



Experimental  
Biology  
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# The Physiologist

Volume 42, Number 4

August 1999

## Remembrance of Things Past and Concerns for the Future

Stanley G. Schultz  
University of Texas at Houston

At the outset I would like to express my gratitude to those who nominated me for this high honor, to the Teaching Section of the American Physiological Society who selected me from what I am sure was a field of equally deserving candidates, to the W.B. Saunders Company for their generous support of this award, and, last but by no means least, to Arthur Guyton whose leadership within the ranks of teachers of physiology can be challenged by none.

While I had known of Arthur Guyton by name and reputation since the early 1960s, I first met him a quarter of a century ago—it is strange that for some reason “a quarter of a century” seems longer and more impressive than 25 years. In any event, it was at an editors meeting, in 1974, when Guyton was the 47th president of the American Physiological Society and I was editor of the *Gastrointestinal* section of the *American Journal of Physiology*. The hot topic of debate, at that time, was whether or not to accept the recommendation of the Publications Committee, chaired by my dear friend, the late Peter Curran, that the *AJP* be published in sec-



*Stanley G. Schultz received the seventh annual Arthur C. Guyton Physiology Teacher of the Year Award. The following is a speech delivered by Schultz as he was presented the award at Experimental Biology '99 in Washington, DC, in April 1999.*

tioning, as it is now, and what impact this might have on the integrative nature of physiology; I will come back to this subject later. I have always held Guyton in the highest regard for becoming one of the giants in physiological research and education, for his leadership in the education of the public regarding the humane use of animals in biomedical research, and for setting uncompromising standards of academic excellence for all of us to emulate.

What I plan to do in this short communication is to share some impressions gained during my odyssey of almost one-half a century as a student and teacher of physiology and speculate a bit about the future of the teaching of physiology to undergraduate medical students. The opinions expressed in this paper are not the results of systematic surveys. They are, instead, impressions that I and some of my colleagues, who would probably prefer to remain “anonymous sources,” have gleaned over the years. In the speech that Barbara Horwitz gave when she received this award in 1996, she quoted from Mark Twain: “Predictions are very difficult to make, especially when they deal with the future.” I agree, but none the less, I will give it a try.

My first exposure to physiology was during my freshman year as a medical student at the New York University College of Medicine almost 50 years ago. The department at that time was chaired by the legendary Homer Smith who

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## Guyton Teacher of the Year

(continued from page 165)

was the quintessential “physiologist-philosopher,” inspiring students with as much of the latter as the former. This was in 1952, when Hodgkin and Huxley published their series of five papers that was to win them the Nobel Prize—but the theory was too fresh to have worked its way into the standard medical school texts. The secret of life was also still a secret since the Watson and Crick paper on the structure of DNA was not to appear until 1953.

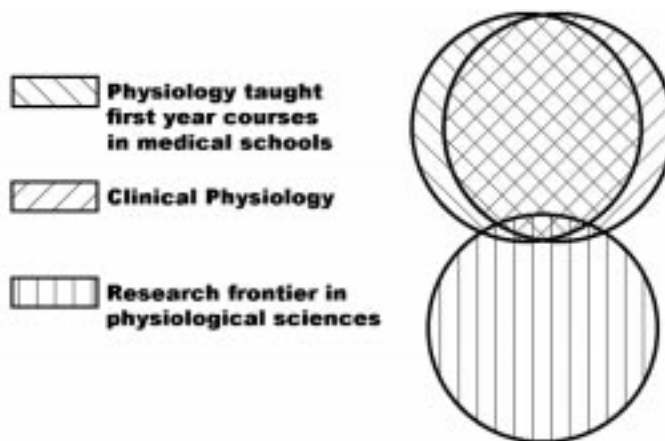
That was the time when you could close your eyes and tell what department you were in by its odor: animal excreta and shellac from the kymograph prep room for physiology; organic solvents for biochemistry; formaldehyde for anatomy, and so on.

Those were the days when students wore ties!!

Perhaps more to the point of this communication, as I have attempted to convey in Figure 1, is that at that time there was a reasonably close coincidence between the material covered in our first year course in mammalian physiology, clinical physiology—that is to say, physiology immediately relevant to the bedside—and the research interests of our faculty, their graduate students, and their postdoctoral fellows. Parenthetically, I should note that the degree of overlap of the circles on that figure is meant to be illustrative of my argument rather than quantitative.

