University Blvd., Tyler, TX 75799. Review of these materials will begin December 15, 2006. Website: <http://www.uttyler.edu/biology>. Applicants must be prepared to furnish the University with proof of eligibility to work in the United States. [EEO/AA]

Tenure-track position: The Department of Physiology, School of Medicine, Faculty of Health Sciences, Queen's University. <http://meds.queensu.ca/medicine/physiol/> invites applications for a tenure-track position at the Assistant Professor level. The Department has a highly successful interdisciplinary research program with foci in cardiorespiratory-, neuro- and gastrointestinal-science. The successful candidate will hold a PhD, MD or equivalent, and demonstrate outstanding scholarship and achievement through publications. The potential to attract external peer-reviewed support will be expected. The research interests of the candidate should build on the current strengths of the Department in the Cardiac Circulatory and Respiratory Research Program (Heart failure, Cardiorespiratory disease) or the Centre for Neuroscience Studies (Cellular/molecular neuroscience, Neurobiology of obesity). The candidate will be expected to be an excellent communicator who will contribute to the educational programs of the department within the medical curriculum, graduate program and/or the undergraduate Life Sciences program. Queen's University is located in the historic city of Kingston, Ontario bordered by Lake Ontario, the St. Lawrence River and the Rideau Canal. Queen's is a leading research intensive university with a vibrant academic community that

includes 17 Faculties and Schools and over 16,000 students. Academic rank and salary will be commensurate with qualifications and experience. Faculty members at Queen's are governed by a collective agreement between the Queen's University Faculty Association and the University, and is posted at <http://www.queensu.ca/qufa>. The University invites applications from all qualified individuals; however, Canadian citizens and permanent residents will be given priority. Queen's is committed to employment equity and diversity in the workplace and welcomes applications from women, visible minorities, aboriginal people, persons with disabilities, and persons of any sexual orientation or gender identity. Applicants should forward a copy of their curriculum vitae, a description of their research interests, a teaching dossier, and the names of three references to: Dr. A.V. Ferguson, Professor and Head, Department of Physiology, Queen's University, Kingston, ON, Canada, K7L 3N6. Review of applications will commence on March 1, 2007 and continue until the position is filled.

Professor: The Uniformed Services University in Bethesda, MD, invites candidates to apply for a position within its Department of Military and Emergency Medicine. The position is a tenure-track position at the Professor level. The successful candidate will be the Director of the Traumatic Injury Research Program, which will be a multi-disciplinary university-based venture whose mission is to advance the understanding of the causes and mechanisms of traumatic injury and management, particularly with respect to the effects of blast injury in the US Military. The position involves significant responsibilities in leadership, management, teaching, and research. The Director will be responsible for developing and sustaining an academic research program in support of USU and the Department of Defense in the realm of trauma injury research, education and treatment. The successful candidate will hold a degree of PhD or MD and have significant administrative, management, teaching, and research experience. Candidates must have academic and professional experience commensurate with their appointment at

the Professor level. Tenured applicants may be hired with tenure. Applicants should send a copy of their curriculum vitae, a description of their research interests and the names of three references to: CAPT Trueman Sharp, MC, USN, Chair, Department of Military and Emergency Medicine, c/o Ms. Ann Seabrook, Uniformed Services University, 4301 Jones Bridge Road, Bethesda, MD 20814; Email: ASeabrook@usuhs.mil; Tel.: 301-295-3720. For full consideration, applications should be received either electronically or as a hard copy by February 16, 2007. Selected candidates will be subject to a security background investigation for employment. If the selectee is unable to meet the requirements of a security background investigation, the tentative offer of employment will be rescinded, or if employment has started, the selectee may be discharged. [AA/EOE]

Chair: Department Of Cellular and Structural Biology, The University of Texas Health Science Center at San Antonio. The Search Committee for the position of Chair of the Department of Cellular and Structural Biology at the University of Texas Health Science Center at San Antonio (UTHSCSA) invites applications and nominations for this position. Candidates with an outstanding record of achievement in scientific publication, consistent extramural grant support, training/mentoring, interdisciplinary research and training, advocacy and development of core facilities and national professional involvement, consistent with the rank of professor are sought. Strong leadership and communication skills are required for this position. Applicants with research interests in any area of contemporary biomedical science that complements the ongoing research in the Department and interdisciplinary activities at UTHSCSA, such as vascular biology, diabetes, neuroscience, and genetics, will be considered. Areas of ongoing research within the Department include cancer biology, aging, signaling pathways and gene expression, animal models of human disease, bone pathophysiology and DNA damage and repair. The Department has a major commitment to the teaching of the anatomical sciences

in the Medical, Dental and Allied Health Schools. Interested applicants should submit a curriculum vita, a succinct statement (three pages or less) of research interests and academic vision, and a list of four referees who know the professional attributes of the applicant very well. The Search Committee will review applications until the position is filled. Please send materials electronically to smithj@uthscsa.edu or by mail to Chair, Search Committee for Chair of Cellular and Structural Biology, Graduate Dean's Office, Mail Code 7819, University of Texas Health Science Center at San Antonio, 7703 Floyd Curl Drive, San Antonio, TX 78229-3900. Information concerning the Department of Cellular and Structural Biology at UTHSCSA can be found at <http://www.uthscsa.edu/csb/>. All faculty appointments are designated as security-sensitive positions. [AA/EOE]

