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FASEB Federal Funding Consensus Conference FY 2001 Executive Summary

The life sciences are in the midst of an explosion of knowledge and progress fueled by the country's past investments in biology, physics, mathematics, chemistry and engineering. Within the next few years, scientists will complete the sequencing of the human genome and begin to analyze and utilize the relationship between our genetic code and our health. New tools and new perspectives will accelerate the pace of discovery. For the past two years, the nation's leaders have recognized recent achievements in the life sciences as the fruit of past investment, and they have taken bold steps to ensure that the promise of scientific and medical advancements is realized, thereby maximizing the benefits of these achievements.

In this report, the Federation of American Societies for Experimental Biology (FASEB), representing over 67,000 scientists, offers its view of research opportunities in the biomedical and life sciences and provides FY 2001 funding recommendations for programs within six federal agencies.

National Institutes of Health

The public has expressed its support for increased funding for medical research, and leaders in both Congress and the Administration have supported the goal of doubling the NIH budget within five years. In each of the last two years, Congressional leaders have resolutely met this challenge with powerful 15 percent increases. To maintain our progress toward this goal, and continue accelerating our capabilities in medical research, FASEB recommends that NIH receive an increase of $2.7 billion dollars (15 percent), to $20.6 billion, in FY 2001.

The first priority in allocating NIH budget increases should be to support more investigator-initiated research grants and to fund proposals at the durations and levels approved and recommended by study sections. The central principle guiding dispersal of research funds by NIH is—and should remain—competitive merit review.

Training programs at the pre- and post-doctoral levels should be funded and structured so that they attract the nation's most talented students, especially those from segments of the population that are not adequately represented at this time. To meet current and projected national needs, FASEB recommends emphasizing interdisciplinary training programs.

The training and mentoring of early career physician-scientists should be expanded through increased funding for MD/PhD programs, as should other research training programs for those who have already completed specialty training.

FASEB recommends increased support for high-quality, patient-oriented research and its requisite infrastructure and urges that physician-scientists be involved in the grant review process.

Funding for cutting edge technologies, including shared biotechnology resources, the shared instrumentation grants program and the development of comprehensive multi-technology centers, should be doubled.

Funding should be expanded dramatically for the development of high-performance computing applicable to basic and clinical biomedical research. Likewise, increased funding should be

(continued on page 6)

Inside

The Physiologist

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Contents

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APS Launches On-line Archive Of Teaching Resources

The Education Committee and Education Office are pleased to announce the official opening of the American Physiological Society Archives of Teaching Resources, a new free on-line site (http://www.faseb.org/aps/educatn/archive.html) that houses numerous resources and links to improve the learning of physiology. This site has/will have case histories, figures, slides, simulations, laboratoriess, movies and animations, audio files, test questions, active learning ideas, and outlines of information presented for physiological systems in various levels of courses. The site is also the home of the "Medical Physiology Core Learning Objectives" project. There are links to the Experimental Biology refresher courses, *Advances in Physiology Education*, and other resources for teachers of physiology. These original resources have been contributed by numerous physiologists and have been reviewed for scientific accuracy. The resources will be provided with a colleague-to-colleague comments section following each resource and will be updated regularly.

A Brief Chronology of the Archives

In 1996, the APS Long Range Planning Committee suggested that an archive of teaching resources might address the problem faced by many APS members in the expansion of their teaching loads [*The Physiologist* 39(6):385, 1996]. Therefore, at its January 1997 meeting, Education Committee Chair **Frank Belloni** challenged the Education Committee and the Committee authorized its member **John Dietz** to proceed with a pilot project to collect teaching resources in fluid and electrolyte physiology and to make them available at the APS Education web site. Dietz designed and implemented a proposal for the project so that the pilot archives were advertised and demonstrated at Experimental Biology '98 and became available on the APS web site by the fall of 1998. Following the initiation of these pilot archives, the percentage of "hits" on the APS Education web site increased from 1.6% in July 1998 to 14.7% in June 1999. Many of these increased "hits" have been for the PowerPoint slides provided by Dietz to the Archives.

During the fall and winter of 1998-1999, the Education Committee solicited new material in other areas for the Archives by selected e-mail correspondence and at the site itself. In addition, the Committee solicited a few potential reviewers for material to be submitted to the site. In the meantime, the Association of Chairs of Departments of Physiology commissioned a new "Medical Physiology Core Learning Objectives" project with the expertise of **Rob Carroll**, APS member and former chair of the Teaching Section. The Objectives will be housed at the Education web site in conjunction with the Archives. Due to the major need for expansion of the site and the minimal response with new material to the low key solicitation and advertising at the site, the APS Council initiated an Orr E. Reynolds Fellowship for an APS member (**Barb Goodman**) to assist the Education Office during the summer of 1999. Council directed the Fellow to design and implement for the Archives both a major advertising/solicitation campaign and a long/short term review process. The preliminary report from the Fellow was accepted by Council at its November 1999 meeting. Future plans for the Archives include additional staffing for the Education Office to solicit for and maintain the site and the enhancement and expansion of the web site to make it much more interactive.

Philosophy of the Archives

The philosophy of the Archives of Teaching Resources is to share resources for enhancing the learning of physiology with teachers of physiology. The Archives are a member benefit for APS members who may be picking up a new section, may want more information about an area of physiology, or may want to improve the use of technology in their teaching. Therefore, as a service to APS members (and the whole world), the APS Education Committee is collecting materials for an on-line teaching resource. Resources specifically wanted include case histories, figures, slides, simulations, laboratories, movies and animations, audio files, test questions, active learning ideas, and outlines of the information presented for physiological systems in various levels of courses. There will also be links to the proceedings of the refresher courses in various areas of physiology sponsored by the Education Committee at the annual Experimental Biology meetings. These talks by experts in the various fields have been published in *Advances in Physiology Education*, which is now available free on-line. In addition, there will be numerous links to other resources for teaching physiology, including other web sites, commercial software enterprises, departmental web sites, etc. For example, since many physiologists spend a considerable amount of time designing their own PowerPoint slides to enhance their teaching presentations, it would be helpful to many of us to have ready access to someone else's slides.

While the material will be preliminarily reviewed for scientific accuracy by a panel of volunteer reviewers, the philosophy will be to provide various versions of the same basic information and to have the teachers be able to download the version that best meets their needs. With the expansion of the capabilities of the APS web site, a colleague-to-colleague review and comments section (similar to book reviews at Amazon.com) will soon be added to the

(continued on page 4)

(continued from page 3)
Archives. Thus, if the resources are not appropriate for a certain level of teaching or if someone has a concern about the material, the comments will be available at the site. An additional goal of the Archives will be to maintain them as up-to-date as possible. This will involve the colleague-to-colleague comments sections, the encouragement of regular revisions from the authors, and periodic reviews by other physiologists.

Managing the Archives

Obviously, the Archives will only work as a service to teachers of physiology if physiologists submit material, review material, comment on the material, and access the material. The submission and review guidelines and all necessary forms are available at the site (http://www.faseb.org/aps/educatn/archive.html). Send your material electronically or by disk and include a brief statement about the file names included, material type, format, and the area(s) of physiology covered. An author certification and release form will be required before final publication of the material at the site. Material in the Archives will be reviewed for scientific accuracy and will need to be updated periodically.

The Education Committee and the Orr E. Reynolds Fellow would like to thank the APS members who have already volunteered to review contributions to the Archives for scientific accuracy. Reviewers include: **Francis Belloni**, **Clark Blatteis**, **Stephen DiCarlo**, **John Dietz**, **Carl Gisolfi**, **Maurice Goodman**, **Elizabeth Hays**, **Lois Heller**, **Mike Hlastala**, **James Houk**, **Bruce Koeppen**, **Michael Levitzky**, **Donald McCrimmon**, **John Pooler**, **Susan Porterfield**, **Helen Raybould**, **Evelyn Schlenker**, **James Schafer**, and **Michael Soulsby**. These reviewers either volunteered to previous e-mail solicitations or were recommended via contact with chairs of the APS sections.

Are you an expert (and/or hard-working) teacher of physiology? Do you use technology and innovative learning activities in your section/course? Would you be willing to share your original resources with others preparing lectures in physiology? For further information, check out the APS's online Archive of Teaching Resources at www.faseb.org/aps/educatn/archive.html. Submit your material via e-mail to educatio@aps.faseb.org with the header "Archives" or via disk to the Education Office, APS, 9650 Rockville Pike, Bethesda, MD 20814. ❖

From Honeybees to Pond Water....Elvis and Chickens.... Montana Local Outreach Teams Present Physiology Workshops

Two Local Outreach Teams (LOTs) developed through the APS *Frontiers in Physiology* program presented workshops in physiology to Montana middle and high school teachers and tribal college faculty in October and November of 1999. LOTs disseminate physiology resources and physiology education through local inservice workshops. Each LOT will host informal follow-up sessions for workshop participants in 2000.

Dull Knife Memorial LOT

The Dull Knife Memorial LOT is a joint effort by the Dull Knife Memorial College and Little Big Horn College to improve the quality of science education at tribal schools and the surrounding communities in southeastern Montana. Both colleges serve as training sites for continuing education of middle and high school science teachers, provide K-12 outreach services through the High Plains Rural Systemic Initiative (HPRSI), and have resource centers that provide inquiry-based teaching materials to area schools.

Under the direction of team leader, APS member **Robert G. Carroll** of East Carolina University, APS Education Committee Chair **Barbara Goodman** of the University South Dakota School of Medicine, *Explorations in Biomedicine* summer research teacher **Robert Madsen** of Dull Knife Memorial College, Lame Deer, and **Martin Old Crow**, of Lodge Grass Elementary School, Lodge Grass, presented workshops on October 18 and 22 that included information on education resources and materials available through the APS and modeling of hands-on, inquiry-based classroom activities.

Jeff Kelch and Cindy Templer carefully time flow rates in the "Elvis" experiment.

Teachers explored the "Elvis Experiments," a component of the APS unit, *Physiology of Fitness*, highlighting cardiovascular and respiratory functions. Students participating in the Elvis Experiments "re-discover" Poiseuille's Law by constructing experiments on factors that contribute to flow resistance.

Science activities developed by local teachers, former partici-

pants in the APS *Explorations in Biomedicine* program, were also presented. Madsen presented "Bee Cool," an investigation of honeybee thermoregulation. Don Hutson, of F. Brattin Middle School, Colstrip, presented "Pond to Cup," where students learn what causes growth and death in microorganisms in pond water. Carol Baker, of Ashland Public School, Ashland, presented "Move Chicken Move," where students learn about the movement and structure of muscles. Activities were also presented by a number of *Explorations in Biomedicine* fellows: Shane Doyle of Lodge Grass Elementary School, Lodge Grass; John Pilch, of Lodge Grass Jr. High School, Lodge Grass; Billie Foote, of Dull Knife Memorial College; Tony Kilyanek, of Lame Deer High School, Lame Deer; and Bruce Dudek, of St. Labre High School, Ashland.

Participants explored diabetes using "*Charting Your Blood Glucose Level*," a student exercise from the APS *Women Life Scientists: Past, Present, and Future* book (1997).

After the workshops, APS physiologists visited reservation schools. Carroll and Goodman presented components of *Neural Networks*, activities concentrating on autonomic neural functions, and *Physiology of Fitness*, activities teaching cardiovascular and respiratory functions, to seventh grade science students at the Lame Deer Junior High School.

The following day they discussed science and health opportunities with the Careers Class at the Lame Deer High school. Goodman comments, "Many of (the students) expressed interest in science and health careers. Several of the girls asked very good questions and were enthusiastic about their futures."

Fifth grade and lower high school students in Busby participated in several activities of the *Physiology of Fitness* unit. Writes Goodman, "They really enjoyed the exercise activities with pulse and breathing measurements and were willing to share their data enthusiastically with the group. They asked good questions. We also talked with the sixth and eighth graders about science and careers. ...While the older students were less open about participation, even many of them seemed to enjoy the activities. We (discussed) why heart rate and breathing rate might need to increase with exercise.

Bob Madsen, LOT Team Member, Effie Clairmont, Polly Dupuis, Bill Galey (APS Physiologist), and Millie Nesladek test how tubing length affects flow rate.

"These kids need to see people who have made it from their own culture, and they need to hear this frequently... students find it difficult to see the possibility of a bright future for themselves or their friends," comments Goodman.

Students and teachers maintain their contacts with physiologists via email and APS education listservs.

University of Montana LOT

The University of Montana LOT team, led by **Delbert L. Kilgore, Jr.,** Division of Biological Sciences, University of Montana, and **William R. Galey, Jr.**, University of New Mexico School of Medicine, presented a workshop to middle and high school teachers on November 6, 1999 at the Salish Kootenai College, a tribal college located about 60 miles north of the University of Montana Campus.

LOT team members Dave Fitzpatrick, Charlo High School; Kathy Knudson, Polson Middle School; Robert Madsen, Dull Knife Memorial College; and Mary Alice Thomas, Polson High School modeled components of the *Physiology of Fitness* unit, including the Elvis Experiments, and an exercise that explores the effects of exercise on the cardiovascular system.

Participants were also presented teaching materials and resources developed by APS, as well as teacher-designed and tested science activities developed by former summer research teachers in the *Explorations in Biomedicine* program.

Teachers received copies of Madsen's "Bee Cool," Baker's "Move Chicken Move: How Do Muscles Move?," "Charting Your Blood Glucose Level," a student exercise from the APS *Women Life Scientists: Past, Present, and Future* book, and Knudson's "Learning About Absorption" activities. They also explored the use of inquiry-based pedagogies.

William R. Galey, Jr., traveled to the classrooms of the University of Montana LOT teacher participants. During his visit to Polson Middle School, 5th grade students were able to view slides of cells through a microscope. Comments teacher Kathy Knudson, "Most of the kids had never seen microscopes before...the kids just loved him!" Galey also answered numerous questions students had about his career, where he lived, and where he teaches.

Students in the Advanced Biology class at Charlo High School, Charlo, were presented information about science research careers. "Bill spent time talking about diabetes and current research on this disease. We also ran a short reaction experiment where he talked about the importance of the scientific method and the difficulties of data collection and analysis. Thanks to Bill, my students know that science careers can be exciting as well as beneficial to the health of everyone," remarks teacher Dave Fitzpatrick.

Galey concluded his tour in Montana with a presentation on careers in physiology to Mary Alice Thomas' three biology classes at Polson High School, Polson. ❖

FASEB Executive Summary

(continued from page 1)
provided for basic research in bioinformatics and underlying disciplines.

National Science Foundation

FASEB supports an increased investment in the NSF budget to promote advances in fundamental research, development of new interdisciplinary initiatives and improved science education.

While funding levels have increased for NSF over the past thirty years, analysis of past funding trends shows that this rate of growth, while improving in recent years, does not correspond to the expanding scientific opportunities or the growing reliance of our economy on science and technology. FASEB therefore recommends that the NSF budget for FY 2001 be increased by $626 million (16 percent), to $4.5 billion.

US Department of Agriculture

FASEB proposes an increase in base funding for the National Research Initiative Competitive Grants Program of $84 million, to $203 million, in FY 2001. This increase should not come at the expense of other programs. In addition, FASEB urges Congress to increase the 19 percent cap on indirect (facilities and administrative) costs for National Research Initiative grants.

The Initiative for Future Agriculture and Food Systems should receive full funding of $120 million in FY 2001, and FASEB recommends that this initiative include programs in agricultural genomics and biotechnology/risk assessment.

Funding for the National Needs Fellowship Grants should be increased by $2 million, to the authorized level of $5 million dollars, and the Institution Challenge Grants should be maintained at $4.35 million.

US Department of Energy

The unique expertise and powerful facilities contributed to biological research through DOE programs merit sustained and significant support. Such support is required if DOE is to continue to meet the increasing demands of its user facilities, as well as facilitate and strengthen targeted initiatives to address the priorities set forth by the agency mission.

FASEB recommends that an additional $80 million be added to the Biological and Environmental Research budget to build and strengthen individual research initiatives. FASEB further suggests that $10 million be added to the Basic Energy Sciences budget to enhance the synchrotron user facilities.

National Aeronautics and Space Administration

FASEB recommends that an additional appropriation of $50 million be provided for NASA's investigator-initiated, peer-reviewed Life Sciences research program in FY 2001.

FASEB supports and encourages NASA's partnerships with NIH to develop programs of common interest to both agencies.

US Department of Veterans Affairs

VA research and development funds are vital for long-term support and enhancement of research programs in areas such as prostate cancer, spinal cord injury, heart and lung disease, diabetes and Parkinson's disease.

FASEB recommends that the VA research and development budget be increased by $49 million, to $370 million in FY 2001. This increase will allow the VA to incorporate inflationary adjustments and increased salaries for federal VA employees without sacrificing research dollars or growth. ❖

Public Affairs

NIH Issues Data Disclosure Rules

NIH has issued guidance to grantees for complying with the new requirement that certain research data may be disclosed to the public under the Freedom of Information Act. On November 8, 1999, the Office of Management and Budget (A-110) published a final notice in the *Federal Register* with amendments to OMB Circular A-110 implementing this policy. NIH indicated in its notice that the policy will take effect in early 2000 once a revision to the *Code of Federal Regulations* is published.

In its guidance notice, NIH clarifies that the revision to A-110 applies only to "data produced with Federal support that are cited publicly and officially by a Federal agency in support of an action that has the force and effect of law." The guidance notice also "explains how access would be achieved when a request is made" under the new A-110 provisions and includes a list of frequently asked questions.

The guidance notice was posted on the NIH website at http://grants.nih.gov/grants/policy/a110/a110_guidance_dec1999.htm. ❖

Court Rules Against Activist in Primate Regulations

A federal court has upheld the USDA's existing Animal Welfare Act (AWA) standards for the environmental enrichment of nonhuman primates. In a decision handed down February 1, the US District Court of Appeals for the District of Columbia ruled against an animal activist's challenge to these standards. The plaintiff had argued that he suffered "aesthetic injury" in seeing primates kept in isolation or in barren or dangerous habitats at a roadside zoo. In a nine page opinion, a three-judge panel of the Distric Court of Appeals rejected his challenge and ruled that USDA regulations do satisfy the agency's obligation under the AWA to establish "minimum requirements" providing for "a physical environment adequate to promote the psychological well-being of primates."

The closely watched case originated in a suit brought by the Animal Legal Defense Fund (ALDF) and several individual plaintiffs against the USDA. The late US District Court Judge Charles R. Richey first ruled in October 1996 on behalf of the plaintiffs, and struck down USDA's regulations to ensure primate well-being. The USDA appealed this ruling and was joined by the National Association for Biomedical Research (NABR) in challenging the plaintiffs' standing, namely their legal right to bring the court action. The standing issue was narrowed because the District Court of Appeals ruled that only one of the individual plaintiffs met all the legal tests, but the issue was appealed all the way to the Supreme Court because animal activists had never before been granted standing to sue under the AWA. The Supreme Court sent the case back to the Court of Appeals for a ruling on the actual issues raised in the suit, which were argued in October 1999 by the ALDF on behalf of the remaining defendant and by NABR, which had requested the Supreme Court appeal even after the USDA had declined to do so.

The ALDF has the option to ask the full Court of Appeals to review the decision handed down by the panel and to again hear legal arguments on the merits of the case. ❖

White House to Propose $1 Billion Increase for NIH

President Clinton will recommend a $1 billion increase for NIH in FY 2001, the White House announced on January 16. The announcement came three weeks ahead of the February 7 release of the administration's budget plan. For the past several years, the White House has taken advantage of what is usually a slow news period in Washington to announce highlights of its budget proposals in January.

A $1 billion increase for NIH would amount to 5.6% over the agency's FY 2000 funding level. In recent years, Congressional champions of NIH have used the administration's budget starting point and have sought to secure additional funds. For FYs 1999 and 2000 their efforts succeeded in winning two back-to-back increases of about 15%. The FASEB Federal Funding Consensus Conference has endorsed a similar 15% increase in its FY 2001 recommendations. (See article on page 1.)

According to the White House, its FY 2001 budget plan will include "almost $19 billion for biomedical research" at NIH, and will also recommend legislation to eliminate delays in releasing some $3 billion in research funds that was one of the conditions of last year's increase.

These so-called "delayed obligations" have been an area of concern. In order to provide a 14.9% increase for FY 2001, Congress stipulated that $3 billion of NIH's funds would become available only during the closing days of the fiscal year. Since federal budgeting involves both "obligations" (commitments) and "outlays" (actual expenditures), the practical effect was to circumvent insufficient outlays in FY 2000 by spending the funds in FY 2001. However, the large amount of these delayed obligations raised two sets of concerns. On the one hand, it presents NIH with a logistical challenge of issuing a large number of grants during the course of a few days. On the other hand, it commits FY 2001 funds to achieve an FY 2000 funding increase.