Medical students could walk into the laboratory of any faculty member and appreciate the research projects being pursued. Indeed, the medical school course in physiology was almost com-

Figure 2. Representation of recent first-year undergraduate courses in medical physiology.



prehensive enough to serve as a general course for graduate students.

Our “small group activities” were traditional “blood and guts” laboratory exercises that were scheduled for three to four hours per week throughout the 22-week course. They were supervised by the members of the faculty and, often, their graduate students and postdoctoral fellows, all of whom were familiar with, if not expert in, the various areas of medical physiology covered in the course. All of the faculty perused the, then, single volume of the *American Journal of Physiology* or at least scanned the Table of Contents. Most text books of medical physiology were single-authored.

Most of the graduate students and postdoctoral fellows were destined for careers in academe and were equipped to discharge teaching assignments to undergraduate medical students in virtually any area of medical physiology.

In short, in those days, “medical physiology” was a single discipline. The educational program for first-year

medical students was the fabric that consolidated and identified the department.

My how things have changed!

For one thing, students have substituted baseball caps (often with visors turned backwards) for ties.

Even more important, during the past 50 years there has been an explosion of knowledge in the physiological, and closely related biomedical, sciences—largely in a reductionist direction—that has far outstripped the content of most first-year undergraduate courses in medical physiology and the requirements for the practice of clinical medicine (Fig. 2).

First-year medical students must still be taught about Starling’s laws of the heart and the capillary, about glomerular filtration and renal clearances, about tidal volume and residual lung capacities, and so on. This is the language of clinical medicine—and will always be so. However, these subjects are certainly not the stuff that make for active research programs, competitive grant applications, and faculty promotions.

Consequently, the first-year course in physiology is by no means suitable for today’s graduate students. Further, for a variety of reasons, including cost, student resistance, and, not the least, a shortage of competent faculty supervisors, intensive whole-animal laboratory experiences have been largely abandoned.

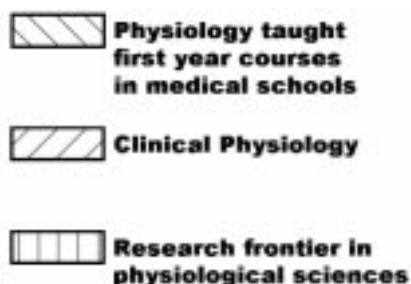


Figure 1. Representation of mid-1940s first-year undergraduate courses in medical physiology.

## Guyton Teacher of the Year

It follows that in the years that elapse between the completion of preliminary or comprehensive examinations, where they still exist, and the completion of a postdoctoral experience, the future members of faculties of departments of physiology will have been far removed from, and, perhaps, will have little interest in, medical physiology.

In short, there is a distancing between what must be taught, and the research interests and expertise of those whose responsibility it is to teach. Further, this tendency is not likely to change in the foreseeable future.

This problem is further compounded by the fact that the past 50 years have, not surprisingly, also witnessed an intensifying tendency toward subspecialization and subspecialization to the extent that physiology is no longer a single discipline.

It is not just that an individual has an intense research interest in a given subject—we all have that! It is that an individual, often, has no interest in any area that falls under the umbrella of physiology other than their research subject.

Subspecialty meetings are on the rise, whereas general meetings are threatened with extinction. General journals are succumbing to sectionalization and subsectionalization. Single-authored textbooks—like Arthur Guyton's masterpieces—are things of the past.

Further, not only has the discipline of "medical physiology" become splintered, but many physiology departments have become increasingly focused on one, or at most two, of the splinters. There is no longer an attempt to "cover the waterfront" and have each major subsection represented on the faculty. Years ago, I recall seeing advertisements for individuals to fill a teaching vacancy in, say, pulmonary physiology who was also expected to establish an independent research program. Today, the ads that come across my desk, more often than not, are for individuals to strengthen a research program, a program project grant, a center and so on and they need not even have had train-

ing in physiology; teaching responsibilities very often go unmentioned.

To be sure, all of this is understandable, entirely justifiable, and in some instances, even laudable but we should be aware of the consequences. I fear that this tendency will inevitably take a toll on the quality of undergraduate medical education in physiology. There is little hard evidence that this is happening now—probably because there still are enough senior faculty who received their education in more traditional settings—but in years to come we dinosaurs will have become extinct and I am concerned that medical education in physiology will suffer.