Research Positions

Assistant/Associate Tenure Track Positions in Basic Biomedical Sciences: The University of Texas (UT) Medical School at Houston, one of six schools within the renowned UT Health Science Center at Houston, is initiating a multi-year program to recruit the best basic biomedical scientists, numbering approximately 14 over the first two years with similar numbers over the next several years. A new, state-of-the-art 200,000 square-foot research building will be ready for occupancy in fall 2007 to help initiate this program. Located in the world famous Texas Medical Center, which includes among others, the Brown Foundation Institute of Molecular Medicine, the University of Texas MD Anderson Cancer Center, the Texas A&M Institute of Bioscience and Technology and Baylor College of Medicine, the UT Medical School is well positioned to offer to successful candidates appointments in one of four basic science departments (Neurobiology & Anatomy, Microbiology & Molecular Genetics, Integrative Biology & Pharmacology, and Biochemistry & Molecular Biology). Cross appointments and other affiliations are possible, such as in clinical departments or in pro-

grams which may include: structural biology, membrane biology, molecular pathogenesis, microbial cell signaling & genomics, human genetics, neurobiology of development, biomedical engineering, as well as many other programs. These positions afford competitive salaries and attractive start-up packages with unparalleled opportunity to interact with scientists throughout the UT Health Science Center, and the Texas Medical Center in general, as well as Rice University and the University of Houston. Successful applicants should have an MD or PhD and postdoctoral experience, and will be expected to develop a nationally competitive research program, a successful graduate student mentoring program, and to engage in the teaching and training of graduate and medical students. This is an unprecedented opportunity for the next generation of biomedical scientists. Please send current curriculum vitae and a statement of research interests, as well as the names of at least three referees to Samuel Kaplan, PhD, Microbiology & Molecular Genetics, Search Committee Chair, The University of Texas Medical School, 6431 Fannin St., MSB 1.206, Houston, TX 77030-1501; Email: carolyn.love@uth.tmc.edu. [AA/EOE/M/F/D/V] This position is subject to Texas Education Code § 51.215. A background check will be required for the final candidate. Women and minorities are encouraged to apply.

Exercise Physiologist WBHAC-0621:

The principal purpose of this position is to provide programmatic, operational, and research support for the Exercise Physiology Laboratory (EXL). The EXL is a component of the Crew Health & Research Department which implements the scientific objectives of the Johnson Space Center. As a key member of the EXL, the incumbent will define and conduct NASA-sponsored testing designed to characterize the process of and development of exercise based countermeasures for microgravity-induced deconditioning. Incumbent will perform other assignments and duties as required. Essential Duties & Responsibilities: 1) responsible for compliance with Safety, Health and Environmental

plan; must be committed to a high standard of safety and be willing and able to comply with all safety laws and all of the Company's safety policies and rules and must be willing to report safety violations and potential safety violations to appropriate supervisory or management personnel; 2) responsible for compliance with the Quality Assurance Plan, policies and procedures; 3) must maintain regular and acceptable attendance level as determined by the Company; 4) plan and perform scientific duties on new and varied problems; 5) coordinate broad phases of the project and performs advanced development work; 6) plan scientific effort in coordination with related activities of other projects or departments; 7) collaborate with supervisor to determine scheduling, budget, personnel, equipment and supplies required for assigned project; 8) demonstrate creative ability through problem solving, scientific reports, technical papers, and articles, and patent disclosures; 9) support the development of research and operational protocols to characterize the response of the musculoskeletal, cardiovascular, and neuromuscular systems to prolonged spaceflight and to develop countermeasures for the deleterious effects of microgravity on these systems; 10) organize and coordinate ground-based and flight testing of test subjects and astronauts; 11) develop exercise protocols and prescriptions; 12) prepare science support documentation for ground-based and flight studies, including CPHS protocols, procedures documents, training protocols, etc.; 13) prepare and edit scientific and/or technical reports, manuscripts, and presentations and present results at scientific meetings; 14) monitor tests involving human test subjects and astronauts; collect, record, reduce, analyze and interpret physiological data resulting from such tests; 15) perform equipment set-up, calibration, and monitoring in support of human physiological testing; 16) contact vendors for product information on laboratory instrumentation; 17) assist in evaluation of research equipment for safety and performance; 18) provide technical and scientific support to NASA projects, including Flight Analogs, Exercise Countermeasures, Artificial

Gravity, etc., as needed; 19) serve on Wyle committees (e.g., safety, employee activities, continuous improvement, etc.) as required. Attend meetings related to the development and implementation of human research protocols. Knowledge, Skills & Abilities Education/Experience Required: The incumbent should have a minimum of a Doctorate of Philosophy (PhD) degree in exercise physiology or related field and six years experience. Organizational skills are also required. The incumbent is required to work with human test subjects, astronauts, and visiting scientists, and consequently must possess excellent communication skills. The incumbent must be well versed in the principles governing human research, in the design of experiments, and in statistical methods. Proficiency in scientific/technical writing and editing is a requirement. The incumbent should possess or be able to successfully obtain an Advanced Cardiac Life Support (ACLS) certification, since direct involvement with human research studies is anticipated. Desired: Experience in both clinical and research settings and having authorship in journal publications are preferred. Skills/Training Required: Computer literacy is required. The incumbent must be skilled in the use of word processing and data spreadsheet development (MS Office products), and in graphical and statistical software. Interested candidates should send a current résumé with job number (WBHAC-0621) and salary requirements to: Wyle Laboratories, Inc. Life Sciences Group, Human Resources Department, via email to recruiting@wylehou.com. [EOE, M/F/H/V Smoke-free workplace]

Clinical Research Scientist: AGA Medical Corporation specializes in the development and manufacturing of innovative medical devices for use in cardiovascular applications. AGA's patented AMPLATZER family of occlusion devices offers new and enhanced solutions for transcatheter treatment of complex congenital heart defects. We are a fast-growing, innovative company, looking for cre-

ative professionals to join our team. As a Clinical Research Scientist you will assist in the design and implementation of Clinical Research studies, and support professionalism and scientific expertise as needed within AGA Medical. The scientist will drive all clinical processes in the development of new products and advise and monitor the progress of current clinical trials. Duties and Responsibilities: follow department Standard Operating Procedures; provide scientific expertise to the clinical department and as needed within AGA Medical; assist in design of FDA clinical trials and OUS studies; assist in case report form design (with CRA); train AGA personnel on disease processes, diagnosis, and common therapeutic interventions; conduct literature reviews and maintain research library; write and/or review protocols, protocol amendments, annual reports and regulatory submission documents; organize and present complex aspects of protocol design at investigator and internal meetings; assist with ensuring that all studies are carried out according to the study protocol, SOPs, applicable GCP/ICH guidelines; analyze scientific study results, evaluates and interprets data; identify and resolve problems, conflicts and obstacles to the success of projects; participate on project updates, recommendations, and risk analysis/contingency plans to R&D and global company leadership; participate in clinical operations process improvement initiatives to address clinical needs (e.g., development of investigator database, standardized CRF modules, etc.); act as a departmental resource to provide information for the purpose of problem solving/decision making in all aspects of the clinical trial process; travel approximately 10-15%; participate in professional activities outside of normal business hours; perform other duties as assigned. Education, Experience, Personal and Technical Skills: PhD with one to two years experience or Masters Degree with five to eight years experience. Degree must be in a science-related field; demonstrated understanding of the cardiovascular system, with one to three years of relevant experience; ideally, one to three years