"Increased funding for NIH has achieved broad-based partisan support," the White House said in its announcement. The announcement went on to say that "the major increase included in this year's budget was strongly advocated by Vice President Gore."

Earlier in January the Office of Management and Budget confirmed that NIH would give up $100 million from its FY 2000 budget, as its share of a $2.4 billion across-the-board reduction in funding needed to meet federal spending targets. The final FY 2000 budget agreement had specified cuts averaging .38% be made in all discretionary spending programs, although the administration was given latitude to protect some programs and to make larger cuts in others. The reduction at NIH amounted to about .55%. NIH intends to take $10 million from an intramural buildings account, and to take the remaining $90 million proportionately from its various institutes, centers, and divisions. ❖

NSF Slated for Increase

On January 21, President Clinton announced that he plans to increase the National Science Foundation's budget by $675 million for FY 2001, which would bring the total to $4.6 billion. The increase would amount to a 17% increase over NSF's FY 2000 appropriation of $3.9 billion and would be twice as much as the largest dollar increase previously proposed for the NSF.

In allocating the increase, the President will propose that about half the funds ($320 million) go for increasing "core disciplinary research." In addition, the President will recommend targeted initiatives in the areas of Information Technology Research, Nanoscale Science and Engineering, and Biocomplexity in the Environment. There will also be a "21st Century Workforce" initiative to establish training centers to enable people to work in science and technology fields.

The FY 2000 FASEB Federal Funding Consensus Conference recommended that NSF be provided with a 16% increase for its core research programs.

Meanwhile, the NSF's FY 2000 budget is slated to be reduced by $14.8 million part of the .38% across-the board-cut that was approved to meet government-wide spending targets. The administration was given some flexibility to make larger or smaller cuts in certain accounts, but the NSF reduction amounts to exactly .38%.

APS Annual Business Meeting and Award Presentations

Monday, April 17
5:30-6:30 PM, Room 6D

NIH Increases Stipend Levels for Some Awards

NIH has increased the stipend level for all individuals receiving institutional or individual National Research Service Awards (NRSA) training awards on or after October 1, 1999. Stipends for grants awarded under the Minority Access to Research Career and Career Opportunities in Research programs are also being increased to $6,948 for freshmen and sophomores, $9,732 for juniors and seniors, and $15,060 for predoctoral students.

The new stipends are effective only for awards made with FY 2000 funds. Adjustments or supplements of NRSA funded stipends for awards made prior to October 1, 1999 are not permitted. NIH asks that the new stipend levels be used in the preparation of future competing and non-competing NRSA institutional training grant and individual fellowship applications. The stipend increase will be applied to all applications now in the review process. In addition, beginning with NRSA awards made in FY 2000, costs associated with family health insurance will be allowable. This change was made to attract women and individuals from disadvantaged backgrounds, according to NIH's notice. For individual postdoctoral fellows, health insurance, which has always been an allowable cost, will be extended to families, beginning with competing and non-competing awards made in FY 2000. For more information go to http://grants.nih.gov/grants/guide/notice-files/NOT-OD-00-008.html.

In addition to NIH adjusting the NRSA stipend amounts, Congress has raised the cap for grantees to Executive Level II in FY 2000 from $136,700 and adjusted it for inflation to $141,300, effective January 1, 2000. These amounts represent the maximum amount that can be charged to the direct costs of a grant, except for indirect costs such as fringe benefits and administrative expenses. ❖

Table 1. New Stipend Levels for NIH awards

Years Postdoctoral Experience	Stipend
0	$26,916
1	$28,416
2	$33,516
3	$35,232
4	$36,936
5	$38,628
6	$40,332
7 or more	$42,300

NIH to Proceed with Study Section Realignment

NIH plans to proceed over the next two years with the study section realignment effort outlined last year by the Panel on Scientific Boundaries for Review. The project was discussed on January 10-11 at a meeting of the Advisory Committee to the Center for Scientific Review (CSR). CSR Director Ellie Ehrenfeld told the advisory panel that extramural scientists would be "heavily involved" in the next phase of the project, which is to design the study sections that will reside within the 24 Integrated Review Groups (IRGs) identified by the Boundaries Panel.

The Boundaries Panel report recommended a framework that would have placed the more than 100 study sections currently operating within CSR into a framework consisting of 24 IRGs. Nineteen will be organized around diseases or organ systems and five are dedicated to the review of certain basic sciences. The panel had originally recommended only 21 IRGs, but in response to concerns expressed by the extramural community, additional IRGs were added to review AIDS and AIDS-Related Research, the Biology of Development and Aging, and Renal and Urological Sciences.

Despite those additions, there is considerable concern about what CSR is doing, according to Howard Schachman, the NIH ombudsman to the extramural community. "I'm getting a tremendous amount of telephone calls saying, 'Why is my study section being eliminated?'"

The Phase I Report of the Boundaries Panel that was presented in final form on January 10 emphasized that changes to individual study sections will be considered during the panel's second phase. Starting this year, CSR officials and extramural scientists will propose new study sections within some of the IRGs and will then perform "test sorts" of real grant applications to determine how well the new configurations would function. If they function well, some may be phased in starting next year. It is anticipated that many existing study sections will not be changed at all, although some might end up in a different IRG.

CSR plans to post tentative constellations of IRGs and study sections on its web site as they are developed in order to facilitate feedback from the extramural community.

The framework that the Boundaries Panel used to develop its recommendations was based upon three principles. These include that there should be "at least one appropriate venue," i.e., one IRG, for all extramural research projects. In addition, the research topics within each IRG ought to be "sufficiently cohesive" to permit an advisory group of extramural scientists functioning as an "IRG Working Group" to evaluate the IRG's entire portfolio. Finally, the structures must have the flexibility to adapt to rapidly changing scientific opportunities.

The Boundaries Panel report is available on the CSR website at http://www.csr.nih.gov/ along with a message from CSR Director Ellie Ehrenfeld and a list of frequently asked questions. ❖

NIH Offers Regulatory Burden Changes

As part of an ongoing effort to reduce regulatory burden on medical research, the Division of Animal Welfare at NIH's Office of Protection from Research Risks offered guidance that would permit two simplifications of animal welfare reporting requirements. The simplifications were made in response to the recommendations of extramural experts convened as part of the "NIH Initiative to Reduce Regulatory Burden" and were published on the NIH website (http://grants.nih.gov/grants/guide/notice-files/NOT-OD-00-007.html) and in the December 21 issue of the *NIH Guide to Grants and Contracts*.

The first guidance allows institutions to opt to file their annual animal welfare report to OPRR at the same time they file their annual report to the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC). The PHS Policy on Humane Care and Use of Laboratory Animals (PHS Policy) requires that institutions notify OPRR at least once every 12 months of any changes in the institution's program or in the membership of its IACUC, as well as the dates when the IACUC conducted its semi-annual evaluations of the program and animal facilities. Although the PHS Policy does not specify when such reports must be made, most institutions by default make their reports on the anniversary date of the approval of the institution's Animal Welfare Assurance. Institutions accredited by AAALAC are also required to submit an annual report providing a program and facility update. "Significant burden reduction could result from gathering similar reporting data over the same time period," OPRR noted in announcing its new guidance.

The second guidance indicates that institutions may be allowed to count an AAALAC assessment or pre-assessment preparation activities as fulfilling the requirements for one of the IACUC's semi-annual evaluations of the institution's program for humane care and use of animals. The rationale is that the PHS Policy allows IACUC the discretion to "invite ad hoc consultants to assist in conducting the [semi-annual] inspection," although the IACUC itself "remains responsible for the evaluation and report." Under OPRR's new interpretation, an AAALAC Accreditation or Program Status Evaluation visit or pre-assessment activities may fulfill the semi-annual inspection requirement so long as the report complies with the PHS Policy, is endorsed by the IACUC as an official report, and is submitted by the IACUC to the designated Institutional Official with responsibility for its program. In addition, if the institution is subject to the USDA's Animal Welfare Act (AWA) regulations, such a report can also meet the requirements for one of its semi-annual inspections if the following conditions are met:

The report complies with the requirements of the AWA.

At least two IACUC members participate in the evaluation.

No IACUC member wishing to participate in the evaluation is excluded.

The report is signed by a majority of the IACUC members

The report includes any minority views. ❖

Animal Activist Groups Post Budget Gains

A number of animal activist groups posted significant financial gains according to a round-up published by a monthly newsletter. *Animal People*, which describes itself as providing "news for people who care about animals," has published a report on the finances of animal-related charities for the past 10 years. This year's report is based on an analysis of the groups' 1998 filings of IRS Form 990 covering either the calendar year or fiscal year 1998.

Basic information about these and other charitable organizations is available at www.guidestar.com. ❖

Table 1. 1997 and 1998 Finances of Selected Animal Activist Organizations

Name	1997 Budget	1998 Budget
American Anti-Vivisection Society	$958,268	$1,087,241
Animal Legal Defense Fund	$2,057,836	$2,363,019
Doris Day Animal League	N/A	$2,405,903
Friends of Animals	$5,082,387	$4,514,292
Fund for Animals	$4,330,084	$5445,455
Humane Society of the US	$39,492,711	$36,633,759
In Defense of Animals	$1,613,605	$1,491,213
Last Chance for Animals	$544,485	$629,404
National Anti-Vivisection Society	$1,646,723	$2,012,888
New England Anti-Vivisection Society	N/A	$1,392,009
People for the Ethical Treatment of Animals	$10,681,269	$14,543,860
Physicians Committee for Responsible Medicine	$1,712,875	$2,160,634

DHHS Releases Principles and Guidelines for Sharing Research Tools

The Department of Health and Human Services (DHHS) has released the final notice on the "Principles and Guidelines for Recipients of NIH Research Grants and Contracts on Obtaining and Disseminating Biomedical Research Resources." The final notice incorporates changes to a draft notice of the policy that was released in May.

The new policy describes NIH's definition for research resources as covering materials primarily used "as a tool for discovery rather than a FDA-approved product or integral component of such a product." This includes tools such as cell lines, monoclonal antibodies, reagents, animal models, growth factors, DNA libraries, clones and cloning roots.

In addition, the revised policy also addresses the limitations on material transfers. Material transfers that provide options for exclusive or non-exclusive commercialization licenses to "new inventions arising directly from use of the material" in NIH-funded projects "should be limited to circumstances where the material sought is unique…and not reasonably available from any other source."

Although the Principles and Guidelines are "directly applicable only to recipients of NIH funding," NIH encourages "other not-for-profit and for-profit organizations" to voluntarily adopt the policy and not establish "reach-through royalty or product rights [or] unreasonable restraints on publications and academic freedom."

The policy does not list specific criteria to be met in the appropriate sharing of NIH-funded research tools; however, it does suggest that "arrangements such as execution or annual fees" as methods for researchers to "capture the value of their inventions."

The new definition of research tools does not include diagnostics or genetic tests performed with "home-brew" reagents.

In order to allow for sufficient time for filing for patents or review confidential proprietary information, the Principles and Guidelines established a 30- to 60-day deadline for the disclosure of findings resulting from NIH-funded research tools. This is an extension from the one-month disclosure deadline suggested in the May proposal.

NIH award recipients are awarded the right "to retain the title to inventions made with NIH funds" and inventors "are not discouraged from seeking [patent] protection" under the Bayh/Dole Act. Under the new NIH policy, patent holders are advised to "license the intellectual property in a manner that maximizes the potential broad distribution of the research tool." In addition, it advises NIH award recipients to avoid material transfer agreements that "automatically grant co-authorship or copyright powers to the provider."

The guidelines are available on NIH's web site at http://www.nih.gov/od/ott/Rtguide_final.htm. ❖

FASEB Consultant Stephens Returns to the Hill

After nearly four years as FASEB's government relations lobbyist, Mike Stephens will be returning to Capitol Hill. In a January 24 letter, Stephens told FASEB President David Kaufman that he would be leaving his position with lobbying firm Van Scoyoc and Associates in February to join the Appropriations Committee staff of Rep. David Obey (D-WI). Obey is the senior Democrat on the powerful House Appropriations Committee. Prior to his work with Van Scoyoc and Associates, Stephens served as a professional staff member of the Appropriations Committee and is a recognized expert on the appropriations process in general and the National Institutes of Health in particular.

FASEB President Kaufman has appointed an ad hoc Advisory Committee on Advocacy to identify a new FASEB government relations lobbyist. ❖

APS Society Mixer
Saturday, April 15, 9:00 PM – 12 AM
Enjoy sumptuous desserts and
dance to the music of "Liquid Blue."
San Diego Marriott, San Diego B/C

Introducing Susan L. Hamilton

Susan L. Hamilton has been named Editor-in-Chief of *Physiological Reviews,* succeeding **Walter F. Boron**, whose term ended December 31, 1999. Hamilton is currently Professor and Interim Chair of the Department of Molecular Physiology and Biophysics at Baylor College of Medicine in Houston, Texas. She received her BS in Chemistry in 1971 from Indiana University and her PhD in Biophysics in 1976 from the University of Colorado Medical Center in Denver, Colorado. After her postdoctoral training with Arthur Karlin at Columbia University, she was appointed Assistant Professor in the Department of Physiology and Biophysics at the University of Texas Medical Branch in Galveston, Texas. In 1985 Hamilton moved to the Department of Molecular Physiology and Biophysics at Baylor College of Medicine in Houston and was appointed Professor in 1997. In that same year she was also appointed Section Head for Biophysics in the department and in January 2000, she assumed the role of Interim Chair.

The research group led by Hamilton is studying the molecular mechanisms of excitation-contraction coupling in skeletal and cardiac muscle, with particular emphasis on the structure and function of the two ion channels (the transverse tubule voltage-dependent Ca^{2+} channel and the sarcoplasmic reticulum Ca^{2+} release channel) involved in this process. To elucidate the structure and function of these proteins, Hamilton's group has combined techniques of molecular biology, biochemistry, electrophysiology, Ca^{2+} imaging and cryo-electron microscopy/image reconstruction. An important aspect of this research is the analysis of how mutations in these proteins contribute to the human diseases, malignant hyperthermia and central core disease.

Susan L. Hamilton

Hamilton has been a member of APS since 1996, serving on the editorial boards of both *American Journal of Physiology: Cell Physiology* and *Physiological Reviews*. She has been continuously funded by NIH since 1980 and received a Research Career Development Award from 1987-1992. She is currently the director of an NIH training program in cardiovascular science. She served on the NIH Physiological Chemistry Study Section from 1994-1998 and was Chair of this study section from 1996-1998. She has been a member of the scientific advisory board of the Muscular Dystrophy Association since 1995.

In 1998 *Physiological Reviews* had an ISI impact factor of 23.656, giving it the highest impact factor among the 67 physiology journals and ninth in all scientific journals surveyed. Hamilton's goal is to continue this pattern of excellence and broaden the journal's appeal. Physiologists will play increasingly important roles in the post-genomic era, particularly in the search for function of newly identified proteins. *Physiological Reviews* will publish comprehensive reviews that cover important scientific advances at the molecular, cellular, organ, and whole animal levels and that integrate structural and functional findings. These reviews are designed to benefit researchers in all areas of biology and will provide important background information for the evaluation of altered phenotypes in disease states and in new animal models and for the elucidation of the functional roles of newly identified proteins. The journal will continue to be an extremely valuable educational resource and, to increase this usage and improve readability, Hamilton plans to improve the quality and number of figures in the review articles. To accomplish all of the goals, the journal will continue in its efforts to recruit outstanding scientists in a broad range of physiological disciplines to serve as editorial board members and authors of reviews. Crucial to the goals will be the publication of high impact, in-depth reviews in a timely fashion. ❖

Physiological Genomics: First Print Volume

We are proud to announce that the first print volume of *Physiological Genomics* was ready for publication—sooner than anticipated—in December 1999. *Physiological Genomics* was launched July 15, 1999, as an online-first journal, with releases on July 15, August 31, and November 11. Now we have printed these first three releases. To receive a sample copy, please contact Sue Pokroy at spokroy@aps.faseb.org, Fax: 301-571-8305, or Phone: 301-530-7015.

Publications

New Citation Style for the *American Journal of Physiology*

The section journals of the *American Journal of Physiology*, published by the American Physiological Society, will now be indexed separately by major indexers, such as the National Library of Medicine, creators of MEDLINE and Index Medicus, and the Institute of Scientific Information, publisher of Current Contents, the Web of Science, and the Journal Citation Reports, which includes annual journal Impact Factors. The journal titles are: *American Journal of Physiology-Cell Physiology*; *American Journal of Physiology-Endocrinology and Metabolism*; *American Journal of Physiology-Gastrointestinal and Liver Physiology*; *American Journal of Physiology-Heart and Circulatory Physiology*; *American Journal of Physiology-Lung Cellular and Molecular Physiology*; *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*; and *American Journal of Physiology-Renal Physiology*.

The journals should be referenced using their full titles, but using the *American Journal of Physiology* consolidated volume number, which will appear in the lower left-hand corner of the cover of the journals starting in January 2000. It is also important that each page number retains the letter that appears with it on each page. (These do not designate supplementary material but are actually part of the page number itself.)

Sample references for each of the journals follows.

Am J Physiol Cell Physiol 278: C101-C114, 2000

Am J Physiol Endocrinol Metab 278: E101-E114, 2000

Am J Physiol Gastrointest Liver Physiol 278: G101-G114, 2000

Am J Physiol Heart Circ Physiol 278: H101-H114, 2000

Am J Physiol Lung Cell Mol Physiol 278: L101-L114, 2000

Am J Physiol Regulatory Integrative Comp Physiol 278: R101-R114, 2000

Am J Physiol Renal Physiol 278: F101-F114, 2000

Starting in January 2000, the correct citation for each article can be found in the upper right-hand corner of the first page of each article, to assist authors and editors with referencing these journals correctly.

We hope that you will find this notice helpful in updating your style guides and instructions to authors. For more information, please contact Margaret Reich at 301-530-7071, mreich@aps.faseb.org. ❖

The Eighth Annual Women in Physiology Mentoring Program Luncheon and The APS/NIDDK Minority Travel Fellows Luncheon

Sunday, April 16, 12:00 NOON to 1:30 PM
San Diego Marriott Hotel

(Sponsored by the APS Women in Physiology Committee and the APS Porter Physiology Development Committee)

For information and luncheon tickets, contact Andrea Jackson in the APS Education Office
Tel: 301-571-0694; e-mail: ajackson@aps.faseb.org

John F. Perkins Memorial Award

The John F. Perkins, Jr. Memorial Award promotes cultural and scientific benefits associated with the international aspects of physiology. The award provides supplementary aid to families of foreign scientists working in the US. In this way, young scientists are able to bring their families and, thus, make full use of the cultural, as well as the scientific, benefits associated with an international exchange. The program presupposes that the visiting scientist and his/her host already have made arrangements for scientific collaboration and have sufficient funds to cover the needs of the visiting scientist.

Two to four awards are made each year. Applications for the Perkins Award must be made jointly by the host, who must be an APS member, and the visitor. The recipient receives funds generally not exceeding $3,000. The size of the award depends on the estimated needs over and above the amount already available to the visiting scientist.

The **deadline** for applications is **May 15 and November 15**.

Membership

Accepted Affiliate Applicants

Michael Edward Higdon
Intracellular Imaging

George Hsu
C.C. California Corp.

Naserm Zia Jamali
Books & Research Inc.