Thus, in response to the question: Are we adequately preparing the next generation of faculty members of departments of physiology to teach undergraduate medical physiology? My answer is, in general, an emphatic NO.

Now, this problem is certainly not unique to physiology. All of the basic sciences are experiencing a distancing between their research frontiers and the course material appropriate for first-year medical students—gross and microscopic anatomy being a prime example. How are these problems being coped with?

Many departments simply employ a cadre of trained individuals solely for the purpose of teaching that subject. These individuals are not expected to establish independent research programs, are often on a non-tenured track, and, generally, are not well assimilated within the department. They are often perceived of, and view themselves, as "second cousins," and this certainly does not lead to intradepartmental harmony. This approach also tends to propagate the wrong message regarding the priority of teaching in the medical school. I, personally, find this approach most distasteful.

Another approach is based on the belief that any individual with a modicum of gray matter between his or her ears—given time—can learn any material sufficiently well to lecture to med-

ical students. This may be true if one feels that the only purpose of a lecture is, simply, to convey information. I feel that this is not the case, and, indeed, there are many studies that indicate that this teaching venue is not at all well suited for the purpose of simply conveying information. Instead, a successful lecture should also convey inspiration or excitement, and this can only happen if the lecturer has some passion for the subject. Conscripting busy faculty members to discharge what they may view to be an onerous responsibility does not make for passionate lecturing—instead, the only passion it may elicit is likely to be directed at the departmental chair or course director. Further, this approach leads to a cohort of unidimensional teachers who would have difficulty conveying the seminal message of physiology; namely, the integrative nature of this discipline—the interactions among organs that results in homeostasis. This, after all, is the essence of physiology that distinguishes it from the other biomedical sciences.

A third alternative is to turn to members of clinical departments, which in the case of physiology, is most usually members of divisions in departments of medicine, who could complement members in departments of physiology in developing and presenting the course. If we want the first-year course to remain relevant to clinical physiology, why not have expert clinicians, who are also excellent educators, present it? A major, but not the sole, shortcoming of this approach is, of course, that it is prohibitively expensive in terms of human resources. Managed care has placed great demands upon a clinician's time so that securing significant, regularly scheduled, segments of protected time for first-year educational purposes seems difficult and unreasonable. Another serious shortcoming is that such an approach could erode the fabric that is the *raison d'être* for the very existence of physiology departments.

However, there is another possible

## Guyton Teacher of the Year

solution to this problem that, as yet, has not been adequately explored—but is lurking around the corner and will inevitably soon be upon us. This is the development of interactive web-based, computer-assisted courses in mammalian physiology and the other basic sciences and the establishment of “classrooms without walls” for the purposes of pre-clinical education. This is a potentially powerful teaching resource that has yet to be tapped in any systematic way, but it is coming as sure as night follows day and we should prepare ourselves for it. At my institution we have established the University of Texas-Houston-Electronic Press and I have agreed to serve as its Chief Editor. One of our goals is to develop multi-authored, multimedia courses in the undergraduate basic sciences that would be natural successors to multi-authored textbooks but would include the value-added features that only the electronic media can provide. Unlike textbooks, these programs would be interactive and would periodically examine a student’s acquisition of the material before permitting the student to proceed; thus the bright student does not become bored with the pace, whereas the slower student will not be outpaced by the presentation. They would also include audio, as well as textual, transmission and animated figures when appropriate; the dimension of time—an essential element in physiological processes—which cannot be represented in text, can readily be portrayed by animation.

Laboratory exercises so sorely missed in most of our physiology offerings can easily be replicated with one major loss of realism being the lack of odor—but given the rapidity with which the electronic media is advancing, I would not exclude the appearance of virtual odor in the future.

There of course would have to be flesh and blood “content experts” who would supplement this electronic “classroom without walls,” possibly drawn from the clinical departments. However, their jobs would not be to

convey information—which hopefully would be accomplished electronically—but instead to clarify, integrate, and, in general, share their wisdom with the students—a much more gratifying role for an educator than lecturing to a large, amorphous class.