experience in clinical research, preferably in a medical device company; excellent organizational, interpersonal and communication (both written and oral) skills; ability to coordinate and manage the completion of multiple projects simultaneously; computer proficiency in MS Word, Excel, PowerPoint, and Outlook; ability to constructively interact with a range of personalities and range of positions, both inside and outside the organization; ability to work independently and take direction from others. For a more detailed job description, please visit our website at <http://www.amplatzer.com>. Please apply at hr@amplatzer.com or Fax your resume to 763-513-9226. We offer an excellent compensation and benefits package including medical, dental, life insurance, disability, 401(k), and much more. [EOE/AA] Please, no agencies.

Doctoral Student Opportunities in Exercise Physiology:

The University of Michigan Center for Exercise Research is currently recruiting doctoral students for Fall 2007. Openings and funding exist for highly motivated graduate students to work with Dr. Katarina Borer in the Exercise Endocrinology Laboratory (effects of exercise on energy regulation and hormone secretion in humans), Dr. Greg Cartee in the Muscle Biology Laboratory (exercise and diet effects on muscle metabolism and insulin signaling), and Dr. Jeff Horowitz in the Substrate Metabolism Laboratory (regulation of fat, carbohydrate, and protein metabolism relative to diet and exercise). More information about their respective research programs can be found at: <http://www.kines.umich.edu/research/cxr/>. Interested students should contact faculty directly to ask about research questions and contact Carrie Braun (clbraun@umich.edu) to ask about procedures for applying to the doctoral program in Kinesiology. The University of Michigan is one of the nation's premier public universities and has graduate and professional programs continually ranked near the top of their fields. ❖

Polyamine Cell Signaling

Jian-Ying Wang and Robert A.

Casero, Jr. (Editors)

Totowa, NJ: Humana 2006, 490 pp.,
illus., index, \$159.00

ISBN: 1-58829-625-3

This collection of chapters represents a timely and authoritative summary of an important and rapidly expanding field. Polyamines play a key role in normal and neoplastic growth and have a wide variety of pleiotropic effects. Many signalling pathways are, therefore, influenced by polyamines. This volume, which covers topics in physiology, pharmacology and cancer research, provides a useful summary of this area and contains chapters written by many of the leading laboratories in the field.

Three sections describe effects of signal transduction via polyamines on cell proliferation, apoptosis, carcinogenesis and cancer therapy, and cell motility and cell-cell interactions. A final section covers polyamine homeostasis and transport. This section contains excellent coverage of polyamine transport mechanisms, which are very well understood in bacteria but less well characterized in higher eukaryotes. Chapters by Poulin et al. and by Igarashi and Kashiwagi, who represent the two leading laboratories in this field, provide a helpful summary of the area. Contributions by Persson, Hanfrey and the Jänne laboratory describe the regulation of ornithine decarboxylase, S-adenosylmethionine decarboxylase and polyamine catabolism respectively. These aspects of

polyamine homeostasis have been reviewed extensively but are very active areas of current research, and the chapters together provide a good overview of a complex and rapidly developing field.

The section on cell motility and cell-cell interactions contains only three chapters. Although these are excellent in the areas that are covered, most notably that by Kurata and Nichols on the Kir channels, it is unfortunate that other important areas in which polyamines are known to contribute to ion channel regulation such as interactions with NMDA receptors are not represented. The role of polyamines in intestinal epithelial migration and cell-cell communication is however very well summarized in this section.

The largest section of the book contains 11 chapters describing multiple aspects of the roles of polyamines in cell proliferation and hypertrophy. The vast range of such studies is well demonstrated by the fact that there are chapters on heart, breast, prostate, kidney and lung. Among other interesting components of this section, Woster summarizes some recent studies with polyamine analogs that have major promise as therapeutic agents, and Gilmour describes effects on chromatin structure and acetylation. This area and the sequence-specific DNA binding activity of polyamines described by Thomas and colleagues, as well as the ability of polyamines to alter expression of critical genes regulating cell division and growth arrest, which are covered in chapters by Byus and Wang, provide a

lead to the second section in the book which has eight chapters more focused on cancer.

Several chapters in this section discuss polyamines and apoptosis. This is an area in which there is still some discussion and confusion, but it is becoming apparent that both excess polyamines and a drug-induced reduction in polyamine content can lead to apoptotic cell death. Among other notable chapters, Nilson and Cleveland summarize their seminal studies on the role of ornithine decarboxylase in Myc-driven carcinogenesis, and Casero and colleagues review their work on polyamine catabolism and its role in disease and drug response. This section also contains an excellent summary of work developing DFMO, an ornithine decarboxylase inhibitor as a cancer chemopreventive agent by Gerner, a pioneer in this active area.

Overall, I would strongly recommend this book to those already in the polyamine field and those who need an introduction to it. The editors have been very successful in getting a succinct and up-to-date review from many of the major participants in the field and in covering most of the key areas. The pace of discoveries in these areas continues to be brisk, but at present, this book is an excellent starting overview. ❖

Anthony E. Pegg
Pennsylvania State University

Books Received

Essays in Biochemistry volume 42: The Biochemical Basis of the Health Effects of Exercise.

A.J. M. Wagenmakers (Editor).

London, UK: Portland Press, 2006, 214 pp., illus., index,
\$40.00.

ISBN: 10 1 85578 159 X.

The Integrative Action of the Autonomic Nervous System: Neurobiology of Homeostasis.