Darin Takahiro Ryujin
University of Utah

Accepted Student Applicants

Hita M. Adwanikar
Baylor College of Medicine
Kristina Lisa Allen
University of Utah
Matthew Robert Allen
Texas A&M University
Ditte Andreasen
University of Southern Denmark
Hedien Badie-Mahdavi
University of Leeds
Suzanne Jane Bakewell
University of Arkansas
Jacqueline Aleace Bartee
Tennessee State University
Casey Narrie Bassett
Vanderbilt University
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Institute of Neurology
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Royal Prince Alfred Hospital
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SUNY-Binghamton
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Terri Lynn Bushfield
Queen's University
Brian Michael Button
Univ. of Texas Medical Branch
Nirnela Byku
Dowling College
Barbara Cappelli
G. Gaslini Hospital
Derek James Carter
University of Otago, New Zealand
Adil Ceydeli
UMDNJ-New Jersey Medical School
Magdalena Chechlacz
Wesleyan University
Juliet Chin
Hunter College-CUNY
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University of Michigan
Chiayu Chiu
University of Rochester
Mohammed Jasim Uddin Chowdhury
University of Antwerp, Belgium
Leon Paul Collis
University of Rhode Island
Nancy Marie Coluccio
University of Scranton
Natalie Rose Cooper
University of Lethbridge
Hayat Dagher
University of Melbourne
Daniel John Dahl
Colorado State University
Andrea D'Avella
Massachusetts Inst. of Technology
Scott Lee Davis
University of Utah
Hesam Dehghani
University of Guelph
Jerod S. Denton
Dartmouth Medical School
Harveen Dhillon
University of Florida
Samuel Hillel Dribin
Duke University Medical Center
Sheri Driver
University of Tampa
Steve L. Duffy
Univ. of Texas Southwestern Med. Ctr.
Alvaro Duque
Rutgers University
Paul Kendall Edwards
University of Arkansas Med. Sciences
Mohammad Ali Eghbal
University of Toronto
Valerie Evans
University of Amsterdam
Xini Fang
University of Bristol
Li Feng
Stanford University
Jill Marie Fentz
Miami University
Amber Ferrell
Ohio Northern University
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University of Chile
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Arizona State University
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Columbia University
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Chung-Hsin Hsu
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University of Colorado
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University of Texas at Austin
Karen Ann James
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University of Kentucky
Ronald Chase Southard
University of Kentucky
Dennis Staahltoft
University of Copenhagen
Jena Jean Steinle
University of Kansas Medical Center
Jeffrey Robert Strawn
University of Kentucky
Pierre Alexandre Sylvestre
McGill University
Moriah Szpara
University of California-Berkeley
Rahul Madhav Tamhane
Univ. of Texas Southwestern Med. Sch.
Doris M. Tham
University of California-Davis
Joan S. Thomas
George Mason University
Sebastien Thomas
University of Montreal
Matthew James Thurtell
Royal Prince Alfred Hospital
Annelyn Torres-Reveron
Ponce School of Medicine
Jodie Anne Trafton
Univ. of California-San Francisco
George Tsagalis
University of Patpas, Greece
Susan G. Walling
Memorial University
Haibin Wang
University of North Carolina
Jianjie Wang
University of Missouri
Jiou Wang
Johns Hopkins University
Stephen Lee Wasmund
Univ. of North Texas Health Sciences
Valerie Jo Wheat
University of Cincinnati
John Yu
SUNY-Syracuse
Ricardo M. Zayas
Tufts University
Yi Zhang
Johns Hopkins University

Moving?

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

1999 APS Conference
Determinants of Vigilance: Interaction Between the Sleep and Circadian Systems
October 19-22, Ft. Lauderdale, Florida

In the calm aftermath of hurricane Irene, on the sunny shores of the Atlantic Ocean, the Society held the 1999 conference in Fort Lauderdale, Florida on the "Determinants of Vigilance: Interaction Between the Sleep and Circadian Systems," organized by **Allan I. Pack**. The conference featured an in-depth exchange of ideas about new and evolving information from the circadian and sleep fields.

There was an internationally recognized and interdisciplinary group of investigators present, and interaction was enhanced by the presence of young scientists, students, and established investigators in the field of sleep and circadian research. The conference attracted 173 registrants, 37% of which represented young scientists, including 38 students and 26 postdoctoral registrants. Seventeen (10%) were APS members and 51 (29%) were not members of APS. Invited speakers and session chairs represented 38 (22%) of the registrants. Two companies exhibited at the conference, Ambulatory Monitoring and Mini-Mitter.

Table 1. Distribution by Department of Submitted Abstracts

Department	Abstracts No.	Abstracts %
Physiology or Physiol./Biophysics	22	35
Neurology or Neuroscience	20	32
Psychology	6	10
Biology, Biological Sci. or Biomed. Sci.	5	8
Anatomy	4	6
Pediatrics	4	6

The outstanding program consisted of 10 symposia, one of which was a late-breaking session on the discovery of the narcolepsy gene featuring Emmanuel Mignot and Masashi Yanagisawa. The National Institute of Drug Abuse sponsored a two-hour symposium on "Sleep" which was programmed as part of the meeting. In addition, there were six poster sessions of contributed abstracts viewed and defended over two days to further enhance communication and interaction.

The awards presentation recognized recipients of the Graduate Student Award for outstanding poster presentation. The awardees presented with a cash prize and certificate were: **Robert Carter III,** *"Attenuation of apnea-induced sympathoexcitation during periodic breathing efforts in sleep apneic patients;"* **Sandra Jo Kuhlman,** *"Identification of mper-expressing neurons in living SCN tissue using transgenic mice;"* **Jorge Enrique Quintero,** *"Monitoring dynamic* c-fos- *and* mper1-*driven GFP expression in the in vivo SCN of transgenic mice;" and* **Jill Ann Wasielewski,** "*Chronic injections of alcohol entrain the free-running temperature rhythm in rats.*"

Robert Carter III, University of North Texas Health Science Center at Fort Worth, **Turner R. Coggins, Jr.,** Charles County Community College, and **Jorge E. Quintero,** University of Kentucky were recipients of the NIDDK Fellowship Awards provided to encourage participation of under-represented minority students. Supported by the National Institutes of Diabetes and Digestive and Kidney Diseases, the fellowship provides reimbursement of all expenses associated with travel to and participation in the conference. The recipient is matched with an APS member attending the conference who will offer guidance and make introductions to other scientists.

Table 2. Registration Statistics

	No.	%
APS Member	17	10
Non-member	51	29
Postdoctoral	26	15
Student	38	20
Invited Speaker	38	22
Guest	3	2
Total	173	100

A total of 62 abstracts were submitted to the conference for poster presentation. Table 1 provides a distribution of abstracts based on submitting department. Thirty-two percent were by female first authors; 23% were submitted by authors at institutions outside The Americas.

The Society and Organizing Committee gratefully acknowledge financial support provided through generous educational grants from NASA, NIMH/NIA/NINCDS and the US Department of Army. ❖

Baroreceptor and Cardiopulmonary Receptor Reflexes

2000 APS CONFERENCE

August 23-27, 2000

City Plaza Hotel in Iowa City, Iowa

PURPOSE: This meeting will focus on baroreceptor and cardiopulmonary reflexes. A wide range of scientific questions will be covered ranging from studies of cellular and molecular mechanisms of mechanoelectrical transduction to studies of baroreflex control in humans. Multidisciplinary approaches will be emphasized ranging from molecular studies to systems physiology. Major investigators active in this area of research will participate in this conference with emphasis on young investigators and students. A substantial international attendance is anticipated.

ORGANIZERS:

Mark Chapleau (Chair)
Francois Abboud, Gerald DiBona, Robert Felder,
A. Kim Johnson, Allyn Mark, Virend Somers, William Talman

STEERING COMMITTEE:

Michael Andresen, Vernon Bishop, Jeanne Seagard,
Irving Zucker

SESSIONS AND SPEAKERS:

Mechanolelectrical Transduction

Monica Driscoll, Heather Drummond, Owen Hamill

Sensory Mechanisms

Mark Chapleau, Ellis Cooper, Meredith Hay,
Holly Middlekauff, Helio Salgado, Daniel Weinreich

Nucleus Tractus Solitarius (NTS) I

Michael Andresen, Steven Mifflin, Julian Paton, Robert Rogers, Jeanne Seagard

Nucleus Tractus Solitarius (NTS) II

Allison Hegarty, Lisete Michelini, William Talman

Central Baroreflex Mechanisms

Sue Aicher, Patrice Guyenet, David Mendelowitz, Shaun Morrison, Alan Sved

Interactions Between Neural Reflexes and Humoral Factors

Virginia Brooks, Cheryl Heesch

Effects of Microgravity on Baroreflex

Dwain Eckberg, Eileen Hasser

Spectral Analysis/Respiratory-Cardiovascular Interactions

Phyllis Gootman, Nicola Montano, Virend Somers

Resetting of Baroreflex During Exercise

Vernon Bishop, Donald O'Leary, Jeffrey Potts

Neural Reflexes in Pathological States

Mark Dunlap, John Floras, Stephen Hull, Irving Zucker

DEADLINES

Abstract Deadline- May 19, 2000
Advance Registration Deadline - June 30, 2000

The Integrative Biology of Exercise

2000 APS CONFERENCE
September 21-23, 2000
Portland, Maine

PURPOSE: This meeting will provide a forum for research presentation and discussion through which there will be a critical mass for poster presentations of primary research. The symposia and other invited sessions have been constructed so as to provide younger investigators an opportunity to present their research. Broad interdisciplinary areas of interest such as gender, aging and obesity will be included along with updates in the now "standard" areas of addressing the molecular basis of adaptation to exercise in the muscles and cardiovascular system. Student awards will be presented. Substantial time will be devoted to poster presentations.

ORGANIZER:

Peter Wagner

STEERING COMMITTEE:

Kenneth Baldwin, Albert Bennett, George Brooks, Carl Gisolfi, M. Harold Laughlin, Ronald Meyer, Brenda Russell, David Wasserman

SESSIONS AND SPEAKERS:

Gender-Dependent Responses to Exercise

George Brooks, Stephen Davis, Anne Friedlander, Susan Hopkins, M. Harold Laughlin, Anne Loucks, Robert Marcus

The Role of Physical Activity in the Prevention of Obesity and Management of Body Weight

Claude Bouchard, Michael Goran, Tuomo Rankinen, Dale Schoeller, David York, Eric Ravussin, Brad Lowell

Impact of Transgenic Manipulations on Integrated Exercise Performance

H. Lee Sweeney, Elizabeth Barton-Davis, Evangelia Kranias, Leslie Leinwand, Jeffery Robbins, Brian Roman

Exercise-Induced Cardioprotection: Cellular Aspects

Douglas Bowles, Donna Korzick, Colin Bloor, Marvin Boluyt, Edward G. Lakatta

Exercise and Aging: Challenge, Resiliency and Function

Carl Gisolfi, Loretta DiPietro, Karl Insogna, Wendy Kohrt, Kevin Kregel, Maria Singh

How Does Skeletal Muscle Adapt to Exercise

Brenda Russell, Karyn Esser, Marc Hamilton, Charlotte Peterson, Steven Swoap

DEADLINES

Abstract Deadline- June 1, 2000
Advance Registration Deadline - August 1, 2000

SPS-APS Joint Meeting

August 16-19, 2000
Stockholm, Sweden

*The **Scandinavian Physiological Society** (SPS) cordially invites the **American Physiological Society** (APS) to a joint meeting in conjunction with our regular annual meeting.*
The purpose of the proposed joint meeting is to promote scientific exchange between APS and SPS members.
The tentative meeting venue will be Karolinska Institute and the Nobel Forum in Stockholm or Stockholm University at Frescati.

PROGRAM:

Wednesday, August 16, 2000
Registration 4 PM-8 PM. Stockholm University, Frescati
Welcome and plenary lecture 6:30 PM-7:45 PM, Frescati
Reception at City Hall
(bus transportation from SU) 8:00-10:00 PM

Thursday, Friday and Saturday, August 17-19, 2000
I. 8:30 - 9:30 AM (Plenary lecture)
II. 10:00 -12:00 AM (Morning symposia 3 parallel sessions)
III.12:00 -1:00 PM (Lunch)
IV. 1.00 - 2:30 PM (Poster session)
IV. 2:30 - 5:00 PM (Afternoon symposia 3 parallel sessions)

A social program for accompanying guests will be available.

TRANSPORTATION & LODGING:

There are excellent direct flight connections between Stockholm/Arlanda, the US and major cities in Europe. The airport bus terminal (Haga Terminal behind the KI/KS) is close to the meeting sites at the KI/Nobel Forum or Stockholm University.
Hotel prices range from $100-150. There are also available alternatives for low budget living.

Invited lecturers

Gerhard Giebisch, New Haven, CT
John Forte, Berkeley, CA
Per Andersen, Oslo, Norway
Mike Mulvany, Aarhus, Denmark

PRELIMINARY LIST OF SYMPOSIA OR FEATURE TOPICS

Signalling from gut to integrate the digestive response
Gastrointestinal mucosal barrier
Microvascular responses to acute and chronic inflammation
Molecular mechanisms in exercise physiology.
Control of sodium balance
NO and hypertension
New concepts in pulmonary ventilation and perfusion distribution
Physiological methods for the study of the genetically altered mice
Capillary permeability and Mechanisms of glomerular ultrafiltration
Neurohumoral regulation of arterial pressure and body fluid volume
Aquaporins
Gene therapy
Renin - angiotensin system
Paracrine mediators and signalling in the TGF
Presynaptic regulation of transmitter release-molecular mechanisms of exo- and endocytosis.
Sensory motor integration in the control of movement from ion channels to behaviour
Memory, learning and synaptic plasticity
Cell pH regulation
Matrix and receptors

Satellite symposia in Reyjavik (pathophysiology of diabetes mellitus) are under planning. There will also be an Acta Physiologica Scandinavica Symposium organized by Peter Thoren and Neil Granger on "Experimental techniques in mouse physiology" starting on Saturday, August 19, with overlap of the present meeting.

DEADLINES
Abstract Deadline- April 1, 2000
with response from the committee within one month.

Letter to the Editor

I would like to compliment Dr. Pollock for a thoughtful review of the pros and cons of a career in industry vs. academia (Career Corner, *The Physiologist* 42:5, 1999). Pollock and I worked together in industry for several years, and I wholeheartedly agree with the description of his industrial experience. However, having chosen to remain in industry (albeit with a different company), I would like to suggest that some of the important cons that were raised are not necessarily widely applicable to other pharmaceutical (or biotech) companies. While the company I currently work for is similar in some respects to what Pollock described, it is, on the other hand, a "bottom-up" driven research organization and has a very different corporate research philosophy. For instance, it is unlikely that we would have a program unexpectedly terminated for lack of market potential or clinical need, because we work very closely with our marketing and clinical colleagues from the inception of a project and throughout its development. It would also be unusual that senior management would tell those of us doing the research to terminate a program; it is expected that we are the experts and would recommend termination of a program, if needed. We also extensively collaborate with our academic colleagues, an arrangement which benefits both the academic labs and our own.

In conclusion, anyone considering a career in industry should carefully evaluate the research philsophy and environment of any specific company, and determine whether those characteristics match one's own scientific (and personal) needs and goals. If the match is right, a career in industry can be enjoyable, productive and rewarding. ❖

W. Ross Tracey
Pfizer, Inc.

Sections Meetings and Activities

Cardiovascular
NIH Liaison Committee
Friday, April 14, 7:00 PM
Marriott, Century City Room

Industry Liaison Committee
Sunday, April 16, 7:30 AM
Marriott, Cardiff Room

Steering Committee
Monday, April 17, 7:00 AM
Marriott, La Jolla Room

Dinner
Monday, April 17, 7:00 PM
Horton Grand Hotel

Cell and Molecular Physiology
Steering Committee
Friday, April 14, 11:00 AM
Marriott, Irvine Room

Banquet and Lecture
See program for details

Central Nervous System
Section Program Committee
Friday, April 14, 1:00 PM
Marriott, La Jolla Room

Steering Committee
Monday, April 17, 12:00 PM
Marriott, Century City Room

Reception
Monday, April 17, 6:30 PM
Marriott, Ranchos Las Palmas Room

Comparative Physiology
Steering Committee
Saturday, April 15, 12:00 PM
Marriott, Los Angeles Room

Business Meeting, Scholander Awards, Luncheon
Monday, April 17, 11:30 AM
The Fish Market Restaurant

Endocrinology and Metabolism
Steering Committee
Sunday, April 16, 12:00 PM
Marriott, Newport Beach Room

Awards Reception and Poster Session
Monday, April 17, 6:30 PM
Marriott, Solana Room

Environmental and Exercise Physiology
Section Program Committee
Friday, April 14, 1:00 PM
Marriott, Desert Springs Room

Steering Committee
Saturday, April 15, 6:45 AM
Marriott, Newport Beach Room

Business Meeting
Sunday, April 16, 6:00 PM
Marriott, Torrence Room

Awards Banquet
Monday, April 17, 6:30 PM
Chart House, San Diego Rowing Club

Gastrointestinal
Section Program Committee
Saturday, April 15, 7:30 AM
Marriott, La Jolla Room

Steering Committee
Monday, April 17, 7:30 AM
Marriott, Century City Room

Business Meeting/Reception
Tuesday, April 18, 5:45 PM
Marriott, Coronado Room

50th Anniversary Celebration
Tuesday, April 18, 7:00 PM
Marriott, Marina F

History of Physiology Group
Lecture
Sunday, April 16, 1:00 PM
Marriott, Ranchos Las Palmas Room

Neural Control and Autonomic Regulation
Steering and Section Program Committees
Sunday, April 16, 12:00 PM
Marriott, La Jolla Room

Reception
Monday, April 17, 6:30 PM
Marriott, Point Loma Room

Renal
Section Program Committee
Friday, April 14, 1:00 PM
Marriott, Los Angeles Room

Steering Committee
Sunday, April 16, 7:30 AM
Marriott, La Jolla Room

Dinner
Monday, April 17, 7:30 PM
US Grant Hotel, San Diego, CA

Respiration
Section Program Committee
Monday, April 17, 7:00 AM
Marriott, Newport Beach Room

Steering Committee
Tuesday, April 18, 7:00 AM
Marriott, Newport Beach Room

Business Meeting
Monday, April 17, 1:00 PM
Marriott, Oceanside Room

Dinner
Monday, April 17, 6:30 PM
San Diego Hilton

Teaching of Physiology
Steering Committee
Friday, April 14, 12:00 PM
Marriott, Century City Room

Section Program Committee
Friday, April 14, 1:30 PM
Marriott, Century City Room

Business Meeting
Monday, April 17, 6:30 PM
Convention Center, Room 01 A

Guyton Teacher of the Year Award
Sunday, April 16, 11:45 AM
Convention Center, Room 16B

(continued on page 24)

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

M. Judah Folkman
Children's Hospital, Boston

Angiogenesis Research: From Laboratory to Clinic

SATURDAY, APRIL 15, 5:30 PM

HENRY PICKERING BOWDITCH AWARD LECTURE

Curt D. Sigmund
University of Iowa

Genetics & Physiology in Mice: A Perfect Marriage

SUNDAY, APRIL 16, 5:30 PM

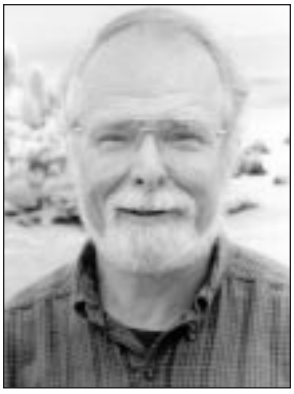
Distinguished Lectureships

CARL W. GOTTSCHALK DISTINGUISHED LECTURESHIP OF THE RENAL SECTION

Heini Murer
University of Zurich, Switzerland

Cellular Mechanisms in Renal Phosphate Handling: Old Questions and Some New Answers

SATURDAY, APRIL 15, 3:00 PM

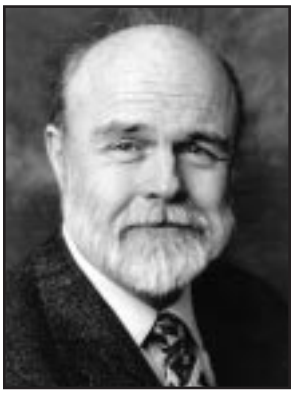


AUGUST KROGH DISTINGUISHED LECTURESHIP OF THE COMPARATIVE PHYSIOLOGY SECTION

George N. Somero
Stanford University

Co-evolution of Proteins and Their Aqueous Milieu: Messages From the Medium

SUNDAY, APRIL 16, 8:00 AM



CLAUDE BERNARD DISTINGUISHED LECTURESHIP OF THE TEACHING OF PHYSIOLOGY SECTION

Clyde F. Herreid
State University of New York, Buffalo

Teaching in the Year 2061

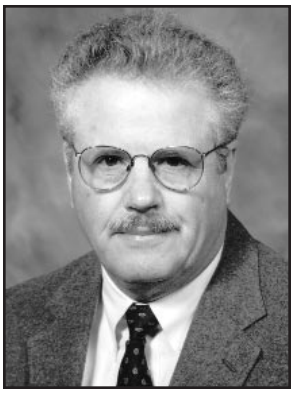
SUNDAY, APRIL 16, 2:00 PM

JOSEPH ERLANGER DISTINGUISHED LECTURESHIP OF THE CENTRAL NERVOUS SYSTEM SECTION

Catherine Rivier
Salk Institute

Role of Gaseous Neurotransmitters in Regulating Hypothalamic-Pituitary-Adrenal Axis