This approach would shift the focus from faculty-driven education to student-driven learning. As my dear friend Ernie Knobil keeps reminding me, it is what students learn and retain that counts, not what is taught.

An internet-based-program would, of course, have several advantages over computer-assisted programs on CD ROMs. First, it would be independent of the particular specifications or the operating platform of the computer; the only requirement would be a browser and access to the internet. Second, hypertexting would permit connections within the text to other programs at different sites, accessing references, and so on. Third, it could be readily and inexpensively modified, updated, and so on.

In summary, then, current trends suggest that in order to remain at the cutting edge of research and, thereby, highly competitive for increasingly important extramural funds, physiology departments will evolve into highly focused research units and that graduate students and postdoctoral fellows educated in those units will be poorly prepared to educate undergraduate medical students in clinical physiology.

Common research interests will replace undergraduate medical educational programs as the fabric that identifies and consolidates these departments.

I feel that the slack will be taken up by web-based multimedia, multi-authored, computer-assisted programs supported, for the most part, by members of the clinical faculty. Should this transpire, I cannot help but be concerned over the identity and future of physiology departments.

However, there is a ray of hope. I feel that a resurgence of “traditional,” “integrative” physiology is in the offing,

spurred by the extraordinary successes of molecular genetics and, in particular, the human genome project. During the past decade, we have had remarkable success taking Humpty Dumpty apart. As a result, genes have emerged, and will continue to emerge, with unknown, potentially complex, functions in the body. A vast integrative effort will be called for in the not too distant future directed at putting Humpty Dumpty back together again. This task will befall the new field called “physiological genomics” and it will require the training of a new generation of scientists who might truly be called “integrative physiologists.” This new breed, which in many respects will resemble the breed now becoming extinct, will be capable of working hand-in-hand with molecular geneticists in a truly daunting undertaking that will make the sequencing of the human genome seem like child’s play.

It is incumbent upon physiology departments to take the lead in this inevitable development and not let this opportunity slip out of our grasps. If we are successful, this could narrow the gap between the expertise of our faculties and clinical physiology and ensure our continued, prominent role in undergraduate medical education. If, on the other hand, we continue in our current reductionist direction and relinquish this opportunity, I fear we will lose our identities.

In closing, let me simply say that I count the privilege of being a teacher of aspiring physicians among the blessings of my life, and I will be forever grateful for the high honor that the American Physiological Society has bestowed upon me.

### Acknowledgments

The author is pleased to acknowledge Ernst Knobil, Edgar T. Walters, Norman Weisbrodt, and Bill Dubinsky for their careful reading of this paper, their constructive critiques, and their assistance. ❖

# 152nd Business Meeting

**Time:** 5:15 PM, Tuesday, April 20, 1999  
**Place:** Washington Grand Hyatt Hotel, Independence A



APS President L. Gabriel Navar.

## I. Call to Order

The meeting was called to order at 5:15 PM by **President L. Gabriel Navar**, who welcomed the members to the 152nd Business Meeting of the American Physiological Society. Distributed with the agenda were the proposed bylaw changes and a list of APS award recipients. President Navar selected **Robert E. Forster** as parliamentarian.

## II. Election of Officers

Executive Director **Martin Frank** announced the results of the election of officers that was conducted by mail ballot. The membership elected **Gerald F. DiBona**, University of Iowa, as President-Elect (April 21, 1999 - April 18, 2000). The two newly elected Councillors for three-year terms are **Hannah V. Carey**, University of Wisconsin, Madison, and **Jo Rae Wright**, Duke University (April 21, 1999 - April 17, 2002). They will assume office at the close of the Annual Meeting. They are replacing **Celia D. Sladek** and **John A. Williams**, who are completing three-year terms on Council. The one newly elected Councillor for a two-year term to complete the term of the late Ethan R. Nadel is **William W. Chin** (April 21, 1999 - April 4, 2001).

## III. Proposed Amendment to the Bylaws

Motions were unanimously passed by the members approving the amendments to the Bylaws as follows:

### ARTICLE III. Membership

SECTION 1. The Society shall consist of regular, ~~corresponding~~, honorary, affiliate, emeritus, student, and sustaining associate members.

SECTION 2. *Regular Members.* Any person who has conducted and published meritorious original research in physiology, and who is presently engaged in physiological work, ~~and who is a resident of The Americas~~ shall be eligible for proposal for regular membership in the Society.