Wilfrid Jänig

Cambridge, UK: Cambridge University Press, 2006, 610 pp.,
illus., index, \$170.00.

ISBN: 0-521-84518-1.

Schultz Wins International Honor for Pioneering Oral Rehydration Research

Stanley G. Schultz, MD, APS Past-President and a longtime investigator, educator and administrator at The University of Texas Medical School at Houston, received a prestigious international award for pioneering research that led to the development of oral rehydration therapy.



Stanley G. Schultz

King Bhumibol Adulyadej of Thailand presented Schultz with the Prince Mahidol Award for Medicine on Jan. 31 at the Grand Palace in Bangkok.

The annual prize, awarded by the Prince Mahidol Foundation on the recommendation of an international panel of experts, is a tremendous honor for Schultz, said Jerry S. Wolinsky, MD, interim dean of the UT Medical School.

"It is quite fitting that Dr. Schultz be recognized with the Prince Mahidol Award in Medicine for his pioneering work on the physiology of ion transport in the intestine and recognizing the profound implications of his findings for oral rehydration in cholera and other diarrheal diseases," Wolinsky said. "Clinical applications of his insight have anonymously benefited the lives of millions. We are especially fortunate for all of the lives he has directly touched over the decades that he has tirelessly committed to nurturing our institution."

Schultz is this year's only recipient of the Prince Mahidol Award in the field of medicine. Three others will receive Prince Mahidol Awards in the field of public health. All are being recognized for work they did in the 1960s and 1970s to promote the discovery, introduction and widespread use of oral rehydration

therapy. The simple, inexpensive treatment for severe diarrhea is estimated to have saved more than 40 million lives in the past 30 years.

The award acknowledges outstanding performance and/or research for the benefit of mankind and is named after Thai Prince Mahidol of Songkla, the father of King Bhumibol. Prince Mahidol, considered the Father of Modern Medicine and Public Health of Thailand, worked continually to upgrade medical care in Thailand. He earned his medical degree and a certificate of public health from Harvard University and practiced medicine in Thailand. In 1929, at age 37, he died of kidney disease.

Schultz, an adviser and former dean of the UT Medical School, said it is personally gratifying to receive the Prince Mahidol Award because it credits his basic research as a significant contribution to the human race.

In 1962, while Schultz was a captain in the medical corps at Brooks Air Force Base in San Antonio, he started his career-long investigations on how substances are transported across membranes of the small intestine.

In a series of studies designed to examine the effects of glucose on sodium absorption, he found that when he exposed the mucosal surface of small intestinal tissue to the sugar and sodium, a marked increase in total sodium transport occurred. This indicated that both sugar and sodium were transferred into the tissue simultaneously.

Since it was known that water reabsorption is coupled with solute reabsorption, it followed that increasing sodium and glucose reabsorption by the gut would result in rapid rehydration. To treat dehydration, a person could drink a solution of sodium salts and glucose—a simple, effective and inexpensive cure.

"The mechanism of sodium-coupled solute absorption by the gut is now a standard model for the small intestine and the kidney," said Schultz, who holds the H. Wayne Hightower Distinguished Professorship in the Medical Sciences and the Fondren Family Chair in Cellular Signaling at the UT Medical School. "It's turned out to be a universal mechanism by which many nutrients and solutes are taken up by many cells. It is very important from a basic science point of view as well as a translational point of view."

The Prince Mahidol award is one of numerous honors Schultz has received

for his life-long work on the mechanisms of sodium and glucose-coupled absorption in the small intestine.

Schultz, now 75, was the recipient of the Hoffman-LaRoche Prize for Outstanding Contributions to Gastrointestinal Physiology in 1978. The American Physiological Society (APS) honored Schultz with the 2003 Daggs Award, a prestigious award given in recognition of distinguished contributions to the science of physiology and to the APS organization. Other awards include the New York University College of Medicine's 2003 Solomon A. Berson Medical Alumni Achievement Award in Clinical Science, an award given for career contributions in clinical and basic science.

Schultz received his MD degree from New York University College of Medicine. He taught biophysics at Harvard Medical School and was professor of physiology at the University of Pittsburgh School of Medicine before joining the UT Medical School at Houston as professor and chairman of the Department of Physiology in 1979.

Wright Elected to German Academy of Sciences



Ernest M. Wright

Ernest M. Wright, professor of physiology at the David Geffen School of Medicine at UCLA, has been elected to the German Academy of Sciences Leopoldina in recognition of his scientific achievements in the field of transport proteins, which carry essential molecules in and out of cells. Founded in 1652 and officially renamed after Emperor Leopold I in 1677, Leopoldina

is the world's oldest academy involved in the natural sciences that has been permanently in existence since it was founded in 1652 as the Academia Naturae Curiosorum in the Free Imperial City of Schweinfurt. It was officially recognized by Emperor Leopold I in 1677 and vested with the privileges of an Imperial Academy in 1687. The number of members below the age of 75 is formally limited to 1,000. Three quarters of the members come from Germany, Austria and Switzerland and the remainder comes from more than 30 other countries. Currently there are 34 Nobel Prize winners and in total there have been 163 members awarded this honor. There are 28 sections of the Leopoldina ranging from Mathematics to Medicine.

Duling Wins Inaugural UVa Award

APS Member, Brian R. Duling was one of two faculty members to receive the University of Virginia's inaugural Distinguished Scientist Award created by the Office of the Vice-President for Research and Graduate Studies to honor longtime faculty in science, medicine or engineering who have made extensive and influential contributions in their fields. Duling currently serves as the Robert M. Berne Chair in Cardiovascular Research in the School of Medicine, and holds a professorship in the Department of Molecular and Biological Physics. His research has shaped the study and understanding of microcirculation and vascular biology.

S. Kelly Ambler, is an Instructor, Division of Cardiology, University of Colorado Health Sciences Center, Denver, CO. Formerly, Ambler was an Instructor, Department of Cardiology, Denver Health Medical Center, Denver, CO.

Lida Anestidou has attained the position of Program Officer, The National Academies Institute for Laboratory Animal Research, Washington, DC. Anestidou was formerly a Research Instructor, Center for Biomedical Ethics and Society, Nashville, TN.