SUNDAY, APRIL 16, 2:00 PM

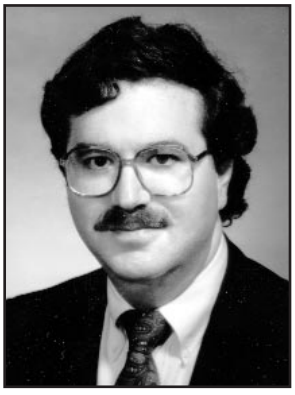


ERNEST H. STARLING DISTINGUISHED LECTURESHIP OF THE WATER AND ELECTROLYTE HOMEOSTASIS SECTION

Gerald F. DiBona
University of Iowa

The Neural Control of the Kidney in Health and Disease

SUNDAY, APRIL 16, 3:00 PM



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

Jeffrey S. Flier
Beth Israel Deaconess Medical Center

Leptin: Physiology and Role in Disease

SUNDAY, APRIL 16, 3:00 PM

Experimental Biology 2000
April 15-18, 2000 • San Diego, CA

HUGH DAVSON DISTINGUISHED LECTURESHIP OF THE CELL AND MOLECULAR PHYSIOLOGY SECTION

Ferid Murad
University of Texas, Houston

Cellular Signaling with Nitric Oxide and Cyclic GMP

MONDAY, APRIL 17, 9:00 AM

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

Eckardt Simon
Max-Planck-Institute

Thermoregulation as a "Switchboard" of Autonomic and Endocrine Controls

MONDAY, APRIL 17, 10:15 AM

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

John A. Clements
University of California, San Francisco

Lung Surfactant: A Fantastic Voyage From Theory to Practice

MONDAY, APRIL 17, 2:00 PM

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

Francois M. Abboud
University of Iowa College of Medicine

Functional Genomics of Baroreceptors

MONDAY, APRIL 17, 3:00 PM

ROBERT M. BERNE DISTINGUISHED LECTURESHIP OF THE CARDIOVASCULAR SECTION

David R. Harder
Medical College of Wisconsin

Cellular and Molecular Mechanisms Mediating Functional Hyperemia in the Brain

TUESDAY, APRIL 18, 8:00 AM

HORACE W. DAVENPORT DISTINGUISHED LECTURESHIP OF THE GASTROINTESTINAL SECTION

Ernest M. Wright
University of California Los Angeles

Molecular Insights Into Intestinal Salt, Sugar, and Water Absorption

TUESDAY, APRIL 18, 2:00 PM

Experimental Biology 2000 Deadlines

February 18, 2000	February 21, 2000	March 6, 2000
Advance Registration Deadline	Late Breaking Abstracts Deadline	Hotel Reservation Deadline

(continued from page 21)

Dinner/Mixer
Monday, April 17, 7:45 PM
Rock Bottom Brewery

Water and Electrolyte Homeostasis
Steering Committee
Monday, April 17, 7:00 AM
Marriott, Los Angeles Room

Luncheon and Business Meeting
Sunday, April 16, 11:30 AM
Chart House Restaurant

Committee Meetings

Animal Care and Experimentation
Sunday, April 16, 7:30 AM
Marriott, Newport Beach Room

Awards
Sunday, April 16, 7:30 AM
Marriott, Ranchos Las Palmas Room

Career Opportunities in Physiology
Sunday, April 16, 7:30 AM
Marriott, Los Angeles Room

Committee on Committees
Saturday, April 15, 8:00 AM
Marriott, Ranchos Las Palmas Room

Education
Sunday, April 16, 7:30 AM
Marriott, Torrence Room

International Physiology
Sunday, April 16, 12:00 PM
Marriott, Century City Room

Joint Program
Saturday, April 15, 8:00 AM
Marriott, Torrence Room

Liaison With Industry
Tuesday, April 18, 7:30 AM
Marriott, Ranchos Las Palmas Room

Long-Range Planning
Monday, April 17, 12:00 PM
Marriott, Newport Beach Room

Membership
Sunday, April 16, 7:30 AM
Marriott, Delmar Room

Porter Physiology Development
Monday, April 17, 7:30 AM
Marriott, Ranchos Las Palmas Room

Public Affairs
Saturday, April 15, 12:00 PM
Marriott, Newport Beach Room

Section Advisory
Friday, April 14, 3:00 PM
Marriott, Ranchos Las Palmas Room

Joint With Council
Friday, April 14, 7:00 PM
Marriott, Torrence Room

Women in Physiology
Tuesday, April 18, 7:30 AM
Marriott, La Jolla Room

Publications Meetings

Journal Editorial Boards Group Meeting
Saturday, April 15, 3:00 PM
Convention Center, Room 16A

AJP: Advances in Physiology Education
Editor and Associate Editors
Monday, April 17, 7:30 AM
Marriott, Torrence Room

AJP: Cell Physiology
Editor and Associate Editors
Monday, April 17, 12:00 NOON
Marriott, La Jolla Room

AJP: Endocrinology and Metabolism
No meeting

AJP: Gastrointestinal and Liver Physiology
Editor and Associate Editors
Monday, April 17, 12:00 NOON
Marriott, Los Angeles Room

AJP: Heart and Circulatory Physiology
Editor and Associate Editors
Monday, April 17, 12:00 PM
Marriott, Desert Springs Room

AJP: Lung Cellular and Molecular Physiology
Editor and Associate Editors
Sunday, April 16, 7:30 AM
Marriott, Century City Room

AJP: Renal Physiology
Editor and Associate Editors
Monday, April 17, 7:30 AM
Marriott, Desert Springs Room

AJP: Regulatory, Integrative and Comparative Physiology
Editor and Associate Editors
Sunday, April 16, 7:30 AM
Marriott, Desert Springs Room

Journal of Applied Physiology
Editor and Associate Editors
Monday, April 17, 12:00 NOON
Marriott, Ranchos Las Palmas Room

News in Physiological Sciences
Editor and Associate Editors
Sunday, April 16, 12:00 PM
Marriott, Desert Springs Room

Handbook Committee
Monday, April 17, 7:30 AM
Marriott, Irvine Room

History of Physiology Book Committee
Monday, April 17, 12:00 PM
Marriott, Irvine Room

Technical Series Book Committee
Sunday, April 16, 7:30 AM
Marriott, Irvine Room

Experimental Biology

2000

APRIL 15-18, 2000

SAN DIEGO, CA

American Physiological Society

EB 2000 Program

April 15-18, 2000

San Diego, CA

Saturday, April 15, Morning Session

Refresher Course: Integrating Molecular Biology into the Physiology Curriculum
J.C. Schadt and A.J. Lechner
9:00 AM-11:30 AM, Room 6C

Saturday, April 15, Afternoon Session

Featured Topic: Biomechanics and Bioenergetics of Airway Smooth Muscles
G. Sieck and J. Fredberg
2:00-5:00 PM, Room 11A

Carl W. Gottschalk Distinguished Lectureship of the APS Renal Section
Cellular Mechanisms in Renal Phosphate Handling: Old Questions and Some New Answers
H. Murer
3:15-4:15 PM, Room 3

Redox Regulation of Cardiomyocyte Life and Death
D.K. Das, and B. Frei
3:15-5:15 PM, Room 2

Ion Regulation in Cell Organelles
T. Machen
3:15-5:15 PM, Room 4

The History of Organ Transplantation: Physiological Aspects
G.E. Folk, Jr. and H. Brown
3:15-5:15 PM, Room 1A

Cancer Genetics
American Federation for Medical Research
P. Wiernik
3:15-5:15 PM, Room 11B

President-Elect Symposium: Biochemical Signaling in the Control of Microcirculatory Function
Microcirculatory Society
W.N. Durán
3:15-5:15 PM, Room 6D

Adhesion and Motility of Metastic Cells
C. Dong and K. Anderson
3:15-5:15 PM, Room 1B

Featured Topic: Cell Biology of Enterocyte Function and Proliferation
H. Carey and R. Buddington
3:15-5:15 PM, Room 5A

Featured Topic: Neurohumoral Mechanisms of Hypertension
C. Hinojosa-Laborde and C. Klett
3:15-5:15 PM, Room 5B

Featured Topic: Medical Physiology Instructional Resources
B. Goodman
3:15-5:15 PM, Room 6C

Physiology in Perspective--The Walter B. Cannon Memorial Award Lecture
Angiogenesis Research: From Laboratory to Clinic
M. Judah Folkman
5:15-6:30 PM, Room 6B

Sunday, April 16, Morning Session

August Krogh Distinguished Lectureship of the APS Comparative Physiology Section
Co-evolution of Proteins and their Aqueous Milieu: Messages from the Medium
G.N. Somero
8:00-9:00 AM, Room 6C

Afferent Regulation of the Stress Response: New Views and New Approaches
D. Morilak
8:00-10:00 AM, Room 11A

eNOS Dysfunction in Vascular Disease I
K.A. Pritchard, Jr. and D.G. Harrison
8:00-10:00 AM, Room 6B

Therapeutic Manipulation of Angiogenesis
American Federation for Medical Research
D. Arenberg
8:00-10:00 AM, Room 11B

Tissue Engineering of Vascular Grafts for the Third Millenium
J.A. Frangos and N. L'Heureux
8:00-10:00 AM, Room 1A

Featured Topic: Imidazoline Receptors and Cardiovascular Control: Brainstem Mechanics and Therapeutic Potential
J. Michael Wyss
8:00-10:00 AM, Room 3

Featured Topic: Cell Physiology of VEGF
M. Goligorsky
8:00-10:00 AM, Room 2

Featured Topic: Structure and Regulation of ATP-Driven Pumps
D.K. Stone
8:00-10:00 AM, Room 5B

Featured Topic: Endocrine Cells as Sensory Transducers
H. Raybould and P. Tso
8:00-10:00 AM, Room 1B

Featured Topic: Impact of Gender and Pregnancy on Renal Function
C. Baylis
8:00-10:00 AM, Room 4

Featured Topic: Respiratory Control: Plasticity, Redundancy or Both?
H.V. Forster and D. Gozal
8:00-10:00 AM, Room 5A

Cells and Genes and Their Applications for Therapies for the Brain I
B.L. Davidson and H. Federoff
8:00 AM-12:15 PM, Room 6D

Physiology InFocus: Channels and Transporters
Aquaporins and Other Members of the MIP Family
P. Agre and M.J. Chrispeels
10:15 AM-12:15 PM, Room 6A

Fever: The Role of the Vagus
A.A. Romanovsky
10:15 AM-12:15 PM, Room 1A

Oxygen Sensing and Signaling: Role of Reactive Oxygen Intermediates
H.F. Bunn
10:15 AM-12:15 PM, Room 4

Muscle Research in the 20th Century
M. Bárány
10:15 AM-12:15 PM, Room 11B

A. Clifford Barger Memorial Symposium: MAP Kinases: New Implications for Renal Cell Function
D. Kültz and D. W. Good
10:15 AM-12:15 PM, Room 1B

Role of TGF-α in Renal and Cardiovascular Fibrosis: Mechanisms and Therapeutic Prospects
N.J. Laping
10:15 AM-12:15 PM, Room 3

Featured Topic: Cardiovascular Regulatory Effects of Dietary Sodium, Calcium, and Potassium
J. Lombard
10:15 AM-12:15 PM, Room 2

Featured Topic: Phosphoinositide Signaling: Implications for Transport Regulation
K. Barrett and B. Blazer-Yost
10:15 AM-12:15 PM, Room 5B

Featured Topic: Obesity and Satiety
J.R. Porter and D.S. Roane
10:15 AM-12:15 PM, Room 5A

Featured Topic: New Frontiers in Central Autonomic Regulation: Beyond the RVLM
A.J. Lawrence
10:15 AM-12:15 PM, Room 11A

Sunday, April 16, Afternoon Session

Claude Bernard Distinguished Lectureship of the APS Teaching of Physiology Section
Teaching in the year 2061
C.F. Herreid
2:00-3:00 PM, Room 4

Joseph Erlanger Distinguished Lectureship of the APS Central Nervous System Section
Role of gaseous neurotransmitters in regulating hypothalamic-pituitary-adrenal axis
C. Rivier
2:00-3:00 PM, Room 2

Microcirculatory Society Landis Award Lecture
K. E. Arfors
2:00-3:00 PM, Room 11A

eNOS Dysfunction in Vascular Disease II
K.A. Pritchard, Jr. and D. G. Harrison
2:00-4:30 PM, Room 6B

Ernest H. Starling Distinguished Lectureship of the APS Water & Electrolyte Homeostasis Section
The Neural Control of the Kidney in Health and Disease
G.F. Di Bona
3:15-4:15 PM, Room 6D

Physiology InFocus: Channels and Transporters
Structure-Function Relationships in Voltage-Gated Ion Channels
R. Aldrich
3:15-5:15 PM, Room 6A

Physiology of Water Transport
E.M. Wright
3:15-5:15 PM, Room 3

Solomon A. Berson Distinguished Lectureship of the APS Endocrinology & Metabolism Section
Leptin: Physiology and Role in Disease
J.S. Flier
3:15-4:15 PM, Room 2

Capillaries: How their Structure and Function Can Alter to Meet Tissue Demands
A. Baldwin and V. Huxley
3:15-5:15 PM, Room 11A

Differential Control of Sympathetic Outflow: A Window into Central Mechanisms Mediating Patterned Autonomic Responses
S. Morrison and G. Gebber
3:15-5:15 PM, Room 11B

Lung Redox Homeostasis: Emerging Concepts
M.P. Merker and C.A. Dawson
3:15-5:15 PM, Room 1A

Teaching Physiology Laboratories in the 21st Century
D. Silverthorn
3:15-5:15 PM, Room 4

Bone Marrow Transplantation in Non-Malignant Diseases
G.C. Tsokos and S. Berney
3:15-5:15 PM, Room 1B

Featured Topic: The Threshold of Consciousness in the Zoological Kingdom
M. Cabanac
3:15-5:15 PM, Room 5B

Featured Topic: Diseases of Protein Trafficking and Expression
D. Brown and J. Van Adelsburg
3:15-5:15 PM, Room 5A

Featured Topic: Ernest H. Starling Lectureship
T. Lohmeier and G. DiBona
3:15-5:15 PM, Room 6D

Muscle Fatigue
W. Ameredes and T. M. Nosek
3:15-5:15 PM, Room 6C

Henry Pickering Bowditch Award Lecture
Genetics and Physiology in Mice: A Perfect Marriage
C. Sigmund
5:30-6:30 PM, Room 6D

Highlights in Respiration Physiology: Graduate Student Poster Discussion
S. Matalon and G. Mitchell
6:00-8:30 PM, Room 6C

Monday, April 17, Morning Session

Interaction of Body Fluid Balance and Thermal Strain
G.W. Mack
8:00-10:00 AM, Room 2

Emerging Concepts: Protein Kinase C Isozymes and the Regulation of Diverse Cell Responses
E.C. Dempsey and P.A. Insel
8:00-10:00 AM, Room 11A

Integrin Mechanics
K-L. Paul Sung and G.A. Truskey
8:00-10:00 AM, Room 11B

Low Saturated Fat, High Carbohydrate Diets: Effects on Triglyceride and LDL Synthesis, the LDL Receptor and Cardiovascular Disease Risk
R.H. Knopp and W.C. Willett
8:00-10:00 AM, Room 6D

Featured Topic: Alpha-Adrenergic Vasoconstriction in the Coronary Vasculature
G. Heusch
8:00-10:00 AM, Room 3

Featured Topic: Control of Gene Expression: Exercise/Environment Stress
F.W. Booth and J. Friedman
8:00-10:00 AM, Room 1B

Featured Topic: Role of Angiotensin in Central Neural Control of the Circulation
A.F. Sved
8:00-10:00 AM, Room 1A

Featured Topic: Physiology and Pathophysiology of Aquaporins
S. Nielson
8:00-10:00 AM, Room 5A

Physiology for Life Science Teachers and Students Workshop
8:00 AM-5:00 PM, Room 5A and 5B

Hugh Davson Distinguished Lectureship of the APS Cell & Molecular Physiology Section
Cellular Signaling with Nitric Oxide and Cyclic GMP
F. Murad
9:00-10:00 AM, Room 6B

Edward F. Adolph Distinguished Lectureship of the APS Environmental & Exercise Physiology Section
Thermoregulation as a "Switchboard" of Autonomic and Endocrine Controls
E. Simon
10:15-11:15 AM, Room 2

Physiology InFocus: Channels and Transporters
Genetic Abnormalities of Channels and Transporters
S. Alper
10:15 AM-12:15 PM, Room 6A

Intrapituitary Interactions: Another Level of Endocrine Regulation
J. Schwartz
10:15 AM-12:15 PM, Room 1A

Mechanisms Regulating Endothelial Cell Barrier Function
T. Stevens and A. Malik
10:15 AM-12:15 PM, Room 1B

Chemokines: From Bench to Bedside
S. Gupta
10:15 AM-12:15 PM, Room 3

Featured Topic: Mechanics of Cardiac Remodeling
J.W. Covell
10:15 AM-12:15 PM, Room 6D

Featured Topic: Molecular and Cellular Regulation by Nitric Oxide
P. Kubes and M. Grisham
10:15 AM-12:15 PM, Room 4

Featured Topic: Role of Excitatory Amino Acid Neurotransmission in Control of Cardiorespiratory Function
S.M. Barman and S. Mifflin
10:15 AM-12:15 PM, Room 5A

Featured Topic: MAP Kinase Pathways and the Cell Stress Response
G. Johnson and D. Sheikh-Hamad
10:15 AM-12:15 PM, Room 11B

Featured Topic: Co-Evolution of Proteins and their Aqueous Milieu: Messages from the Medium
G.N. Somero
10:15 AM-12:15 PM, Room 11A

Featured Topic: Physiological Genomics of the Respiratory System
C.G. Tankersley and U. Raj
10:15 AM-12:15 PM, Room 6C

Monday, April 17, Afternoon Session

NIH Update: Policies and Practices for 2000 and Beyond
R.G. Geller
12:30-2:30 PM, Room 4

Walter C. Randall Lecture in Biomedical Ethics
2:00-3:00 PM, Room 2

Julius H. Comroe, Jr. Distinguished Lectureship of the APS Respiration Section
Lung Surfactant: A Fantastic Voyage from Theory to Practice
J.A. Clements
2:00-3:00 PM, Room 6C

Carl Ludwig Distinguished Lectureship of the APS Neural Control & Autonomic Regulation Section
Functional Genomics of Baroreceptors
F.M. Abboud
3:15-4:15 PM, Room 6D

Physiology InFocus: Channels and Transporters
Structural Biology of Channels
M. Yeager
3:15-5:15 PM, Room 6A

Novel Mechanisms for the Involvement of the Cytoskeleton in Smooth Muscle Cell Signalling and Contractile Function
G.A. Meininger and R.C. Webb
3:15-5:15 PM, Room 2

Neurobiology of the GnRH Neuron
D.W. Brann and J.L. Roberts
3:15-5:15 PM, Room 1A

Hypoxia-Induced Muscle Damage from Reactive Oxygen Intermediates: From Pathways to Function
M.A.P. Brotto and T.M. Nosek
3:15-5:15 PM, Room 11A

Extracellular ATP and cAMP as Paracrine and Interorgan Regulators
L. Bankir and E. Inscho
3:15-5:15 PM, Room 4

Host Polymorphisms and Susceptibility to Infectious Diseases
M.A. Goldsmith
3:15-5:15 PM, Room 1B

Featured Topic: Recent Advances in Comparative Solute Transport and Molecular Biology of Aquatic Organisms
G.A. Ahearn and M.G. Wheatly
3:15-5:15 PM, Room 3

Point/Counterpoint: Does Deconditioning Affect Blood Pressure Regulation?
Point: L. Sinoway; Counterpoint: J.A. Pawelczyk
3:15-5:15 PM, Room 11B

Featured Topic: Lung Epithelial Cell and Surfactant Biology
J.A. Clements
3:15-5:15 PM, Room 6C

APS Business Meeting
5:30-6:30 PM, Room 6D

Tuesday, April 18, Morning Session

Robert M. Berne Distinguished Lectureship of the APS Cardiovascular Section
Cellular and Molecular Mechanisms Mediating Functional Hyperemia in the Brain
D.R. Harder
8:00-9:00 AM, Room 6D

Physiological Function Explored in Microgravity
C.E. Wade
8:00-10:00 AM, Room 2

Regulation of Transporters and Channels by Binding Proteins
D. Rotin
8:00-10:00 AM, Room 3

Epithelial-Microbial Interactions: Lessons in Communication
M.F. Kagnoff
8:00-10:00 AM, Room 4

Apoptosis in Lung Pathophysiology
B.D. Uhal and A. Fine
8:00-10:00 AM, Room 11A

Featured Topic: Oxygen Sensitive Ion Channels and Second Messengers
C. Peers and J. Lopez-Barneo
8:00-10:00 AM, Room 11B

Featured Topic: Plasticity of the Neuromuscular Synapse
B.J. Jasmin
8:00-10:00 AM, Room 1A

Featured Topic: Intracardiac Ganglia and Cardiac Function: Central and Peripheral Control
V. John Massari
8:00-10:00 AM, Room 5A

Featured Topic: Role of Oxidative Stress in Cardiovascular-Renal Disease
K. Griendling and C. Schnackenburg
8:00-10:00 AM, Room 5B

Physiological Genomics Symposium
Bioinformatics: Analysis From Sequence to Disease
P.J. Tonellato
8:00 AM-12:15 PM, Room 6C

Mitochondria in Cell Life and Cell Death
M. Duchen
9:00 AM-6:00 PM, Room 6A

Featured Topic: Dietary Flavonoids and Cardiovascular Regulation and Pathophysiology
J.D. Folts and J. Freedman
10:15 AM-12:15 PM, Room 1A

The Metabolic Status of Theropod Dinosaurs: New Insights from Comparative Physiology
J.W. Hicks
10:15 AM-12:15 PM, Room 6D

Cellular Transport Systems in the Regulation of FFA Metabolism
L.P. Turcotte
10:15 AM-12:15 PM, Room 11A

Molecular and Functional Diversity of Epithelial Chloride Channels
C.M. Fuller and D. Benos
10:15 AM-12:15 PM, Room 4

Microvascular Remodeling: Physical Stimuli and Molecular Regulation
T.C. Skalak
10:15 AM-12:15 PM, Room 11B

Experimental Biology 2000
April 15-18, 2000 • San Diego, CA

Featured Topic: Models of Heart Failure
J. Ross, Jr.
10:15 AM-12:15 PM, Room 3

Featured Topic: Salt and the Brain: Mechanisms by which Dietary Salt Alters Autonomic Nervous System Regulation
J.W. Osborn and V.L. Brooks
10:15 AM-12:15 PM, Room 5A

Featured Topic: Metabolism During Stress and Trauma
C.H. Lang and K.E. Yarasheski
10:15 AM-12:15 PM, Room 1B

Featured Topic: Proteomics and Functional Genomics in Gastrointestinal Tract Research
R. Coffey
10:15 AM-12:15 PM, Room 5B

Featured Topic: Brain Imaging and Respiratory Sensation
R. Banzett and L. Adams
10:15 AM-12:15 PM, Room 2

Horace W. Davenport Distinguished Lectureship of the APS Gastrointestinal Section
Molecular Insights Into Intestinal Salt, Sugar, and Water Absorption
E.M. Wright
2:00-3:00 PM, Room 6D

Complement Activation and Inhibition in the Cardiovascular System
G.L. Stahl and S.A. Rollins
3:15-5:15 PM, Room 3

The Mammalian Distal Tubule: Physiology and Disease
D.H. Ellison and J.B. Wade
3:15-5:15 PM, Room 11A

Featured Topic: Fatty Acid Metabolites and Signal Transduction in the Microvasculature: Genetic, Molecular, and Functional Mechanisms
D.R. Harder
3:15-5:15 PM, Room 6D

Featured Topic: Ventral Respiratory Group Neurons: Roles in Rhythm Versus Pattern Generation
D.R. McCrimmon and E.J. Zuperku
3:15-5:15 PM, Room 11B

Featured Topic: Regulation of Water and Electrolyte Homeostasis
F.G. Knox and J.P. Granger
3:15-5:15 PM, Room 2

Featured Topic: Oxygen-Related Mechanisms of Cell Death in the Brain
J.M. Wyss
3:15-5:15 PM, Room 1A

Featured Topic: Regulation of Gene Expression: Promoters and Microarrays
C.D. Sigmund
3:15-5:15 PM, Room 4

APS Elections!