~~SECTION 3. *Corresponding Members.* Any person who has conducted and published meritorious research in physiology, who is presently engaged in physiological work and who resides outside of The Americas shall be eligible for proposal for corresponding membership in the Society.~~

SECTION 4 to be renumbered SECTION 3.  
SECTION 5 to be renumbered SECTION 4.

SECTION ~~65~~. *Emeritus Members.* A regular ~~or corresponding~~ member may apply to Council for transfer to emeritus membership if that person (1) has reached the age of 65 and is retired from regular employment, or (2) has been forced to retire from regular employment because of illness or disability. An emeritus member may be restored to regular membership status on request to Council.

SECTION ~~76~~. *Student Members.* Any student who is actively engaged in physiological work ~~at an institution in The Americas~~ as attested to by two regular members of the Society shall be eligible for proposal for student membership. No individual may remain in this category for more than five years, without reapplying.

SECTION 8 to be renumbered SECTION 7.

SECTION ~~98~~. *Nominations for Membership.* Two regular members of the Society must nominate a person for regular, ~~corresponding~~, or affiliate membership on APS membership application forms, ~~provided by the Executive Director. In the nomination of~~

~~corresponding members, a corresponding or honorary member of the Society may substitute for one of the regular members.~~

a. The Membership Committee shall assess the qualifications of potential regular ~~and corresponding~~ members and recommend nominations to Council.

SECTION ~~409~~. *Election of Members.* Election of regular, ~~corresponding~~, and honorary members shall be by vote of secret ballot ~~by~~ members of Council. A two-thirds majority of the members present and voting shall be necessary for election.

SECTION ~~410~~. *Voting.* Only regular members shall be voting members. ~~Corresponding, Honorary, affiliate, and emeritus members shall have the privilege of attending Business Meetings of the Society but shall have no vote.~~

SECTION 12 to be renumbered SECTION 11.

### ARTICLE IV. Officers

SECTION 2. *President.* A person shall serve only one term as president, except that if the President-Elect becomes President after September 30 ~~he/she~~ shall continue as President for the year beginning at the next July 1 end of the Spring Council meeting. The President shall chair all sessions of the Council and Business Meetings of the Society and shall be an ex officio member of all committees without vote.

### ARTICLE V. Standing Committees

SECTION 1. *Publications Committee.* A Publications Committee composed of five regular members of the Society appointed by Council shall be responsible for the management of all of the publications of the Society. The term of each member of the Publications Committee shall be three years; a member may not serve more than two consecutive terms. The Council shall designate the ~~Chairman~~ Chairperson of the Committee who shall be an ex officio member of the Council, without vote. On the advice of the Publications Committee and consent of Council, the Executive Director shall be empowered to appoint and compensate the Publications Manager who shall assist in carrying out the functions of the Publications Committee under the supervision of the Executive Director. The President, Executive Director and the Publications Manager shall be ex officio mem-

# 152nd Business Meeting

bers of the Publications Committee without vote. The Committee shall have the power to appoint editorial boards for the Society's publications. The Committee shall present an annual report on publications and policies to the Council for approval and present an annual budget coordinated through the Executive Director, to the Finance Committee for its approval and recommendation to Council.

**SECTION 2. Finance Committee.** A Finance Committee, composed of four regular members of the Society appointed by Council, shall receive the total coordinated budget proposals annually from the Executive Director and shall determine the annual budgets, reserve funds and investments of the Society, subject to approval by the Council. The term of each member of the Finance Committee shall be three years; a member may not serve more than two consecutive terms. The Council shall designate the ~~Chairman~~ Chairperson of the Committee who shall be an ex officio member of the Council, without vote. On advice of the Finance Committee and consent of Council, the Executive Director shall be empowered to appoint and compensate a Business Manager who shall assist in carrying out the functions of the Finance Committee under the supervision of the Executive Director. The Past President shall serve as a voting member of the Finance Committee. The President-Elect, President, Executive Director, the ~~Chairman~~ Chairperson of the Publications Committee, and the Business Manager shall be ex officio members of the Finance Committee, without vote.