Sandrine Therese A. Arbogast, a Postdoctoral Associate, has affiliated with INSERM U582, Institute of

Myology, Paris, FRANCE. Arbogast was formerly a Postdoctoral Associate, Department of Physiology, University of Kentucky, Lexington.

Krista Natasha Blackwell is presently a Postdoctoral Fellow, Department of Medicine and Cardiology, Medical University of South Carolina, Charleston, SC. Blackwell was previously a Postdoctoral Fellow, Department of Pharmacology & Physiology, University of Medicine & Dentistry, Newark, NJ.

Douglas R. Bolster is currently Manager of Sports Nutrition, Department of Nutrition Sciences, Cadbury Schweppes, Plano, TX. Bolster was formerly a Senior Research Scientist, Universities Space Research Association (USRA), NASA Johnson Space Center, Houston, TX.

Hua Linda Cai is currently an Assistant Professor of Medicine, Department of Anesthesiology and Medicine, University of California, Los Angeles, CA. Cai was previously associated with the Department of Medicine, Section of Cardiology, University of Chicago, Chicago, IL.

Dominic Paul D'Agostino has affiliated as a Postdoctoral Fellow with the Department of Molecular Pharmacology and Physiology, University of South Florida, Tampa, FL. Prior to his new association, D'Agostino had been a Predoctoral Fellow, Department of Medicine, Pulmonary, University of Medicine & Dentistry, RW Johnson Medical School, New Brunswick, NJ.

Abigail Sarah Dean, a Postdoctoral Fellow, has recently affiliated with the Department of Physiology, University of Pennsylvania, Philadelphia, PA. Dean was previously associated with the Department of Physiology, Temple University, Philadelphia, PA.

Maria Delivoria-Papadopoulos holds the position of Professor, Department of Neonatology, Drexel University College of Medicine, Philadelphia, PA. Formerly, Delivoria-Papadopoulos had been affiliated with the Department of Pediatrics, Medical College of Pennsylvania, Philadelphia, PA.

Carsten J. Duch, Associate Professor, has affiliated with Arizona State University, School of Life Sciences,

Admin & Faculty, Tempe. Prior to his new position Duch was formerly a Jr. Group Leader, Freie University of Berlin, Institute of Biology, Berlin, Germany.

Michael J. Eppihimer has accepted the position of Senior Manager, Boston Scientific Corporation, Cell Biology, Natick, MA. Eppihimer was previously an Associate Professor, Department of Bioengineering, Pennsylvania State University, University Park.

C. Michael Foley is currently a Research Assistant Professor, Covance Laboratories, Inc., Madison, WI. Foley was previously associated with the Department of Biomedical Science, University of Missouri-Columbia, Dalton Cardiovascular Research Center, Columbia, MO.

Michael S. Gold, an Associate Professor, has affiliated with the Department of Medicine, University of Pittsburgh, Pittsburgh, PA. Previously, Gold, as Assistant Professor, was associated with the Department of Biomedical Sciences, University of Maryland Dental School, Baltimore.

Michael A. Hill has recently affiliated with the Dalton Cardiovascular Research Center, University of Missouri, Columbia, MO. Prior to his new position, Hill was associated with the Department of Anatomy and Physiology, Royal Melbourne Institute of Technology, Victoria, Australia.

Yuh-Chin T. Huang, a Professor, has associated with the Department of Medicine, Duke University Medical Center, Durham, NC. Prior to his new position, Huang, as a Medical Officer, was formerly affiliated with the Department of Human Studies, Chapel Hill, NC.

Masahi Ichinose, a Research Fellow, joined the Department of Physiology, Wayne State University School of Medicine, Detroit, MI. Formerly, Ichinose was associated with the Institute of Health and Sports Sciences, Tsukuba University, Tsukuba, Japan.

Andrew Robert Judge, a Research Associate Scientist, has joined the University of Florida Applied Physiology & Kinesiology Department, Gainesville, FL. Judge was formerly affiliated with

the Department of Health Sciences, Boston University, MA.

Frederick Steven Korte has affiliated with the Department of Engineering, University of Washington, Seattle, WA. Korte was formerly associated with the Department of Physiology, University of Missouri, Columbia.

Ronald A. Markle recently moved to Eberly College of Science, Penn State University, University Park, PA. Formerly, Markle, a Professor, was with the College of Engineering & Natural Sciences, Northern Arizona University, Flagstaff.

Jeffrey B. Matthews, Professor and Chairman, is now affiliated with the Department of Surgery, University of Chicago, Chicago, IL. Matthews as Professor and Chairman, was formerly with the Department of Surgery, University of Cincinnati College of Medicine, Cincinnati, OH.

David D. McPherson, a Professor, has joined the Department of Cardiology, University of Texas, Houston, TX. Previously, McPherson, as a Professor, had been associated with the Department of Medicine and Cardiology, Northwestern University, Chicago, IL.

Benjamin F. Miller, an Assistant Professor, has affiliated with the Department of Health and Exercise Science, Colorado State University, Fort Collins. Formerly, Miller was a Lecturer, Department of Exercise and Sport Science, University of Auckland, Auckland, New Zealand.

Kerrie Lynn Moreau, an Assistant Research Professor, has affiliated with the Department of Medicine, Division of Geriatrics, University of Colorado, Denver and Health Sciences Center, Denver, CO. Prior to her new position, Moreau was a Postdoctoral Fellow, Department of Kinesiology and Applied Physiology, University of Colorado, Boulder.

Jeff L. Myers has accepted the position of Chief, Pediatric Cardiac Surgery, University of Tennessee Medical Group, Inc., Department of Pediatric Cardiothoracic Surgery, Memphis, TN. Prior to his new position, Myers had been Chief, Pediatric Cardiac Surgery, Department of Surgery, Tulane

University Medical School, New Orleans, LA.

Surya Nauli, an Assistant Professor, has affiliated with the Department of Pharmacology, The University of Toledo, OH. Nauli, formerly an Instructor, was associated with the Department of Medicine, Harvard Medical School, Brigham & Women's Hospital, Boston, MA.