The American Physiological Society 2000 - 2001 election ballot will be arriving shortly.

You will have the opportunity to vote for one of the following candidates for President-elect and for two of the following candidates for Councillor, as put forward by the Nominating Committee.

For President-Elect:
John E. Hall
John A. Williams

For Councillor:
Mark Donowitz
Douglas C. Eaton
David H. Evans
Robert D. Foreman
Steven C. Hebert

The deadline for receipt of the election ballot is on or before March 6, 2000.

Positions Available

Deputy Editor

Physiological Genomics, a new research journal published by The American Physiological Society, has an immediate need for a Deputy Editor to be based in Boston, MA.

Responsibilites include:

recruitment of articles through direct contact with the scientific community
writing of research commentaries
coordinating the receipt and review of manuscripts
close coordination with authors, editors, and publisher
representation of the journal at scientific meetings

The ideal candidate will possess an advanced degree in the biomedical sciences or science journalism or closely related discipline, 2-6 years related work experience, excellent writing skills to communicate complex concepts clearly, and strong editorial and interpersonal skills.

Brigham and Women's Hospital/Harvard University and The American Physiological Society offer an outstanding compensation and benefits package. Please forward your resume, writing sample, and salary requirements to:

Dr. Victor Dzau, Editor-in-Chief
Physiological Genomics
c/o The American Physiological Society
Publications Department
9650 Rockville Pike
Bethesda, MD 20814-3991
EOE

Postdoctoral Position: At the Division of General Physiology, Department of Biology, University of Oslo, Norway, a postdoctoral position is available for the study of sensory neurobiology of alarm reaction in a carp species, crucian carp (Carassius carassius). Carps show a strong escape and hiding response when exposed to an alarm substance sent out by injured individuals. The research activity is focused on the neurobiology of the alarm reaction, its chemical basis, and the nervous pathways underlying this behavior. Goals will be to identify the olfactory receptors that detect the alarm substance and find which type of sensory neurons transmits the information to the olfactory bulb. The candidate should have a background in neurobiology, preferably patch-clamp studies and/or molecular biology. The position is part of a Strategic University Program called Fish Neurobiology and is supported by the Norwegian Research Council. The position is available for 1 year with the possibility of an extension for an additional year. The salary will be 26,667 Norwegian kronor (equivalent to 3,300 US$ per month). Start date is June 1, 2000. Application deadline is **March 8, 2000**. More information can be found on the web sites for the university program in Fish Neurobiology (http://biologi.uio.no/avdelinger/genfys/Fysiol/pages/groups/GN/nfr.html) and for Prof. Kjell Doving's research group (http://biologi.uio.no/avdelinger/genfys/Fysiol/pages/groups/KD/KDgr.html). Enquires on the position and how to apply should be directed to: Prof. Kjell Döving, Department of Biology, University of Oslo, PO Box 1051, N-0316 Oslo, Norway. Tel: +47-22854614; fax: +47-22854664; e-mail: k.b.doving@bio.uio.no.

Research Associate/Postdoctoral Fellow: The Department of Physiology, Loyola University Chicago, has an NIH-funded postdoctoral position available to study developmental changes in excitation-contraction coupling of mammalian heart. Research may involve study of fetal/neonate/adult ryanodine and dihydropyridine receptors at the single-channel level and analysis of the spatio-temporal attributes of local and global intracellular Ca^{2+} signals. Emphasis will be focused on correlating molecular-level signals and tissue-level phenomena. To this end, a novel multidisciplinary experimental approach will be employed. Methods will include patch clamp, single-channel recording, conventional fluorescence microscopy, confocal microscopy, and a novel pulsed-laser local-field epifluorescence detection technique that allows recording of intracellular Ca^{2+} transients in intact whole hearts. A PhD (or MD) is required, with experience in electrophysiology (patch clamp, single-channel recording) and/or intracellular Ca^{2+} imaging preferred. The position is available as of June 2000 and will be for multiple years. Salary will be $30,000-35,000/year, depending on experience. Send a curriculum vitae and the names of 3-4 references to: Dr. Rafael Mejia-Alvarez, Department of Physiology, Loyola University Chicago, 2160 South First Ave., Maywood, IL 60153. Tel: 708-216-7994; fax: 708-216-5158; email: rmejia@luc.edu. The position will remain open until filled.

Positions Available

Postdoctoral position applied physiologist: The Department of Neurosciences, New Jersey Medical School and the affiliated East Orange VA Medical Center have an opening for a postdoctoral fellow to join an active program of NIH/DVA-funded research in cardiovascular functioning in patients with posttraumatic stress disorder (PTSD) and chronic fatigue syndrome (CFS). Current projects include assessment of autonomic regulation using orthostatic, exercise, and pharmacological probes, hemodynamic responses to cognitive stressors, studies of cardiac structure and function, and regulation of cerebral blood flow. Applicants should have a PhD with experience in human research using techniques of noninvasive blood volume/flow measurements and autonomic and cardiological assessment. A demonstrated ability to publish is essential. This position is available immediately and is guaranteed for up to three years. Salary is commensurate with experience. Send a cover letter with research interests, CV, and three references to: Arnold Peckerman, PhD, New Jersey Medical School, 88 Ross Street, East Orange, NJ 07018; Fax: 973-395-7114; email: APECKERM@nbunj.jvnc.net.

Postdoctoral Position in Neurophysiology: An NIH funded postdoctoral position is available immediately to study autonomic regulatory neurons in the hypothalamic paraventricular nucleus. Studies will focus on defining synaptic mechanisms that regulate excitability among specific groups of projection neurons capable of influencing autonomic nervous system activity. Experience with electrophysiologic techniques including in vivo or in vitro use of extra/intracellular recording, iontophoresis and/or whole-cell voltage clamp is preferred. Additional expertise in fluorescent imaging, immunohistochemistry and/or in situ hybridization histochemistry is also desirable. Interested individuals should send a curriculum vitae and the names and addresses of references to: Glenn M. Toney, Department of Physiology - 7756, University of Texas Health Science Center at San Antonio, 7703 Floyd Curl Drive, San Antonio, TX 78229-3900. Telephone: 210-567-4372; e-mail: toney@uthscsa.edu. The University of Texas Health Science Center at San Antonio is an Equal Employment Opportunity/Affirmative Action Employer.

Postdoctoral Position: A postdoctoral position is available immediately within the Johns Hopkins School of Medicine Pulmonary and Critical Care Division for a minimum of two years to study cardiorespiratory control during sleep in murine models of obesity and sleep disordered breathing. The position involves microsurgical techniques and chronic instrumentation procedures in mice, but prior experience is not necessary. Requirements include a PhD, MD, or DVM, and US citizenship or a US permanent resident visa. Salary will beaccording to NIH guidelines and experience. Please send a Curriculum Vitae, statement of research experience/interests, and names and phone number of three referees to: Christopher O'Donnell, PhD, Room 4B61 Johns Hopkins Asthma and Allergy Center, 5501 Hopkins Bayview Blvd., Baltimore, MD 21224. Fax: 410-550-2612; Email: codonnel@welch.jhu.edu. Johns Hopkins is an equal opportunity employer.

Postdoctoral Positions: Postdoctoral positions are available immediately in the Vascular Biology Center at the Medical College of Georgia. The overall focus of the laboratory is to investigate the role of endothelial factors, endothelin and nitric oxide, in vascular and renal function. Studies utilize a complete range of whole animal, tissue, cellular, molecular and biochemical approaches. Several on-going projects are available and include investigating mechanisms related to salt-dependent hypertension, vascular response to stress, epithelial cell signaling, renal failure, and wound healing. A PhD, MD or DVM is required. Salary commensurate with experience. Send curriculum vitae and the names of three references to David M. Pollock, PhD, Vascular Biology Center, Medical College of Georgia, Augusta, GA 30912-2500. FAX: 706-721-8545; e-mail: dpollock@mail.mcg.edu.

Postdoctoral position in cardiovascular physiology: An NSF-funded postdoctoral position is available immediately to study neurohormonal regulation of the cardiovascular system. Studies will focus on the interaction between caloric intake and sympathetic regulation of blood pressure in small rodents. The position involves surgical techniques and chronic instrumentation procedures in mice and rats, but prior experience is not necessary. A background in molecular and cellular biology is desirable. Applicants should possess a PhD degree in Physiology, Cell Biology, Biochemistry, or a related field. The position is within Williams College, a highly selective liberal arts college with a strong commitment towards research. Interested individuals should send a curriculum vitae and the names and addresses of three references to: Dr. Steven Swoap, 59 Lab Campus Drive, Williams College, Williamstown, MA 01267 Telephone: 413-597-3336; e-mail: sswoap@williams.edu.

Positions Available

Postdoctoral Position: A postdoctoral position is available immediately to study drug transport mechanisms in excretory and barrier tissues (intestine, kidney and blood-brain barrier). Studies will focus on the roles of ABC transporters, e.g., p-glycoprotein and Mrps, in limiting access of AIDS antivirals to sites of infection. A background in cellular and molecular aspects of membrane transport is desirable. Applicants should possess a PhD degree in Physiology, Cell Biology, Biochemistry, Pharmacology, or a related field, and have no more than five years of relevant postdoctoral experience. Salary will be commensurate with experience. Contact: Dr. David S. Miller, Laboratory of Pharmacology and Chemistry, NIH/NIEHS, P.O. Box 12233 (F2-03), Research Triangle Park, NC 27709. Email: miller@niehs.nih.gov, Tel: 919-541-3235.

NIH Postdoctoral Fellowships: Molecular physiology of the kidney. Two positions starting July, 2000 and March, 2001. Current studies focus on molecular mechanisms of NaCl retention in congestive heart failure and mechanism(s) of altered renal NaCl transport in hypertension. Candidate should have MD and/or PhD. Previous experience in fluid and electrolyte physiology is desirable. Possible eligibility for Loan Repayment Program (http://lrp.info.nih.gov/). Send inquiries with curriculum vitae to: Mark A. Knepper, MD,PhD, National Heart, Lung and Blood Institute, Building 10, Room 6N260, NIH, Bethesda, MD 20892-1603, or fax the information to (301)496-3064, or Email: knep@helix.nih.gov.

Two Postdoctoral Fellow positions in hepatic/cardiac metabolism and/or electrophysiology: The Department of Anatomy, Physiology and Pharmacology, College of Veterinary Medicine, Auburn University, invites applications for 2 Postdoctoral Fellow research positions to study the regulation of hepatic and cardiac glucose metabolism and myoctye electrophysiology in normal and diabetic animals. Projects specifically involve the metabolic role of PFK-2/FBPase-2 in diabetes and its alteration by various pharmacological interventions. Candidates should have a PhD in life sciences with experience in biochemistry and molecular biology or patch clamp preferred. One Postdoctoral Fellow position is being funded from external sources and continuation of employment is contingent upon availability of funds. Application review will begin **February 21, 2000** and continue until candidates are selected and recommended for appointment. Please send a letter of interest and curriculum vitae with names and addresses of 3 references to Dr. Robert L. Judd, Anatomy, Physiology and Pharmacology, 219 Greene Hall, Auburn University, Auburn, AL 36849-5518. Women and minorities are encouraged to apply. [AA/EOE]

Postdoctoral Position: Bright, innovative physiologists are required to develop and validate non-invasive assays to characterize juvenile and adult mice with a variety of genetic defects. These assays will be performed on mice mutagenized both by ENU and by directed genome manipulation. Fellows will be responsible for developing and validating novel assays to assess the function of any one of a wide range of physiologic systems including cardiovascular, renal, bone, hematopoiesis, learning and memory, respiration and development. Visit our web page http://www.mshri.on.ca/develop/rossant/enu_project/enu_homepage.htm for more information. A PhD, MD or DVM is required. Salary commensurate with experience. The position is MRC funded and available for up to 3 years. Send a cover letter indicating research interests, CV, and names and contact information for 3 references to: Dr. Lee Adamson, The Samuel Lunenfeld Research Institute at Mt. Sinai Hospital, room 138P, 600 University Avenue, Toronto, ON, M5G 1X5, CANADA (adamson@mshri.on.ca).

Assistant Research Scientist: The University of Iowa College of Medicine Department of Internal Medicine, Cardiovascular Diseases Division is seeking an Assistant Research Scientist to perform basic research to advance knowledge of mechanisms involved in vascular dysfunction during inflammation, diabetes and atherosclerosis with an emphasis on the role of the reactive oxygen species. The work will require expertise in theoretical and methodological aspects of vascular biology utilizing pharmacology, adenoviral-mediated gene transfer, biochemical and molecular techniques and confocal microscopy. A person in this classification has the academic knowledge of a discipline that is generally associated with a Doctoral degree, or an equivalent professional degree, i.e., MD, DDS, or DVM. In addition, the person will have demonstrated the ability to plan and execute a research study through some progressively responsible independent research work. A PhD degree in Pharmacology and/or Physiology is desirable. Previous research experience in the area of vascular biology and diabetes; in vascular physiology (particularly experience with mouse vessels), molecular methods, and confocal microscopy is desirable. Please send resume and cover letter indicating #39369 to: Carol Wehby, Human Resources, Internal Medicine, E400 GH, 200 Hawkins Drive, Iowa City, Iowa, 52242-1081. The University of Iowa is an Equal Opportunity and Affirmative Action employer. Women and minorities are strongly encouraged to apply.

Positions Available

Assistant/Associate Professor Positions: Two tenure-track, 9-month, Assistant/Associate Professor positions are available in the Department of Exercise and Sport Science, East Carolina University. The department is seeking physiologists to participate in a new interdisciplinary doctoral program in bioenergetics. Individuals will provide leadership in graduate education and scholarly productivity. One position will focus on applied physiology and clinical fitness. The other is open to individuals who are able to complement the current interdisciplinary research programs. Both individuals will teach graduate and undergraduate courses, seek extramural funding, direct student research, and perform relevant university and professional service. Rank will be established depending upon qualifications. One position begins summer/fall of 2000. The other is anticipated to begin January 2001 contingent upon availability of funding. Salary and start-up packages are competitive and commensurate with qualifications. A doctoral degree or equivalent in exercise physiology or a related field is required. Ideal applicants will exhibit postdoctoral experience, a publication record, evidence of or potential for funding, and teaching experience. Screening begins March 1, 2000 and will continue until the positions are filled. Forward a letter of application, curriculum vitae, and three letters of reference specific to the position to: Joseph A. Houmard, PhD, Department of Exercise and Sport Science, Human Performance Laboratory, 371 Ward, East Carolina University, Greenville, NC 27858. Tel: 252-328-4688; fax: 252-328-4689; email: houmardj@mail.ecu.edu; Internet: http://www.ecu.edu/hpl/. Applicants must comply with provisions of the Immigration Reform and Control Act. Official transcript required upon employment. East Carolina University accommodates individuals with disabilities. [EOE/AA]

Tenure-Track Faculty Position: The Department of Physiology, Queen's University, (http://meds.queensu.ca/medicine/physiol/) invites applications for a tenure-track position in Physiology at a level (Assistant®Full Professor) appropriate to the candidate's experience. Candidates should have expertise in Cardiopulmonary Physiology or Neuroscience. Requirements include a PhD or MD degree, outstanding scholarship, a strong record of achievement and the potential to attract external funding. Applicants at the Associate level will be expected to hold national research funding and display strong potential to obtain career awards at the national or provincial level. The Department's current research strengths lie primarily in neuroscience and cardiopulmonary physiology, and candidates should preferably complement these strengths. Queen's University is recognized nationally for the quality of its undergraduate and graduate programs, which attract outstanding students. Kingston is a vibrant community of approximately 150,000, which is situated on the shores of Lake Ontario at the mouth of the St. Lawrence River. The University and the region offer an outstanding academic and community environment (http://www.queensu.ca). In accordance with Canadian Immigration requirements, this advertisement is directed towards Canadian citizens and permanent residents. Queen's University has an employment equity program and encourages applicants from all qualified candidates including women, aboriginal people, people with disabilities, visible minorities, gay men and lesbians. The deadline for applications is **April 15, 2000**. Applicants should forward a copy of the curriculum vitae and names of three referees to Dr. A.V. Ferguson, Professor and Head, Department of Physiology, Queen's University, Kingston, Ontario, K7L 3N6, Canada.

Positions Available

Exercise Science Faculty Positions: Department of Physical Therapy, Exercise and Nutrition Sciences, University @ Buffalo, is searching to fill two faculty positions at rank of Assistant/Associate professor, tenure-track: *1*) Qualifications: doctorate in Motor Control, Biomechanics or related field; teaching and research experience. Duties: conduct externally funded research, teach undergraduates in control of movement and biomechanics, teach and mentor graduate students; professional and university service. *2*) Qualifications: doctorate in Exercise Science or related area; teaching and research experience. Duties: conduct externally funded research, teach undergraduates in exercise testing and in special populations; teach and mentor graduate students; professional and university service. Send letter of application, curriculum vitae, and names and addresses of three references to: Harold Burton, PhD, Dept PTENS, 405 Kimball Tower, Univ. @ Buffalo, Buffalo NY 14214-3079. Deadline: **April 15**. University @ Buffalo is an EOAA employer.

Associate Professor/Professorship: The Department of Pharmacological and Physiological Science, Saint Louis University Health Sciences Center, a Catholic Jesuit Institution dedicated to education, research and health care, is seeking applicants for faculty positions in the Department of Pharmacological and Physiological Science at Saint Louis University School of Medicine. The positions are a tenure-track appointment at the Associate Professor or Professor level. We offer an environment rich in senior level scientific experience, start up funds, laboratory space and a record of highly successful and continuing extramural research funding. Preference will be given, but not restricted, to individuals with demonstrated experience in the application of modern techniques in research of the nervous or endocrine systems. Interested persons should send a curriculum vitae, three letters of reference and a description of research interests and objectives to: Dr. Thomas C. Westfall, Professor and William Beaumont Chair, Department of Pharmacological and Physiological Science, Saint Louis University School of Medicine, 1402 South Grand Boulevard, St. Louis, MO 63104. Women and minorities are encouraged to apply. [EOE/AA]

Visiting Professor: Washington and Lee University Biology Department invites applications for a one-year visiting professor in animal physiology, beginning August 2000. Teaching responsibilities include animal physiology, and two other junior/senior level courses in the person's area of expertise. Currently microanatomy (histology) and special topics in neuroendocrinology are taught. Please send a curriculum vitae, and statement of teaching goals with your letter of application. In addition, three letters of reference should be sent directly to: Dr. L.E. Hurd, Department of Biology, Washington and Lee University, Lexington, VA 24450. Screening will begin on **February 29, 2000**. Washington and Lee University is an Equal Opportunity Employer.

Assistant, Associate or Full Professor of Physiology: The Medical College of Georgia, a unit of the University System of Georgia, invites applications for two tenure-track positions in the Department of Physiology and Endocrinology beginning July 1, 2000 or thereafter. A DVM, MD or PhD with postdoctoral research experience is required. Successful candidates are expected to establish active independent programs of extramurally funded research in the areas of cardiovascular and renal physiology, neuroscience, reproductive endocrinology or developmental biology to complement research strengths and goals of the Department and Medical College. Applicants are also expected to have teaching experience and be committed to teaching students in the Schools of Medicine, Allied Health Sciences and Graduate Studies. For consideration, applicants should submit a curriculum vitae, a statement of research interests and three letters of reference to: Dr. Tom Mills, Search Committee Chair, Department of Physiology and Endocrinology, Medical College of Georgia, Augusta, GA 30912-3000. Only applications received by **March 15, 2000** are assured full consideration: Information about the Department can be obtained at: http://www.mcg.edu/SOM/PhyEndo/index.html. The Medical College of Georgia is an Affirmative Action/Equal Educational and Employment Opportunity institution and does not discriminate on the basis of race, religion, sex, age, national origin or disability in employment or provision of services.

Advertise your job vacancy to over 9,000 members and subscribers!

Post your vacancies here! Ads are accepted for either positions available or positions wanted under all categories. The charge for this listing is only $75. In addition, all ads are posted on the APS Career Opportunity Web page immediately upon receipt and remain on there until the deadline has past.

If you would like to have your ad listed in *The Physiologist* or on the APS Career Opportunities Web page, the following items are needed: a copy of the ad, the name of a contact person, and either a purchase order number, credit card number (with expiration date and name of cardholder), or billing address. Send the information to Melinda Lowy (e-mail: mlowy@aps.faseb.org; phone: 301-530-7165; fax: 301-571-8305).

Letter to Kenneth Zierler

Wei Young writes: "Thank you very much for your marvelous letter which coincided with the arrival of my daughter Linda, and my son-in-law Prof. Steve Sibener with two beautiful grandchildren, who came over from Chicago to celebrate my 80th birthday. Indeed, it was a most joyful occasion.

"I am in good health and am enjoying the golden years. I practice my mild exercise every morning and eat and drink sensibly. I believe moderation is the key.

"For our younger colleagues, I believe that they should have perseverance, self-reliance, and try to broaden one's basic knowledge as much as one can.

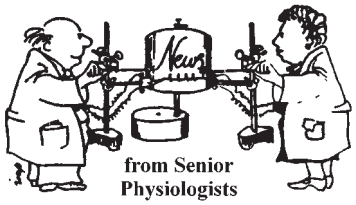
"As to my activity, we have a rather big year, in a crowded bay area. When we first moved in 36 years ago, the hill was bare and the air was dry. The very first thing I did was plant a large number of trees and bushes to regulate the air. It has paid off years later. The hill has been green all year round. It provides a large quantity of fresh air. It turns out that trees are more efficient at providing oxygen and scavenging carbon dioxide than lawns.

"This scenario attracted a large number of birds. It became a paradise for them. They chirped and sang all day long. They nested here and there every year. I thought it would be an ideal scenario for retirement. However, it turned out not as expected.

"As you can see, I am pretty much involved in the EMFs nowadays. It's more than a hobby. It may have some far-reaching and biophysical-physiological implications related to membrane bound enzymes.

"The present setting is suitable for some chronic studies of RFs in terms of frequency and minute energy in electron volt in the range of metabolic level in vivo.

"I congratulate you that you have chosen the academic profession of research, teaching and guiding students,



as well as young colleagues. The average life span of practicing MDs, only 59 years of age, needs to be improved. With your wisdom and stature you could set the trend for future development in the medical arena.

"Meanwhile, have a wonderful year and enjoy your noble work."

Letters to Eugene Renkin

Harvey J. Weiss writes: "I have retired from both my clinical activities at St. Luke's-Roosevelt Hospital Center and am now Professor Emeritus of Medicine at Columbia.

"My current professional activities include consulting work and foundation-related activities. I am actively pursuing hobbies such as chamber music, travel and the cultural pleasures of New York. I have yet to figure out how I found the time to work."

Stuart Bondurant writes: "I have retired from the Deanship after 21 years in two Medical Schools and I remain occupied in teaching and many other odds and ends as a Professor of Medicine. I continue to be active in a number of organizations. Most recently, for example, I chaired the Committee on the Safety of Silicone Breast Implants for the Institute of Medicine. I also recently chaired a Conference on Education for More Synergistic Practice of Medicine and Public Health sponsored by the Josiah Macy, Jr. Foundation.

"As a result of chairing the Committee on the Safety of Silicone Breast Implants, I have become interested in the more generic issue of the use of science and scientific information by the Courts or, more specifically, how to improve the use of science by the Courts. I am impressed by the interest of both the Federal and State judiciaries in strengthening their capacity to appropriately incorporate science into their deliberations and decisions."

Knut Aukland writes: "Thank you very much for your letter occasioned by my 70 years. I apologize for my delayed answer, for which I have no other excuse than that I really don't know what to write. My career and doings are not very exciting, but I trust that you will be able to extract anything you might find of interest.

"As a young MD in 1954 I was drawn to internal medicine, I guess mainly because of its diagnostic challenges. After a couple of years I got a position at the Department of Internal Medicine in Oslo City Hospital, University of Oslo, headed by professor Einar Blegen who was really the first Norwegian nephrologist. However, the clinical hospital routine fell short of my expectations, mainly because most of the beds were occupied by miserable old people (of my present age) with less need for sophisticated internal medicine than for care and rehabilitation, which we were not able to provide. It was, therefore, easy for Fredrik Kiil to persuade me to join him at the Oslo University Institute for Experimental Medical Research, recently donated by Anders Jahres Whaling Company. Kiil's main interest was ureteral and kidney physiology, but more or less as a hobby he was just then (1958) developing a new hemodialyzer. The Kiil Kidney (often misspelled Kill) was a great improvement and became the world's most used hemodialyzer for the next 15-20 years.

"While renal physiology had no tradition in Norway, Kiil's conviction that there was no reason why we should not be able to do as good research in this field as the Americans was reassuring. Nevertheless, I felt it as a great privilege to obtain a Postdoctoral Fellowship at NIH (1962-63) to continue studies on intrarenal circulation, especially medullary blood flow and its possible effect on the renal concentrating mech-

anism. The stimulating environment in the Kidney and Electrolyte Laboratory, and especially the close supervision by Robert Berliner made the stay extremely rewarding both personally and scientifically, affirming my choice of physiology as a lifelong hobby and profession.

"In 1970 I became professor and chairman at the Physiology Department at the then young University of Bergen. With little gifts for administrative leadership and few degrees of freedom for a department chairman in Norway, I welcomed 'democratization' and transition to rotating chairmanship in 1974. Together with reasonable teaching cores this gave me time for own research and also for writing some time-consuming reviews. While continuing kidney studies, we also managed to develop a quite strong group in transcapillary fluid balance, especially by improving methods for measuring interstitial fluid pressure and composition. In that field I profited greatly from two sabbatical years spent with **Gene Renkin** at the Department of Human Physiology, UC Davis (1981 and 1989). I am glad to have had this opportunity to tell that I am greatly indebted to American physiologists and institutions, and that I am proud of being an honorary member of the American Physiological Society.

"My 40 years in physiological research have given me a lot of scientific challenges, disappointments, but also some triumphs. Still, the greatest satisfaction has been the guidance of and collaboration with young gifted people, often watching an amazingly rapid development inventiveness combined with analytical and critical attitude. For better or worse we have largely continued 'old-fashioned' physiology, in recent years obviously under the cover of 'integrative physiology.' Shortage of money for research instruments and running expenses has been a continuous headache and has sometimes precluded potentially valuable projects. On the other hand, it has called for improvisations and sometimes development of new equipment in collaboration with good mechanical and electronic workshops.

"Giving advice is too pretentious, but I might like to point out that in my research field the progress has sometimes been delayed by 5-10 years because of the eagerness to adopt new and appealing methods which only after many years were tested adequately and shown not to measure what it was claimed to do. Thus, science would have been better off if more researchers had spent time on critical testing of methods instead of presenting 'interesting results and conclusions' which later turned out to be unwarranted.

"I retired from my university position at 67 (1996), but continued on a three year senior stipendium from the Norwegian Research Council. Since then I have still kept my office in the department and continue advising a couple of fellows and striving to complete and write up some unfinished studies on tendon interstitium. My problem is that everything takes more time than before. Physically I am in good shape, and more than ever I enjoy hiking in the Bergen Mountains during weekends, most often accompanied by my wife. As in my more active years I still feel that I ought to reserve more time for my large family, including 12 grandchildren."

Letter to Michael Bárány

Irvin M. Korr writes: "Thank you for your letter congratulating me on my 90th birthday. I am deeply appreciative of your and The American Physiological Society's interest in my work. I am also honored to be invited to contribute an article to the "News from Senior Physiologists" section of *The Physiologist*.

"I received my PhD in 1935 from Princeton University. Between 1936-42, I was an instructor in the Department of Physiology, New York University, College of Medicine in New York City. It was here where two students introduced me to the Communist Party. There was no talk about violence or overthrowing the government. It was all about equality. I was idealistic and I joined the Party. Although during 1942-45 I was working for the US War Department, subsequently the FBI made it tough for me to find a job. Eventually, I got a position at the Osteopathic College in Kirksville, MO, where I helped to create the Department of Physiology and chaired it for 15 years.

"After decades of teaching in osteopathic medicine, I became convinced that osteopathic philosophy and principles offer clear guidelines in the quest for more knowledge and for the design of educational programs. For instance, the physiologist, biochemist, or pharmacologist in an osteopathic faculty must view and teach the musculoskeletal system not only as an assemblage of contractions, relaxations, and reflex patterns, but also as a system that places major demands on the total economy of the body and is in a continual reciprocal interchange with all other systems of the body.

"After leaving Kirksville in 1975, I became associated with the College of Osteopathic Medicine in East Lansing, MI, and later at Fort Worth, TX. My research areas included bioluminescence, cellular metabolism, renal physiology, autonomic nervous system, trophic function of nerves, or neurobiologic mechanisms in manipulative therapy. I received grants from NIH, Office of Naval Research, American Osteopathic Association and various foundations. I published many papers, authored or coauthored four books, lectured at numerous scientific meetings at home and abroad, and received several honors.

"I was 80 years old when I retired officially. My post-retirement activities included: finishing unpublished research, completing a book, guest lecturing, Committee work, attending seminars, and volunteering as counselor in Health Centers. I had heart surgery last November. While I have made a very

News From Sr. Physiologists

good recovery physically, I find that my capacity and interest in professional activities has diminished.

"I leave you with my thoughts that scientists have great responsibilities both as professionals and as human beings. It has been one of the most wonderful experiences of my life, being able to put a smile on another person's face."

Letter to Stephen Cain

John B. Little writes: "I am indeed still very active, and doing a great deal of writing both of research papers for peer reviewed journals as well as the somewhat less interesting task of producing book chapters and review papers. However, I do plan on retiring within the next year or two, by which time I hope the School will have identified a new department head and director for my research and training program in radiation biology. I still have one doctoral student and several postdoctoral fellows in my laboratory, but am taking on no new people. I am currently in the last of 12 years of support from an Outstanding Investigator Grant from the National Cancer Institute, but have just received a new grant from the Department of Energy, which will allow me to continue research over the next 2-3 years. As you can see, essentially my entire scientific career has been here at the Harvard School of Public Health.

"I am quite a pack rat, and, therefore, have saved an enormous amount of archival material including unpublished writings, original drafts and correspondence, as well as notes from the many University and outside committees and councils on which I have served. I have for many years been involved with the Rare Books Division of the Countway Library of Medicine here in Boston, and plan to discuss with them what of these materials they might like. I am sure that they probably would like everything, but don't really have the space for any of it!

"Parenthetically, the lab celebrated my 70th birthday by organizing a two-day symposium to which all former lab members were invited to attend and present papers if they would like. A large number came, and 32 of them presented papers; this large series of 15-minute talks reminded me of the old Federation meetings in Atlantic City. Those who came included 28 of the 43 doctoral students who have graduated from the Program. It was a great way to celebrate one's 70th!" ❖

Books Received

Advances in Synaptic Plasticity.
Michael Baudry, Joel L. Davis, and Richard F. Thompson (Editors).
Cambridge, MA: MIT Press, 1999, 335 pp., illus., index, $65.00.
ISBN: 0-262-02460-8.

Angiogenesis in Health and Disease: Basic Mechanisms and Clinical Applications.
Gabor M. Rubanyi (Editor).
New York: Dekker, 2000, 552 pp., illus., index, $195.00.
ISBN: 0-8247-8102-3.

Eicosanoids in Invertebrate Signal Transduction Systems.
David W. Stanley.
Princeton, NJ: Princeton Univ. Press, 2000, 277 pp., illus., index, $47.50.
ISBN: 0-691-00660-1.

Ernest Henry Starling (1866-1927) Physician and Physiologist - A short biography.
Jens H. Henriksen.
Copenhagen, Denmark: Laegeforeningens Forlag, 2000, 140 pp., illus., index, $20.00.
ISBN: 87-7891-010-2.

The Fetal and Neonatal Pulmonary Circulations.
(American Heart Association Monograph Series).
E. Kenneth Weir, Stephen L. Archer, and John T. Reeves (Editors).
Amonk, NY: Futura, 1999, 387 pp., illus., index, $98.00.
ISBN: 0-87993-439-5.

Nerve Cells and Animal Behaviour, 2nd Edition.
Peter J. Simmons and David Young.
New York: Cambridge Univ. Press, 1999, 266 pp., illus., index, $24.95.
ISBN: 0-521-62726-5.

Neural and Metabolic Control of Macronutrient Intake.
Hans-Rudolf Berthoud and Randy J. Seeley (Editors).
Boca Raton, FL: CRC, 2000, 508 pp., illus., index, $89.95.
ISBN: 0-8493-2752-0.

Tastes & Aromas. *The Chemical Senses in Science and Industry*.
Graham A. Bell and Annesley J. Watson (Editors).
Sydney, Australia: UNSW, 1999, 214 pp., illus., index, $59.95.
ISBN: 0-86840-769-0.

Methods for Investigation of Amino Acid and Protein Metabolism

Antoine E. El-Khoury (Editor).
Methods in Nutrition Research
Boca Raton, FL: CRC, 1999, 259 pp., illus., index, $99.95.
ISBN: 0-8493-9612-3.

When we prepare a trip we will not forget to bring maps with us. New travelers have to look at maps before setting foot on the trip. Even those who have paid visits before may review the maps to refresh their memory. In the territory of in vivo protein and amino acid metabolism, the newly published book *Methods for Investigation of Amino Acid and Protein Metabolism* (referred as method book thereafter), edited by A.E. El-Khoury, displays before us a "map" for traveling in this research field.

During the early period of this century, the concept of protein metabolism was restricted to nitrogen balance. An anabolic response was defined as positive nitrogen balance, and vice versa. This concept apparently oversimplifies the complexity of the metabolic events in the body, and in some cases may be misleading because a net nitrogen gain is not necessarily equal to a net anabolism. With the use of isotope tracer methods, the knowledge of in vivo amino acid and protein metabolism has exploded. Nowadays, investigators are able to quantify protein kinetics at the whole body level as well as in individual tissues, calculate the requirements of each amino acid for an optimal nutritional supply, investigate the special metabolic changes and nutritional demands under a variety of physiological and pathological conditions. All these advances are closely related to the development of new methods. The method book describes the most of currently available methods, thereby offering a map to the nutrition researchers.

The method book is composed of 14 chapters; each addresses a specific topic. The authors of individual chapters have extensive experience in the methods they describe. Thus, each chapter describes not only the principles and equations involved in the methods, but also the essence of their application to solve practical problems. The book begins with the transmembrane transport of amino acids, the building blocks of proteins, as Chapter 1. From Chapters 2-5, methods used for determination of amino acid and protein metabolism at the whole body level and organ/tissue level, as well as the determination of the least protein requirements, are described. These chapters deal with methods used in the physiological conditions, thereby composing a basic overview of the methodology. In Chapters 6 and 7, instrumentation is introduced for the analysis of stable isotope enrichment, which discusses methods, difficulties and calculations. Chapters 8-14 are dedicated to the specific issues, such as investigating glutamine metabolism (Chapter 8), applying muscle biopsy (Chapter 9), and analyzing human milk (Chapter 12), and to the specific physiological and pathological conditions, such as methods used in the elderly (Chapter 10), in the fetus (Chapter 11), in burn and other trauma patients (Chapter 13), and in diabetes mellitus (Chapter 14). Consequently, this book covers the most majority of the available methods and their successful applications.

This method book is among a series of "Methods in Nutrition Research." As addressed by series editors R.R. Watson and I. Wolinsky in the Series Preface, methods are critical to both good data and their correct interpretation. The proper selection and use of methods are of primary importance in research. In general, no method is perfect; every method has its limitation or even potential pitfalls. For example, the primed constant infusion method is widely used to determine the fractional synthesis rate of a tissue protein. The method is straightforward and easy to use as long as a couple of tissue biopsies are obtainable. However, a proper application of this method requires that the tissue biopsies are taken under a physiological steady state and isotopic equilibrium. To ascertain the satisfaction of the requirements, it is always a good idea to measure the arterial blood enrichment over time, although the method, per se, does not require blood data for calculation. Moreover, the tracer incorporation method measures only the synthesis rate. Nevertheless, an increase in synthesis rate does not necessarily indicate an anabolic response because the change in breakdown rate is not known. If both synthesis and breakdown could be changed by the experimental perturbations, the tracer incorporation method is not sufficient to clarify the metabolic state. As an alternative, simultaneous measurement of the fractional breakdown rate (see Chapter 13) should be considered. Moreover, if the information of amino acid transmembrane transport is desired for data interpretation, the use of the three-pool arteriovenous balance method which includes tissue biopsy data would be the best choice. For all this methodology concerns, the method book serves as a dependable map in which investigators can find the routes leading to their destinations.

An additional advantage of this method book is that it emphasizes the importance of methodology in nutrition research. If the method book is regarded as a map for nutrition research, the development of new methods is to detail the map by constructing new roads. The more the researchers contribute to the development of new methods, the more comprehensive this map will be, hence, the faster the progress in nutrition research will move forward. We expect a more sophisticated map in the next edition of this book. We welcome this method book and are thankful to the authors for their excellent work.

Xiao-jun Zhang
University of Texas Medical Branch

Methods in Enzymology, Neurotransmitter Transporters

Susan G. Amara (Editor).
San Diego, CA: Academic,
784 pp., illus., index, $110.00.
ISBN: 0-12-182197-8.

A transporter is an integral membrane protein that catalyzes movement of molecules across the lipid bilayer. Progress in molecular understanding of transporters has been slow due to intrinsic difficulties associated with transporters. Unlike hormone receptors, most transporters lack high affinity ligands for sensitive detection. Large quantity of material is needed for reliable assay of transport over background noise due to slow turnover rates of transporters (typically ~100/sec compared to over million for ion channels). It is difficult to reproduce the lipid environment that allows reconstitution of transport function.

Over the last decade, mRNA sequences for more than 20 distinct families of transporters have been cloned, thanks mostly to development of expression cloning strategies such as the *Xenopus* oocyte system. Based on the number of transporter genes from the yeast and *C. elegans* genome, it is a reasonable estimate that the number of genes encoding various transporters is in the order of 5% of the human genome or 5,000. As the human genome sequencing will be complete in a few years, physiologists will soon face the task of understanding structure and function of novel transporters. In this regard, it is timely to have a volume of *Methods in Enzymology* dedicated to "biochemical, electrophysiological, pharmacological, molecular, and cell biological approaches" to study (neurotransmitter) transporters.