Vazhaikurichi M. Rajendran, a Professor, has joined the Department of Internal Medicine, West Virginia University, Morgantown. Rajendran had been a Senior Research Scientist, Department Digestive Disease, Yale University School of Medicine, New Haven, CT.

Steven J. Schiff, a Professor, has recently affiliated with the Department of Engineering Sciences, Pennsylvania State University, University Park. Prior to his new position, Schiff was associated with Krasnow Institute for Advance Study, George Mason University, Fairfax, VA.

Solomon Silas Senok, an Assistant Professor, has joined the University of Sharjah, College of Medicine, Sharjah, United Arab Emirates. Senok was previously affiliated with the Department of Physiology, Arabian Gulf University College of Medicine, Manama, Bahrain.

Narong Simakajornboon, an Assistant Professor, has affiliated with the Division of Pulmonary Medicine, Cincinnati Children's Hospital Medical Center, Cincinnati, OH. Simakajornboon was formerly associated with the Department of Pediatrics, Tulane University School of Medicine, New Orleans, LA.

Kai Singbartl has joined the Faculty of the University of Pittsburgh, Department of Critical Care Medicine, Pittsburgh, PA. Prior to his present position, Singbartl was a Group Leader, Klin and Poliklin Anesthesiology Operative Intensive, University of Muenster, Germany.

Michael K. Stickland is currently a Student, Faculty of Medicine, University of Alberta, Edmonton, Alberta, Canada. Formerly, Stickland was affiliated with the Department of Medicine, University of Wisconsin-Madison, Middleton, WI.

Zhongjie Sun, an Associate Professor, joined the Department of Physiology, College of Medicine University of Oklahoma Health Science Center, Oklahoma City. Sun as an Assistant Professor, was associated with the Department of Medicine and Physiology, University of Florida College of Medicine, Gainesville.

Valory Rae A. Thatcher recently became an Instructor of the Science Division, Mt. Hood Community College, Gresham, OR. Prior to her new position, Thatcher was affiliated with the Department of Biology, Portland Community College, Portland, OR.

Jason J. Villarín, a Postdoctoral Senior Fellow, has affiliated with the Department of Radiology, University of Washington, Seattle. As a Postdoc, Villarín was formerly associated with the University of Calgary, Faculty of Kinesiology, Calgary, Canada.

Robert L. Wardle, a Research Assistant Professor, has joined the Department of Physiology, East Carolina University, Greenville, NC. Prior to his new position, Wardle was a Postdoctoral Fellow, University of Cincinnati, Department of Molecular & Cellular Physiology, Cincinnati, OH.

Neal L. Weintraub, a Professor, has affiliated with the University of Cincinnati, College of Medicine, Cincinnati, OH. Weintraub was previously an Associate Professor, Department of Internal Medicine, University of Iowa College of Medicine, Iowa City.

Robert R. Wolfe, a Professor, has accepted a position with the Department of Geriatrics, University of Arkansas Medical Science, Little Rock, AK. Prior to his new position, Wolfe was associated with the Shriners Burn Hospital, Galveston, TX.

Michiko Yamasaki, a Postdoc Research Associate, has joined the Department of Neurobiology & Behavior, University of California, Irvine, CA. Yamasaki was formerly associated with the Department of Pharmacology, University of Oxford, Oxford, UK. ❖

The Wine Wizard

Peter Wagner

The dead of winter is the time for dangerous red wines: those inexpensive bottles that are too easy to drink when it's cold outside. Having previously discussed Two-Buck-Chuck and also Yellowtail, this month's column is about Rosemount, an Australian producer who also makes a bunch of cheap, mostly decent wines. They focus on reds, and currently have six different varieties available. Each can be had for just \$6 and are found widely in supermarkets in certain enlightened states.

In summary, all but one of the six are well worth their price, and are actually a notch above cheap BBQ wines. As with the aforementioned, they are drink-now-do-not-age wines. They are presented in order of preference. However, your own personal taste is likely more important than rank among the first 5. Only the sixth is substandard on my scale.

1. 2004 Shiraz (53%) Cabernet (47%). Deep in color, the nose began with sl leafiness and sulfur, but both blew off quickly, leaving rich dark berry fruit on the nose and palate with nice medium tannic structure and balanced acid. The wine opened well, with richness developing further in the glass, and with good length. Balance of fruit, tannin and acid are excellent. Very easy to drink.

2. 2003 Merlot. Medium deep color with vanilla and dark cherry nose. Medium tannin and richness with nice bright red and dark cherry fruit. Slightly earthy, with nice balance and length, a touch more complex than (1) but not as

rich. I did not expect this to come out #2 in the group.

3. 2004 Shiraz. Sl sulfur that blew off; vanilla with red/black berry fruit on the nose. Forward fruit on the palate, with blackberry finish, a bit simple in its flavors. But balanced (i.e., fruit-acid-tannin) and pleasant.

4. 2004 Shiraz (55%) Grenache (45%). Grapey floral nose and palate. Slight earth, bright acid, light tannins, pleasant accessible wine. Not as rich as the



Peter Wagner

above three. Slightly herbacious, with fair length.

5. 2004 Cabernet (88%) Merlot (12%). Deep color, with a nose of plums and dark berry turning to blackberry. Sl. green pepper with red and dark cherry fruit on the palate, which however was

surprisingly simple. While juicy, it lacked depth or complexity. But another easy-to-drink drop.

6. 2003 Cabernet. Strong salty "Vegemite" nose with pruneey, ripe fruit. Same characters on the palate. The fruit began to fade in the glass, leaving a slight bitter edge.

However, since it is the holiday season, you may feel like splurging on something of higher quality. Here are two in that category.

White: Frank Family 2005 Chardonnay \$30-35. Who knows if our Executive Director has a part of this winery, but no matter. This is a refreshingly crisp, lightly oaked, apple-citrus flavored wine without the heavy, overoaked, buttery characters of so many California Chardonnays. Light vanilla, excellent acid and delicate fruit give this wine elegance and balance. Costs a bit, but with a name like Frank, who cares?

Red: You guessed it. Frank Family 2004 Zinfandel \$35. This wine has forward, jammy red cherry and raspberry fruit, with spice and vanilla and sweetness from alcohol on the nose. The palate follows in kind with very ripe and accessible forward berry fruit and vanilla/spice. Opens very well in the glass. Has a sweetness to it that is probably due to the high alcohol (15.6%) and vanilla oak more than true residual sugar, and there is definite "heat" at the finish - the clear taste of alcohol typical of wines with lots of ethanol. Not too tannic, but with good acid, it is a great food wine for red meat dishes. It's a bit pricey, but Marty is very proud of the wines from this vigneron, so it's a pleasure to feature them. ❖



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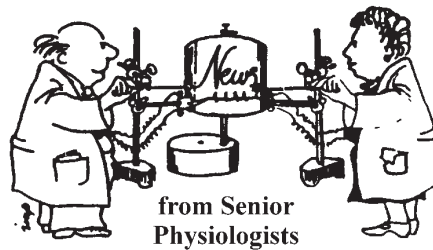
Letter to Beverly Bishop

James Boyer writes: "My apologies for not replying to your letter of August 28, my 70th birthday sooner. Thank you for your request for information on my career. I am still full-time and doing pretty much what I always have been doing as Director of the Liver Center at Yale University School of Medicine with on going responsibility for two Center grants (one at Yale and one at the Mt. Desert Island Biological Laboratory in Maine) and an R0-1 of nearly 30 years devoted to mechanisms of bile secretion and cholestasis. My advice to younger colleagues is to find a passion that will sustain their interest over the years; to seek out good mentor(s); to surround one's self with younger colleagues who are smarter than you and get out of their way and let them take credit; the success of one's students will be their greatest joy (paraphrased from Osler); and, finally, to have fun. If you are not having fun, you are in the wrong business. Thank you again for your letter and request for this information."

Letters to Charles Tipton

Joseph Blum writes: "Now that I am 80 years old I am not doing any research or scientific writing, although if one of my colleagues gets funded I may collaborate with her group. My advice to young physiologists is that, in addition to becoming thoroughly familiar with molecular biology, they should take at least one course in 'advanced' mathematics, such as differential equations or statistical analysis. The amount of interaction between physiologists and mathematicians is rapidly increasing as a result of the ability to acquire all kinds of data with a precision that was not possible as little as 10 years ago, due to new data collecting devices and very high speed computers. If a young physiologist has some background in math, he/she can then collaborate with a mathematician to develop useful models of the physiological system under study."

Ed Bernauer writes: "I remain active in research of a kind: I was a co-investigator with a faculty on one of the com-



munity college campuses. We were attempting to record the daily energy expenditure, especially the sleep and basal costs against the recording of the energy intake. The unique aspect was to use a new device termed a Body Bugg, a unit which has four sensors worn on the arm that includes heat flow, skin temperature, accelerometer, and heart rate. We did basal metabolism and sitting, standing, with and without arm movements, and walking metabolisms. Presently working on the data. The question, does it improve on the older documented literature? I am skeptical, but the control of the subjects and the detail was worth the effort.

"Words of wisdom to younger colleagues: I believe I do have some general comments, but need some time to reflect on this point.

"I have a fair amount of limited publications and written reports related to my work as a consultant over a period of 15 years. It includes my assessment of work demands and setting of physical standards for the workplace as it affects wellness and fitness for purposes of medical liabilities, and conforms to the Civil Rights and the subsequent legal bills passed in the early '90's. Some of the major jobs included: State of California; California Highway Patrol physical standards, as we as for several local police and fire departments; San Francisco Airport Security Police; Cable billing in Sacramento, one of my most interesting; California Bell Telephone Co., the one that got me started when the Cardiology department deferred them to me; it began when females were accepted in the construction jobs within the company; the Air Force Academy with the admission of Female Cadets; the University of California at Davis grounds keepers and janitorial services; this in conjunction with the large

increase in medical insurance money being spent by the UCD campus; also, their Fire Department that had never hired a female firefighter prior to my study and that made them very vulnerable to a legal challenge by Federal Agencies. This last item resulted in my developing an elective course entitled, 'Wellness and fitness in the Work Place.' My experience came together and forced me to recognize the folly of the single dimension of dealing with this as a physiological problem rather than a historical, legal, insurance-medical problem, a conflict between various departments in industry, as well as the University, e.g., the personnel department and health and safety people. The latter were for pre-employment testing and the former were against it. My experience with all of these factions resulted in pulling all of these factors together in a very interesting exposition of the issue of physical standards in the work place conforming to the law and in the best interests of the employee and employer. Shephard has written a book on this, which is fairly good, however, it does not include many of the features at play in the US system. So, you see, I do have some fair amount of stuff that I don't know what to do with."

Letter to Julio Cruz

Andrew Schally writes: "Co-recipient of the 1977 Nobel Prize in Medicine-Physiology was transferred from the Veterans Administration (VA) Hospital in New Orleans closed after the disaster of Hurricane Katrina to the VA Medical Center in Miami and the South Florida Veterans Affairs Foundation for Education and Research. Dr. Schally is a Distinguished Medical Research Scientist, Department of Veterans Affairs and heads the Endocrine, Polypeptide and Cancer Institute, located in Miami. Dr. Schally was also appointed Distinguished Leonard Miller Professor at Miller School of Medicine, University of Miami, Miami, Florida. Dr. Schally will continue his work in endocrine oncology at the new Miami location. Nobel laureates never retire." ❖



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Late-breaking abstracts will be published in an addendum to the meeting program. The abstracts will also be published in the online version of *The FASEB Journal*.

Late-breaking abstracts must be submitted online at www.eb2007.org with the \$90 abstract fee by Wednesday, February 28, 2007.

For information about the meeting including topic categories for late-breaking abstracts, preliminary program, housing, and registration go to www.eb2007.org. If you have questions, Contact eb@faseb.org.