The first section is made of 10 chapters and devoted to purification and cDNA cloning. Quite appropriately, several chapters deal with the art and problems of solubilization and reconstitution of transporters, as these techniques are the basic and essential steps in and also the most difficult obstacle toward biochemical manipulations. Successful schemes of purification are presented for glycine transporter and vesicular monoamine transporters. Chapter 2 describes the *Xenopus* oocyte expression strategy that has revolutionized the field as many novel families of transporters have been cloned by this method.

Matthias Hediger, who pioneered this technique, and his colleagues did an excellent job in description of the technique and discussion of limitations and variations. Other strategies of expression are covered in other sections.

Because each substrate is generally transported by a family of transporters, strategies to develop substrates/ligands specific for subtypes are discussed in Section 2. As we will face a large number of transporter families, development of specific pharmacological agents will be important. Section 3 is titled "Transport Assays and Kinetic Analysis." This topic is unique only to transporters. It begins with nice theoretical considerations of themodynamics and kinetics by Gary Rudnick. Three chapters of actual analyses of transport and substrate binding follow with practical considerations.

Section 4 has 7 chapters that deal with biochemical approaches for structure-function analyses. Generation of specific antibody has proven very difficult for many transporters. Two excellent chapters are dedicated to this topic discussing the selection and production of antigens and characterization of antibodies. Other chapters cover synthesis and trafficking using techniques such as immuno-cytochemistry and cell surface labeling. Analyses of transporter topology taking advantage of group specific reagents and also using more straightforward strategy involving deletion and epitope tagging are also covered. Of particular interest to me, one chapter is dedicated to expression of transporters in epithelia. It provides a nice description on analysis of expression in the basolateral and apical membrane using immuno-cytochemistry and surface labeling.

The next Section reviews several expression systems including the 'Vaccinia virus-T7 RNA polymerase system' that is convenient and sensitive for analysis of transport and the Bacculovirus-based system that allows purification of active transporters. Three chapters describe experience with generation and analyses of chimeras between isoforms of transporters to assign particular functions to specific amino acids. Jeffrey Rothstein and his colleague contributed a chapter describing their experience with anitsense oligodeoxynucleotides. Using this strategy, his group has successfully evaluated biology of each of five subtypes of glutamate transporters in brain and in cultured cells. This technique can be easily adapted to any family of transporters. The last chapter of this Section introduces *C. elegans* as a tool to study the monoamine transporters of the intracellular vesicles. Basic biology and techniques to manipulate animals and observe phenotypes pertinent to the function of transporter are well presented. Applications of this organism to analyze structure and function and to identify interacting proteins are also described. This is a good introductory chapter that leads to more advanced literature.

One might be left with an impression that this book lacks satisfying level of information regarding the structure and function of transporters compared to what is known in channels and receptors.

However, such is the status of the field of transporters and this book is an excellent resource for future studies of transporters. ❖

H. Moo Kwon
Johns Hopkins University

Book Reviews

C_4 Plant Biology

Rowan F. Sage and Russell K. Monson (Editors).
San Diego, CA: Academic, 1999, 598 pp., illus., index, $84.95.
ISBN: 0-12-614440-0.

Why should the average member of The American Physiological Society read this book devoted to plants that have the C_4 photosynthetic pathway (also called the Hatch-Slack pathway)? Because it tells an important story about the physiology, structure and function of unrelated groups of flowering plants that leads to an understanding of the evolution, abundance, and distribution of these species, and why humans often chose C_4 plants for agriculture.

The primary reaction in C_4 photosynthesis is the initial fixation of carbon dioxide into a four-carbon acid by the enzyme PEP carboxylase. Plants with the C_4 pathway are able to concentrate carbon dioxide in specialized cells, where the enzyme RuBP carboxylase-oxygenase (Rubisco) subsequently fixes the CO_2 into carbohydrates using the standard C_3 photosynthetic pathway (also called the Calvin-Benson cycle). Thus, plants with the C_4 photosynthetic pathway are able to avoid the competitive inhibition of CO_2 fixation by oxygen at the active site of Rubisco.

The book is divided into five parts based on general subject matter. The first part with two chapters introduces the C_4 pathway and provides an important historical perspective by one of the physiologists involved with its discovery (Marshall Hatch). The next part with 4 chapters is on the physiology, biochemistry and regulation of the C_4 photosynthetic pathway including a detailed model of total carbon dioxide assimilation based on enzyme kinetics. These chapters will appeal to physiologists seeking to understand variations of chloroplast function and morphology.

Two important parts of this book are devoted to the ecophysiology (4 chapters) and the multiple evolution (3 chapters) of the C_4 pathway in flowering plants. Individual chapters range from a detailed examination of environmental factors which influence the rate of photosynthesis (such as light intensity and air temperature) to describing the significance of C_4 plants over recent geological history. The final part of this book is devoted to examining the relationship of C_4 plants to agriculture and human society. For example, the relative proportion of foods derived from C_3 plants and C_4 plants in a person's diet can be established from the ratio of the stable carbon isotope ^{13}C to the common carbon isotope ^{12}C.

Some of the individual chapters are well focused on their particular topics, which is a nice way of saying that these chapters do not refer to other relevant sections in the book. Unfortunately, one topic that probably deserves its own chapter is the differences between C_4 and C_3 plants with respect to the discrimination of ^{13}C; an understanding of stable carbon isotope discrimination during photosynthesis is necessary for 6 of the 16 chapters in this book. On the other hand, what I found particularly noteworthy about this book is the synthesis into an interesting and coherent picture of C_4 plants provided by various chapters authored by the two editors, Rowan Sage and Russ Monson.

One of the lessons from *C_4 Plant Biology* is a cautionary tale about extrapolating the biochemistry, development and genetic regulation of model systems, such as *Arabidopsis thaliana* (a C_3 plant), beyond narrow limits established by the evolution of these species. How many other novel and important biochemical pathways are unrecognized simply because "everyone knows" the textbook pathways? I have no way of venturing a guess, but I expect that when such discoveries are made it will be by people that have, to quote the title of Evelyn Fox Keller's biography of Barbara McClintock, "a feeling for the organism." ❖

E. Raymond Hunt, Jr.
USDA Agricultural Research Service

Integrative Aspects of Calcium Signalling

Alexej Verkhratsky and Emil C. Toescu (Editors).
New York: Plenum, 1998, 408 pp., illus., index, $125.00.
ISBN: 0-306-046032-7.

For this book, the editors have invited thirty-seven authors to contribute seventeen chapters, each on a separate topic related to calcium signaling which is of interest to most modern physiologists. The order of the topics is very logical, although each of the chapters can be read independently.

The book begins with the editors' introduction, which is an interesting and balanced overview of intracellular calcium signaling. In Chapter 1, Marcus Hoth discussed in detail the fate of calcium ions in a cell with considerable emphasis on the concept of "calcium tunneling" via intracellular organelles. In chapters 2 to 9, the roles of calcium in regulating diverse classes of biomolecules or organelles are covered.

The specific biomolecules discussed are: *1*) cytosolic enzymes (Howard Schulman's chapter with a focus on calmodulin/CaM kinase); *2*) genes (Chawla and Bading's chapter which is a broad review on gene expression); *3*) ion channels (Swandulla and Zeilhofer's chapter on voltage-gated calcium channels and calcium-activated channels of potassium, chloride, and nonselective cation varieties; Nail

Burnashev's chapter on NMDA receptor channels; and Markin and Bezprozvanny's chapter on IP_3 receptors).

The specific organelles included are: *1*) intracellular calcium stores (chapter by Sienaert et al. with a focus on the luminal calcium); *2*) mitochondria (chapter by Rutter et al. with a focus on intramitochondrial calcium, dehydrogenases, and their roles in oxidative metabolism); and *3*) the neuronal cytoskeleton (Denise van Rossum's chapter in the context of growth cones, neurites and dendritic spines).

The second half of the book is devoted to "cellular functions." Chapters 10 to 17 cover the following topics: *1*) exocytosis (Jana Hartmann's chapter); *2*) neuronal growth and development (chapter by Archer et al,); *3*) cell death and apoptosis (chapters by Sattler and Tymianski, and by Jayaraman and Marks); *4*) activity-dependent synaptic plasticity (chapters by Augustine et al., and by Hanse and Konnerth); *5*) glial calcium waves (Peter Simpson's chapter); and *6*) cardiac excitation-contraction coupling (chapter by Cannell and Soeller).

Most of the chapters are comprehensive reviews, covering the literature up to 1998 and the reference lists are extensive. Some authors have chosen to be more focused and included significant experimental data or modeling from their own laboratories. Notable examples of these are the local photolysis and calcium imaging data in the chapter by Augustine et al., and the mathematical modeling of calcium waves in the chapter by Markin and Bezprozvanny. This mixture of broad reviews and autobiographical materials gives the book a nice balance, particularly when some closely related topics are covered in multiple chapters.

The overall editorial quality is very good. There are very few errors in the texts and reference lists. An unfortunate slip is a statement in the editors' introduction, which named ATP as an "inorganic" calcium buffer (from the context of the statement, one can guess that the editors really meant "non-proteinaceous"). The illustrations of the book are generally of excellent quality. However, some of the figures in the book might have been designed originally for color reproduction and their clarity is reduced when they are printed in black and white. It is particularly noticeable when the calibration scale of some figures in chapter 14 (originally in a color scale of black to blue to red) was not converted to an appropriate grey scale (fortunately these particular figures are now published elsewhere in color).

The most attractive aspect of this book is the wide range of topics, which makes the book useful to a broad range of readers who are interested in calcium, particularly at the biochemical or cellular level. Most of the chapters are written for readers with at least the background of an advanced undergraduate, but even experts are likely to learn something interesting. Because each chapter can be read independently, there are unavoidable overlaps in the introduction of some fundamental mechanisms. For example, the mechanisms of calcium homeostasis are significantly covered not only in the introduction by the editors and chapter 1, but again in chapters 12 and 13 on cell death and apoptosis. The experts reading the book cover to cover may chose to skip over the repetition. However, when we assign a certain chapter of this book as required reading in a course, the students will be glad that they get a complete story in each chapter.

Amy Tse and Frederick W. Tse
University of Alberta

Obituary

Suk-Ki Hong
1928-1999

Suk-Ki Hong, Distinguished Professor Emeritus in the Department of Physiology and Biophysics at State University of New York (SUNY) at Buffalo, died on October 4, 1999, after a long and debilitating illness. Born in Kyonggi Do, South Korea in 1928, Hong received his medical degree from Severance Union Medical College (now Yonsei University College of Medicine) in 1949 and his doctorate in physiology from the University of Rochester in 1956 under the guidance of Edward Adolph. Hong moved to the University of Buffalo in 1956 to join Hermann Rahn's department and returned to Yonsei University in 1959. From 1959-68, he rose from Assistant Professor to Professor and Chair of the Physiology Department at Yonsei, and in 1968 accepted a professorship at the University of Hawaii's Department of Physiology, which he subsequently chaired from 1971-1975. Hong returned to Buffalo in 1975 as Professor of Physiology in the SUNY School of Medicine and Biomedical Sciences and spent the rest of his academic career in Buffalo. In 1994, the SUNY Board of Trustees appointed him Distinguished Professor, the highest academic honor that SUNY bestows on its faculty members.

Hong's principal scientific contributions were made in 2 areas: renal function and the physiology of diving. His work made him a major figure in both disciplines for nearly 40 years.

Suk-Ki Hong

In recognition of his scientific accomplishments, Hong received the Samil Cultural Prize in Natural Sciences in 1963, the highest civilian award given by the South Korean Government, and in 1983 an honorary Doctor of Science Degree from Kyungpook National University. He was also a recipient of the Stover-Link Award from the Undersea Medical Society in 1983, and in 1987 SUNY-Buffalo's School of Medicine and Biomedical Sciences awarded Hong the Stockton Kimball Prize, its premier honor for a faculty member who has excelled in research, education and service. In 1991 he received a special citation for Distinguished Service from the Panel on Diving Physiology and Technology of the US-Japan Cooperative Program in Natural Resources, and in 1995 the Environmental/Exercise Physiology Section of the American Physiological Society presented him with its Senior Investigator Honor Award.

Hong's scientific legacy is not only the impressive volume and quality of his research publications, but also those many students and fellows who now follow in his path and have gone on to productive and important scientific careers in many parts of the world, most particularly in his native land and here in the US.

Tax-deductible contributions to a fund that will be established in Hong's memory may be made by check to the Suk-Ki Hong Memorial Fund, c/o U.B. Foundation, and sent to Department of Physiology and Biophysics, 124 Sherman Hall, State University of New York at Buffalo, Buffalo, NY 14214-3078. ❖

People & Places

President Clinton Announces 1999 Medal of Science and Technology Winners

President Clinton has named the 1999 recipients of the National Medal of Science and National Medal of Technology, the nation's highest S&T honors. The 12 winners in science and 5 in technology will receive their awards in a White House ceremony March 14.

Among the winners is APS member **Jared Diamond**, Professor of Physiology, UCLA School of Medicine. He was recognzied for seminal research in applying Darwinian evolutionary approaches to the disparate fields of physiology, ecology, conservation biology and human history, and for outstanding efforts in communicating science.

The National Medal of Science, established by Congress in 1959 and administered by the National Science Foundation, honors individuals for contributions to the present state of knowledge across a variety of science frontiers. Including this year's recipients, the Medal of Science has been awarded to 374 distinguished scientists and engineers.

Martinez-Maldonado Named President

Manuel Martinez-Maldonado, former vice provost of research at Oregon Health Sciences University, has recently assumed the position of president and dean of Ponce Medical School in Puerto Rico.

According to the *Business Journal of Portland*, Martinez-Maldonado had intended to retire to Puerto Rico, his home territory. When he was offered the position, he could not refuse the opportunity.

"I wasn't looking for anywhere to go," he said. "The president and dean there stepped down and they were looking for a person. They asked me to come and be a consultant. Then they picked me. Since I am from Puerto Rico, I couldn't pass this up." ❖

Malloy Named Dean

Laura Gray Malloy has joined Hartwick College, Oneonta, New York, as dean of academic affairs.

Before accepting her new position, Malloy had been a tenured member of the Bates College biology faculty and department chair. She also taught courses in animal physiology, cell and molecular biology and pharmacology. Malloy also teaches seminars relating to women in science and women's health. She recently held the Jane Watson Irwin Chair in women's studies at Hamilton College.

Schultz Awarded Chair

Stanley Schultz has been awarded the Fondren Chair in Cell Signalling at the University of Texas-Houston Medical School in recognition of his accomplishments in research and education.

Jean-Michel Achard is presently associated with the Central Hospital University, Department of Physiology, Limoges, France. Achard was associated with the Department of Nephrology, University Hospital, Amiens, France.

Having accepted a position with Texas-Tech Health Science Center, Odessa, TX, **David M. Baldwin** has moved from the Department of OB/GYN, University of Nebraska Medical Center, Omaha, NE.

Robert Charles Basner has joined the Division of Pulmonary, Allergy, and Critical Care, Columbia University College of Physicians and Surgeons, New York, NY. Previously, Basner was with the Department of Medicine, Respiratory and Critical Care Medicine, University of Illinois, Chicago, IL.

Formerly, **Frank W. Booth** was with the Department of Integrative Biology, University of Texas Health Science Center, Houston, TX. Currently, Booth is with the Department of Veterinary Biomedical Sciences, University of Missouri, Columbia, MO.

Recently, **Marilyn A. Brandt** has left the Algos Pharmaceutical Corporation, Neptune, NJ. Brandt is currently with Regulatory Affairs, INO Therapeutics Inc., Clinton, NJ.

Recently, **Alex F.Y. Chen** affiliated with the Department of Pharmacology and Toxicology, Michigan State University College of Human Medicine, East Lansing, MI. Chen was previously with the Department of Physiology, University of North Dakota, Grand Forks, ND.

David C. Dawson has been appointed Chair, Department of Physiology & Pharmacology, School of Medicine, Oregon Health Sciences University, Portland, OR. Dawson was previously affiliated with the Department of Physiology, University of Michigan Medical School, Ann Arbor, MI.

Formerly with the Department of Physiology, University of Michigan, Ann Arbor, MI, **Anne McLaren Dorrance** is now affiliated with the Department of Physiology and Endocrinology, Medical College of Georgia, Augusta, GA.

Thomas D. DuBose, Jr., Professor of Medicine, Physiology, and Cell Biology, has accepted a position with the Department of Internal Medicine, Kansas University Medical Center, Kansas City, KS. Prior to his new position, DuBose was with the Department of Internal Medicine, University of Texas Medical School, Houston, TX.

Moving from the Harry S. Truman VA Medical Center, Columbus, MO, **Elise Peery Gomez-Sanchez** has accepted a position with G.V. (Sonny) Montgomery VA Medical Center, Jackson, MS.

Accepting a position with the Department of Human Sciences, Metaresponse Sciences, Dallas, TX, **Conrad Parker Earnest** has moved from IMAGINutrition, Metaresponse Sciences, Aptos, CA.

Lori A. Gustafson, formerly associated with the Laboratory for Physiology, Vrije University, Institute for Cardiovascular Research, Amsterdam, The Netherlands, has moved to the Department of Biochemistry, Academic Medical Center, Amsterdam, The Netherlands.

Having moved from the Department of Pharmacology, East Carolina University School of Medicine, Greenville, NC, **A.Z.M. Arif Hasan** has joined Tulane University School of Medicine, New Orleans, LA.

Leo A. Heitlinger is currently affiliated with the Department of Pediatrics, St. Luke's Hospital, Bethlehem, PA. Heitlinger was previously associated with the Department of Pediatrics, Ohio State University and Children's Hospital, Columbus, OH.

People & Places

Russel T. Hepple has joined the Faculty of Kinesiology, University of Calgary, Calgary, Alberta. Prior to his new position, Hepple was with the Division of Physiology, University of California, San Diego, La Jolla, CA.

John P. Kirwan has moved from Noll Laboratory, Pennsylvania State University, University Park, PA, to the Department of OB/GYN, MetroHealth Medical Center, Case Western Reserve University, Cleveland, OH.

Recently, **Robert Kunau, Jr.**, joined the Department of Medicine, Division of Nephrology, University of Texas Health Science Center, San Antonio, TX. Kunau had been with the Department of Nephrology, Baylor University Medical Center, Dallas, TX.

Martin G. Latour has affiliated with the Department of Pharmacology and Therapeutics, University of Manitoba Faculty of Medicine, Winnipeg, Manitoba, Canada. Previously, Latour was affiliated with the Department of Kinesiology, University of Montreal, Montreal, Canada.

Having left the Department of Cell Biology, The West Company, Lionville, PA, **Ming Q. Lu** is currently the Assistant Director, Pharmaceutical Research and Development, NexMed Inc., Robbinsville, NJ.

David L. Nahrwold was President and CEO, Northwestern Medical Faculty Foundation, Chicago, IL. Nahrwold is now the Interim Director, American College of Surgeons, Chicago, IL.

Having accepted the position of Director of the Department of Biology and Neuroscience, Trinity College, Hartford, CT, **Jeffrey L. Osborn** has moved from the Department of Physiology, Medical College of Wisconsin, Milwaukee, WI.

Adebayo O. Oyekan has affiliated with the Department of Cardiovascular Disease, Texas Southern University, Houston, TX. Formerly, Oyekan was associated with the Department of Pharmacology, New York Medical College, Valhalla, NY.

Susanne Pedersen has left the Department of Biochemistry, August Krogh Institute, Copenhagen, Denmark, and has joined the Department of Molecular Cell Biology, Institute of Molecular Biology, Copenhagen, Denmark.

Barry T. Peterson has moved from the Department of Physiology, University of Texas Health Center, Tyler, TX. Peterson has accepted a position with Pfizer Inc., Department of Clinical Research, Groton, CT.
Accepting a position as Chair of the Department of Biology, University of South Florida, Tampa, FL, **Sidney K. Pierce** has moved from the Department of Biology, University of Maryland, College Park, MD.

Jason E. Podrabsky has left the Department of Environmental and Organismic Biology, University of Colorado, Boulder, CO, and is now affiliated with the Hopkins Marine Station-Stanford University, Pacific Grove, CA.

Previously affiliated with the Department of Medicine and Division of Nephrology, The Milton S. Hershey Medical Center, Hershey, PA, **Sharon D. Ricardo** is now with the Department of Anatomy, Monash University, Clayton, Victoria, Australia.

Formerly, **Clark T. Sawin** was Chief of the Endocrine and Diabetes Section, Boston VA Medical Center, Boston, MA. Currently, Sawin is the Deputy Medical Inspector of Clinical Analysis, Department of Veterans Affairs/Veterans Health Administration, Office of Medical Inspectors, Washington, DC.