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March 5-9

10th Tamagawa-Riken Dynamic Brain Forum – DBF'07 - In search of a new paradigm for approaching the brain as a complex system, Hakuba, Nagano Prefecture, Japan. *Information:* Internet: <http://www.tamagawa.ac.jp/sisetu/gakujutu/brain/dbf2007/index.html>.

March 21-23

Genomic Disorders, Cambridge, United Kingdom. *Information:* Email: l.criddle@wtconference.org.uk; Internet: <http://firstcontact.hinxton.wellcome.ac.uk>.

March 22-27

Systems Biology and Regulatory Networks, Steamboat Springs, CO. *Information:* Keystone Symposia. Tel.: 800-253-0685 or 970-262-1230; Fax: 970-262-1525; Email: info@keystonesymposia.org; Internet: <http://www.keystonesymposia.org/Meetings/ViewMeetings.cfm?MeetingID=870>.

March 22-27

Cell Signaling and Proteomics, Steamboat Springs, CO. *Information:* Keystone Symposia. Tel.: 800-253-0685 or 970-262-1230; Fax: 970-262-1525; Email: info@keystone-symposia.org; Internet: <http://www.keystonesymposia.org/Meetings/ViewMeetings.cfm?MeetingID=863>.

March 25-30

Molecular and Cellular Determinants of HIV Pathogenesis, Part of the Keystone Symposia Global Health Series, supported by the Bill & Melinda Gates Foundation, Whistler, British Columbia. *Information:* Keystone Symposia. Tel.: 800-253-0685 or 970-262-1230; Fax: 970-262-1525; Email: info@keystonesymposia.org; Internet: <http://www.keystonesymposia.org/Meetings/ViewMeetings.cfm?MeetingID=857>.

March 25-31

17th Annual Meeting of Neural Control of Movement 2007, Seville, Spain. *Information:* Email: admin@ncm-society.org; Internet: <http://www.NCM-Society.org>.

April 21-25

World Congress of Nephrology 2007, Rio de Janeiro, Brazil. *Information:* Email: info@isn-online.org; Internet: <http://www.wcn2007.org>.

May 1-4

Humanizing Model Organisms to Understand Pathogenesis of Human Disease, Hinxton, Cambridge, United Kingdom. *Information:* Wellcome Trust Conference Centre, Wellcome Trust Genome Campus, Hinxton, Cambridge, CB10 1RQ, UK. Tel.: +44 (0)1223 495110; Fax: +44 (0) 1223 495023; Email p.vandervalk@wtconference.org.uk; Internet: <http://www.esf.org/conferences>.

May 9-12

First Annual Meeting of the Organization for the Study of Sex Differences, Washington, DC. *Information:* E-mail: info@ossdweb.org, Internet: <http://www.ossdweb.org>.

May 18-23

American Thoracic Society International Conference, San Francisco, CA. *Information:* Internet: <http://www.thoracic.org>; Email: ats2007@thoracic.org

May 20-24

10th Annual NSTI Nanotech 2007 and BioNano 2007, Santa Clara, CA. *Information:* Nano Science and Technology Institute, One Kendall Square, PMB 308, Cambridge, MA 02143. Tel.: 925-901-4959; Email: info@nsti.org; Internet: <http://www.nsti.org/Nanotech2007/>.

May 21-23

TIDES 2007 - Oligonucleotide and Peptide@, Technology and Product Development Conference, Practical Considerations for Progression through Development, Las Vegas, NV. *Information:* IBC Life Sciences. Tel.: 508-616-5550; Fax: 508-616-5533; Email: taskm@ibcusa.com; Internet: <http://www.ibclifesciences.com/TIDES>.

May 23-25

First Annual Meeting of the Canadian Association for Neuroscience, Toronto, Ontario, Canada. *Information:* Peter Smith, Secretary, CAN-ACN. Email: peter.a.smith@ualberta.ca; Internet: http://www.can-acn.org/Pub/Pub_Front.asp.

June 24-28

Omics: Assembling Systems Biology, Ascona, Switzerland. *Information:* Workshop Program (PDF file). Email: flueck@ana.unibe.ch; Internet: <http://www.omics.ch/>.

August 23-26

2007 World Conference of Stress, Budapest, Hungary. *Information:* Congress Secretariat, Diamond Congress Ltd., H-1255 Budapest, P.O. Box 48, Budapest 8, Hungary. Tel.: +36 1 214 7701; Fax: +36 1 201 2680; Email: diamond@diamond-congress.hu; Internet: <http://www.stress07.com/index.html>.

September 16-19

10th International Conference on Endothelin, Bergamo, Italy. *Information:* Francesca Di Fronzo, Mario Negri Institute for Pharmacological Research, via Gavazzeni, 11-24125 Bergamo, Italy. Tel.: +39 035 319888; Fax: +39 035 319331; Email: difronzo@et-10.it; Internet: <http://www.et-10.it>.

September 18-22

VIIIth World Congress on Neurohypophysial Hormones, Regensburg, Germany. *Information:* Internet: <http://www.uni-regensburg.de/wcnh2007>.

2008

June 28-July 3

33rd FEBS Congress and 11th IUBMB Conference, Biochemistry of Cell Regulation, Athens, Greece. *Information:* Georgina Alexopoulou, Promotion and Communication. Tel.: +30 210 6889100; Fax: +30 210 6844777; Email: febs-iubmb2008@cnc.gr; Internet: <http://www.febs-iubmb-2008.org/>.



Experimental Biology



Experimental Biology 2007

Physiology in Perspective:

The Walter B. Cannon Award Lecture
(Supported by the Grass Foundation)



Frances Mary Ashcroft
University of Oxford

**"ATP-sensitive K-channels and
Disease: From Molecule to
Malady"**

Saturday, April 28, 5:45 pm
Ballroom B
Washington DC Convention Center



Experimental Biology 2007



James D. Stockand
University of Texas

**"New Insight Into the Regulation of
ENaC by Small G Proteins and
Phosphatidylinositides"**

Sunday, April 29, 5:45 pm
Ballroom B
Washington DC Convention Center

Henry Pickering Bowditch Award Lecture

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www.the-aps.org/meetings/eb07/program.htm