David A. Schneider has joined the Department of Veterinary and Comparative Anatomy, Pharmacology and Physiology, Washington State University College of Veterinary Medicine, Pullman, WA. Previously, Schneider was associated with the Department of Pharmacology & Toxicology, Michigan State University, East Lansing, MI.

Having accepted a position with the Department of Physiology, Adelaide, Australia, **Jeffrey Schwartz** has left the Departments of OB/GYN, Physiology and Pharmacology, Wake Forest University School of Medicine, Winston-Salem, NC.

Karie E. Scrogin has accepted a position with Loyola University Medical Center, Maywood, IL. Scrogin had been with the Department of Medical Psychology, Oregon Health Science University, Portland, OR.

Appointed Director of Laboratory Animal Medicine and Veterinary Medicine at Southern Illinois, University School of Veterinary Medicine, Springfield, IL, **Linda A. Toth** has moved from St. Jude Children's Research Hospital, Memphis, TN.

Rachael E. Van Pelt has joined the Department of Medicine, University of Colorado Health Science Center, Denver, CO. Prior to her new appointment, Van Pelt was with the Division of Geriatrics and Gerontology, Washington University School of Medicine, St. Louis, MO.

Joining the Department of Physiology and Endocrinology, Medical College of Georgia, Augusta, GA, **R. Clinton Webb** has left the Department of Physiology, University of Michigan, Ann Arbor, MI.

Announcements

Research Announcement
Soliciting Projects for New Core Research Areas

The National Space Biomedical Research Institute (NSBRI), a non-profit organization managed by a consortium of research institutions, is accepting proposals for space-related biomedical research projects in four new core research areas. This opportunity is available to all members of the US scientific community, whether or not they are from consortium-member institutions. NSBRI research addresses and seeks solutions to the various health concerns associated with long-duration human space exploration. Funded projects will become part of new NSBRI research teams in the following areas:

· **Integrated Human Function:** Developing an overall integrated understanding of the human body's response to space flight, covering all systems and integrated up from the molecular and biochemical level through cellular function to whole human function.

· **Nutrition, Physical Fitness and Rehabilitation:** Developing a unified countermeasure protocol that includes nutrition, fitness maintenance and rehabilitation of astronauts.

· **Neurobehavioral and Psychosocial Factors:** Integrating physiological and psychosocial elements critical to sustained health and performance on long-duration missions.

· **Smart Medical Systems:** Developing and integrating new and emergent technologies for non-invasive data gathering and evaluation, automated medical assistance and advanced data systems that can be individualized for each crewmember.

Letters of intent are due by **March 17, 2000**, and the deadline for submitting proposals is **May 5, 2000**. Detailed information defining these research areas and providing submission instructions is available in the research announcement at http://www.nsbri.org or by calling 713-798-7412. On the NSBRI web site, click on the words "NSBRI Research Announcements" to access the announcement. ❖

Deadlines! Deadlines!

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

Award	Next Deadline
Research Career Enhancement Awards	February 15
Teaching Career Enhancement Awards	April 15
John F. Perkins, Jr., Memorial Fellowships	May 15
William T. Porter Fellowship Award	June 15
NIDDK Minority Travel Fellowships for APS Conference	July 16
Research Career Enhancement Awards	August 15
Teaching Career Enhancement Awards	October 15
Shih-Chun Wang Young Investigator Award	November 1
Arthur C. Guyton Awards in Integrative Physiology	November 1
Giles F. Filley Memorial Awards for Excellence in Respiratory Physiology and Medicine	November 1
Lazaro J. Mandel Young Investigator Award	November 1
Procter & Gamble Professional Opportunity Awards	November 8
Caroline tum Suden/Francis A. Hellebrandt Professional Opportunity Awards	November 8
John F. Perkins, Jr., Memorial Fellowships	November 15
Liaison With Industry Award for Novel Disease Models	November 16
NIDDK Travel Fellowships for Minority Physiologists for EB Meeting	November 23
Orr E. Reynolds History Award	December 1

Announcements

Wellcome Visiting Professorships in the Basic Medical Sciences 2000-2001

The Federation of American Societies for Experimental Biology invites nominations from US medical schools, universities and other nonprofit scientific research institutions for Wellcome Visiting Professorships in the Basic Medical Sciences. Institutions are strongly encouraged to include among their nominations eminent women scientists and eminent minority scientists for Professorships. Individuals cannot apply for this program. For application procedures and information, contact Rose P. Grimm, Executive Office, Federation of American Societies for Experimental Biology, 9650 Rockville Pike, Bethesda, MD 20814-3998. Tel: 301-530-7090; fax: 301-530-7049; Email: rgrimm@execofc.faseb.org. Deadline for institutions to apply is **March 1, 2000**. Sponsored by The Burroughs Wellcome Fund.

FASEB 2000 Summer Research Conferences Announced

The 2000 FASEB Summer Research Conferences will be held in Saxtons River, VT, Copper Mountain, CO, and Snowmass Village, CO.

The schedule for the Conferences has been posted on the FASEB web site at http://www.faseb.org/meetings/src. The preliminary programs and an application and abstract form that can be submitted electronically, will be posted in March.

For more information, contact jlafrankie@faseb.org or ahewitt@faseb.org.

Call for Nominations
FASEB Excellence in Science Lecture and Award 2001

Purpose: To recognize outstanding achievement by women in biological sciences.

Eligibility:

1) All women who are members of one or more of the societies of FASEB will be eligible for nomination.

2) Nominations will recognize a woman whose research has contributed significantly to further our understanding of a particular discipline by excellence in research.

Nominations:

1) Nominations may be made only by members of the FASEB Societies.

2) A call for nomination of candidates for the Excellence in Science Award will be posted in the newsletters of the invididual Societies as well as the FASEB Newsletter and The the FASEB Journal.

3) The call for nominations will be made each year in November. **The nomination deadline is March 1, 2000.** The nomination will be transmitted to the FASEB Board before its May meeting.

4) Nominations must be made in the form of a letter, original and fifteen (15) copies, setting forth in detail:

the contributions to the field that represents the nominee's outstanding achievement in science

leadership and mentorship

evidence of national recognition

honors and awards

5) Fifteen (15) copies of the curriculum vitae and brief selected bibliography of the nominee, as well as fifteen (15) copies of not more that five (5) reprints, must accompany the nomination.

6) Additional letters of support 15 copies of each for the nominee are optional but are encouraged.

7) The nominations and supporting letters are to be sent to:

Ms. Leah C. Valadez
FASEB Excellence in Science Award
Federation of American Societies for Experimental Biology
9650 Rockville Pike
Bethesda, MD 20814-3998
Tel: 301-530-7092

Selection: The Excellence in Science Award Committee, comprised of a member from each society of the Federation, will receive the nominations and recommend an awardee based on an evaluation of scientific accomplishments. The awardee must agree to present an Excellence in Science Lecture. The name of the awardee and a summary of the candidate's qualifications will be sent to the FASEB Board for approval at the May meeting.

Award Presentation: The award will be presented before presentation of the Excellence in Science Lecture by the awardee. The award will be presented by the Chair of the Excellence in Science Award Committee or her representative in conjunctioin with a member of the FASEB Board. The award includes a $10,000 unrestricted research grant, funded by Eli Lilly and Company, travel expenses, complimentary registration at the meeting, and a plaque in recognition of the award.

Announcements

Breakthroughs in Bioscience Articles Available from FASEB

FASEB's Breakthroughs in Bioscience articles are available from the Office of Public Affairs. While these articles are accessible at FASEB's website, http://www.faseb.org/opar/opar.html, additional printed copies are available, which may be ideal for use when speaking to lay audiences or educators.

This diverse series of articles reflects the varied expertise and interests of our member societies and is intended to promote an understanding of how basic biomedical research leads to disease prevention and advancements in treatment.

The series includes the following articles:

1) Science, Serendipity, and a New Hantavirus
2) Blood Safety in the Age of AIDS
3) The Polymerase Chain Reaction
4) Cardiovascular Disease and the Endothelium
5) Unraveling the Mystery of Protein Folding
6) Helicobacter pylori and Ulcers: a Paradigm Revised
7) Cloning: Past, Present and the Exciting Future

FASEB has disseminated these articles to a wide variety of organizations and individuals, including members of Congress, congressional staffers, members of the press, think tanks, patient advocacy groups, journalism schools, outreach organizations, state education associations, text book publishers, and individuals requesting copies.

Requests for the article may be place by phone at 301-571-0657 or email: nhartsoc@opa.faseb.org.

New Slide Units in Clinical and Undergraduate Teaching Projects

The American Gastroenterological Association announces the release of new slide units in both the Clinical and Undergraduate Teaching Projects. The new units are *Acute Gastrointestinal Bleeding, Second Edition, Neurogastroenterology and Motility*, and *Development of the Human Gastrointestinal System*.

Acute Gastrointestinal Bleeding, from the Clinical Teaching Project, has been completely redone for this second edition. This long-awaited unit contains 112 new slides covering both upper and lower GI bleeding and completely rewritten text and references. The cost is $150.

Neurogastroenterology and Motility is the first of three planned units on this topic, from the Undergraduate Teaching Project. This release includes 112 slides covering current concepts and principles of neurogastroenterology in relation to motor functions of the specialized organs and muscle groups of the digestive tract. It is currently available for $135.

Development of the Human Gastrointestinal System includes 83 slides covering the development of form and function of the human GI tract from the time of conception until birth.

To order any of the slide units, contact the distributor, Milner-Fenwick, Inc. at 800-432-8433.

FASEB Summer Research Conference

Lung Surfactant: Cellular and Molecular Biology
July 1-6, 2000
Saxtons River, Vermont

Organizers: **Aron B. Fisher, Jo Rae Wright and Philip Ballard**
Topics: **Transcriptional Regulation of Surfactant Proteins. Surfactant Synthesis. Surfactant Protein Processing and Function. Surfactant Secretion. Extracellular transformation of Surfactant. Endocytosis/Recycling. Host Defense. Manifestations of Disease. Replacement Surfactants.**
Posters: **Transcriptional Regulation, Surfactant Synthesis, and Protein Processing and Function; Secretion, Extracellular Transformations, Edocytosis/Recycling; Host Defense, Manifestations of Disease, Replacement Surfactants.**
Additional speakers, chosen from submitted abstracts, will be selected to give short talks.
For additional information and an application, contact: FASEB Summer Research Conferences, 301-571-0650; Email: ahewitt@faseb.org

Announcements

Applications Sought For Postdoctoral And Senior Research Associateship Awards

The National Research Council announces the 2000 Postdoctoral and Senior Research Associateship Programs to be conducted on behalf of over 120 research laboratories throughout the United States representing nearly all US Government agencies with research facilities. The programs provide opportunities for PhD, ScD or MD scientists and engineers of unusual promise and ability to perform research on problems largely of their own choosing, yet compatible with the research interests of the sponsoring laboratory. Initiated in 1954, the Associateship Programs have contributed to the career development of over 8000 scientists ranging from recent PhD recipients to distinguished senior scientists.

Approximately 350 new full-time Associateships will be awarded on a competitive basis in 2000 for research in: chemistry; earth and atmospheric sciences; engineering, applied sciences and computer science; life and medical sciences; mathematics; space and planetary sciences; and physics. Most of the laboratories are open to both US and non-US nationals, and to both recent doctoral recipients and senior investigators.

Postdoctoral awards are made for one or two years, renewable for a maximum of three years; senior applicants who have held the doctorate at least five years may request shorter periods. Annual stipends for recent PhD recipients for the 2000 program year range from $30,000 to $50,000 depending upon the sponsoring laboratory, and will be appropriately higher for senior award recipients.

Financial support is provided for allowable relocation expenses and for limited professional travel during the duration of the award. The host laboratory provides the Associate with programmatic assistance including facilities, support services, necessary equipment, and travel necessary for the conduct of the approved research program.

Applications, submitted directly to the National Research Council, are accepted on a continuous basis throughout the year. Those postmarked by January 15 will be reviewed in February, by April 15 in June, and by August 15 in October. Initial awards will be announced in March and April—July and November for the two later compeetitions—followed by awards to alternate candidates later.

Information on specific research opportunities and participating federal laboratories, as well as application materials, may be obtained from our web site at http://www.national-academies.org/rap or by contacting:

National Research Council Associateship Programs
(TJ 2114/D3) 2101 Constitution Avenue, NW
Washington, DC 20418
Fax: (202) 334-2759
Email: rap@nas.edu

DEADLINES FOR APPLICATION:
APRIL 15 AND AUGUST 15, 2000
Qualified Applicants will be reviewed without regard to race, creed, color, age, sex or national origin.

Online Career Development Center Offers Practical Advice About Science Careers

How can aspiring scientists obtain advice on funding, arranging a postco, setting up their own labs, or navigating the peer review process? There is a new web resource to help postdoctoral students and others find answers to such questions as these. The "Career Development Center," part of *Science's* NextWave, will provide practical advice about science careers. It can be accessed at http://nextwave.sciencemag.org/feature/careercenter.shtml.

The Career Development Center is a complement to the biomedical funding database GrantsNet at http://www.grantsnet.org, which was launched by the American Association for the Advancement of Science and the Howard Hughes Medical Institute in 1998. Both resources are free, and offer powerful online tools for graduate students, postdoctoral researchers, and faculty members.

MEMBERSHIP APPLICATION FORM

THE AMERICAN PHYSIOLOGICAL SOCIETY

Tphys2.00

Check membership category you are applying for: ❑ Regular ❑ Affiliate ❑ Student

Do you currently hold membership in the APS? ❑ Yes ❑ No

If you answered yes to above, what is your category of Membership?_____Year elected?_____

Name of Applicant: _____/_____/_____
Last Name or Family Name *First Name* *Middle Name*

Date of Birth_____/_____/_____Optional: Male ❑ Female ❑
Month *Day* *Year*

Institution Name_____Department_____

Institution Street Address_____

_____

City/State/Zip/Country_____

Phone_____Fax_____

E-mail_____

EDUCATIONAL STATUS ***(Important: if you are enrolled as a student, include the degree and pending date of completion)

Dates*	Degree*	Institution	Major Field	Advisor

DOCTORAL DISSERTATION TITLE (if applicable):_____

_____

POSTDOCTORAL RESEARCH TOPIC (if applicable):_____

_____

SPONSORS (Sponsors must be APS Members. If you are unable to find sponsors, mail or fax this form to the address on the back of this form and we will locate them for you.)

Check this box if applicable: ❑ Please locate sponsors on my behalf.

#1 Sponsor Name_____

Mailing Address_____

_____

_____

Phone_____

Fax_____

E-mail_____

Sponsor Signature*_____

#2 Sponsor Name_____

Mailing Address_____

_____

_____

Phone_____

Fax_____

E-mail_____

Sponsor Signature*_____

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

▶ **Please turn over for 2 more questions...and mailing instructions.**

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

OCCUPATIONAL HISTORY [Check if student ❐]

Current Position:

Dates	Title	Institution	Department	Supervisor

Prior Positions:

Dates	Title	Institution	Department	Supervisor

LIST YOUR PUBLICATIONS FROM THE PAST 5 YEARS (List them in the same style as sample below).

Sample: Cheung, Stephen S., and Tom M. McLellan. Heat acclimation, aerobic fitness, and hydration effects on tolerance during uncompensable heat stress. J. Appl. Physiol. 84(5): 1731-1739, 1998.

IMPORTANT INFORMATION:

Do not include a curriculum vitae or reprints.

Mail your application to: Membership Services Department, The American Physiological Society
9650 Rockville Pike, Bethesda, Maryland 20814-3991 (U.S.A.)

Send no money now: You will receive a dues statement upon approval of membership.

Approval Deadlines: Regular membership applications are considered for approval by the Council three times per year. Student and Affiliate membership applications are accepted monthly upon approval of the Executive Director of the Society.

Questions? Call: 301-530-7171 ▪ Fax: 301-571-8313 ▪ E-mail: members@aps.faseb.org ▪ Web: www.faseb.org/aps

R/ 7-99

Scientific Meetings and Congresses

2000

March 1-4

Neuroprotection and Neurorepair—Cellular and Molecular Mechanisms International Conference in combination with a technical workshop, Magdeburg, Germany. *Information:* Professor Georg Reiser, Institut fuer Neurobiochemie, Otto-von Guericke Universitat Magdeburg, Leipziger Str. 44, 39120 Magdeburg, Germany. Tel: +49-391-6713088; fax: +49-391-6713097; Internet: http://www.fan-magdeburg.de/neurorepair

March 27-30

International Conference on Physiological and cognitive Performance in Extreme Environments, Canberra, Australia. *Information:* Dr. Tony Lau. Tel: +61-3-9626-8475; fax: +61-3-9626-8410; email: ExPhyConf200@dsto.defence.gov.au

April 3-4

HDL Cholesterol: Metabolic Pathways and Drug Development, Boston, MA. *Information:* Richard Farniglietti, The Knowledge Foundation, Inc., 18 Webster Street, Brookline, MA 02446-4938. Tel: 617-232-7400; fax: 617-232-9171; email: custserv@knowledgefoundation.com; Internet: http://www.knowledgefoundation.com/hdl2000.html.

April 3-8

21st Annual Gravitational Physiology Meeting of the International Society for Gravitational Physiology, Nagoya, Japan. Information: Tadaaki Mano, MD, PhD, Dept. of Autonomic Neuroscience, Research Institute of Environmental Medicine, Nagoya University, Furo-cho, Chikusa-ku, Nagoya 464-8601, Japan. Tel: +81-52-789-3881; fax: +81-52-789-3885; email: mano@riem.nagoya-u.ac.jp; Internet: http://www.isgp.org.

April 10-11

Stem Cells and Pancreatic Development, Bethesda, MD. *Information:* ComputerCraft Corporation. Tel: 301-493-9674; fax: 301-530-0634; email: warner@computercraft-usa.com; Internet: http://ww.ep.niddk.nih.gov/epconferences.htm.

April 30-May 5

2000 Assocation for Research in Vision and Opthalmology (ARVO) Annual Meeting, Ft. Lauderdale, FL. *Information:* ARVO, 9650 Rockville Pike, Bethesda, MD 20814. Tel: 301-571-1844; fax: 301-571-8311; email: pubs@arvo.arvo.org; Internet: http://www.arvo.org/arvo.

May 11-13

Conquering Lymphatic Disease: Setting the Research Agenda, Bethesda, MD. *Information:* Marlys Witte, MD, Department of Surgery (GS&T), University of Arizona, PO Box 245063, Tucson, AZ 85724-5063. Tel: 520-626-6118; fax: 520-626-0822; email: lymph@u.arizona.edu.

May 12

PRIM&R/AAMC Regional Workshops on "Effective IRBs: The Fundamentals," San Diego, CA. *Information:* Meetings Registrar, Association of American Medical Colleges, 2450 N Street, NW, Washington, DC 20037-1126. Tel: 202-828-0892; fax: 202-862-6160; email: srobinson@aamc.org; Internet: http://www.aamc.org.

May 13-16

Pediatric Academic Societies and American Adacemy of Pediatrics Joint Annual Meeting, Boston, MA. *Information:* Debbie Anagnostelis, APS-SPR Central Office, 3400 Research Forest Drive, Suite B-7, The Woodlands, TX 77381. Tel: 281-419-0052; fax: 281-419-0082; email: info@aps-spr.org

May 15-26

International Course on Laboratory Animal Science, Utrecht, The Netherlands. *Information:* Prof. dr. L.F.M. van Zutphen or Mr. Stephan van Meulebrouck, Department of Laboratory Animal Science, Faculty of Veterinary Medicine, PO Box 80.166, 3508 TD Utrecht, The Netherlands. Tel: +31-30-2532033; fax: +31-30-2537997; email: pdk@las.vet.uu.nl.

May 18-20

The Developing Heart, Prague, Czech Republic. *Information:* Czech Medical Association, J. E. Purkyne, Sokolska 31, 120 26 Prague 2, Czech Republic. Tel: +420-2-297271, 2491 3308; fax: +420-2-294610, 2421 6836; email: senderova@cls.cz.

May 25-29

Fourth International Conference on Nutrition and Fitness: Plan of Action for the 21st Century, Ancient Olympia, Greece. *Information:* The Center for Genetics, Nutrition and Health, 2001 S Street, NW, Suite 530, Washington, DC 20009, Attn: Artemis P. Simopoulos, MD. Fax: 202-462-5241; email: cgnh@bellatlantic.net.

June 4-7

11th International Conference on the Biochemistry of Exercise—Molecular Aspects of Physical Activity and Aging, Little Rock, AR. *Information:* William J. Evans, PhD, 11th International Conference on the Biochemistry of Exercise, University of Arkansas for Medical Sciences, Office of Continuing Education, 4301 West Markham Slot 525, Little Rock, AR 72205. Email: evanswilliamj@exchange.uams.edu; Internet: http://www.uams.edu/biochem2000/.

NOW AVAILABLE TO APS MEMBERS

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