**SECTION 3. Membership Committee.** A Membership Committee, composed of six or more regular members of the Society appointed by the Council, shall receive and review processed applications for membership and make recommendations for nomination to the Council. The term of each member of the Membership Committee shall be three years; a member shall not be eligible for immediate reappointment. The ~~Chairman~~ Chairperson of the Committee shall be designated by the Council.

**SECTION 4. Education Committee.** An Education Committee, composed of five or more regular members of the Society and representatives of such other societies as may be designated by the Council, appointed by the Council, shall conduct such educational, teaching and recruitment programs as may be required or deemed advisable. The term of each member of the Education Committee shall be three years. The ~~Chairman~~ Chairperson of the Committee shall be designated by the

Council. The Executive Director may act as executive officer of the educational programs with approval of the Council. The Committee shall present an annual report to the Council and an annual budget through the Executive Director to the Finance Committee for its approval.

**SECTION 5. Joint Program Committee.** A Joint Program Committee composed of six regular members of the Society appointed by Council ~~and elected representatives of the sections and groups~~ shall be responsible for scientific programs of the Society. ~~with the assistance of the Program Advisory Committee.~~ The term of each member shall be for three years; a member may not serve more than two consecutive terms. The Council shall designate the Chairperson of the Committee, who shall be an ex officio member of the Council, without vote. The President-Elect and Executive Director shall be ex officio members, without vote.

**SECTION 8. Term of Office of ~~Chairman~~ Chairperson.** The ~~Chairman~~ Chairperson of a standing committee may serve one full term in that capacity in addition to any consecutive term as a committee member limited by other provisions of these Bylaws.

## ARTICLE VI. Dues

**SECTION 1. Annual Dues.** The annual dues for regular members, ~~corresponding members,~~ affiliate members, and student members shall be determined by the Council and shall be paid in advance of July 1. Honorary members and emeritus members shall pay no membership dues.

**SECTION 2. Nonpayment of Dues.** A regular member, ~~corresponding member,~~ affiliate member, or student member whose dues are two years in arrears shall cease to be a member of the Society, unless, after payment of dues in arrears and application to the Council, he/she shall be reinstated at the next meeting by vote of the Council. It shall be the duty of the President-Elect to notify the delinquent of his/her right to request reinstatement.

**SECTION 3. Retirement.** A regular member ~~or corresponding member,~~ who has been granted emeritus membership status is relieved from the payment of dues but retains the other privileges of his/her former membership status, except voting privileges.

## ARTICLE VII. Financial

**SECTION 3. Publications Contingency and Reserve Fund.** The Publications Contingency and Reserve Fund shall consist of the long-term capital investments of publication earnings. The Executive Director, with advice from the Finance Committee, shall have discretionary and signatory powers, except for withdrawals. Authority for any withdrawal from this fund shall require the following five signatures: 1) the ~~Chairman~~ Chairperson of the Publications Committee (alternate, the senior member of the Committee); 2) the President of the Society (alternate, the President-Elect); 3) the Executive Director (alternate, the Publications Manager); 4) and 5) any two members of Council. The Finance Committee shall not recommend to Council the expenditure of any of this capital fund for non-publication purposes without the consent of the Publications Committee. The Finance Committee shall be responsible for the separate investment of the reserve fund for publications; any capital gains from such investment shall accrue to the fund (capital losses will, however, reduce its value). Any dividends, interest or income, other than capital gains, from this invested fund may be used for emergency support of any of the activities of the Society, including publications, as determined annually by the Council, but the primary goal shall be to increase the investment capital.

## ARTICLE X. Society Sections and Affiliations

**SECTION 1. Society Sections.** Upon acceptance of a Statement of Organization and Procedures and approval by Council, an appropriate group of regular members of the Society may form a section which encompasses an area of physiology. Such sections shall: a. participate in the governance of the Society by electing a representative to the Section Advisory Committee; b. advise the Society on matters of interest to the specialty group represented in the section; c. assist the Society in organization of scientific meetings by electing a member to the Joint Program Committee; d. nominate individuals for membership on Society committees; e. be open to all members of the Society expressing an interest in section membership.

The Executive Director shall provide assistance to sections in the carrying out of section business.

Nothing in a section's Statement of Organization and Procedures may be construed

as contradictory to the Constitution and Bylaws or Operational Guide of the Society.

## IV. State of the Society

Navar mentioned that each year the President of the Society has the opportunity to review the year and comment on the state of the Society at the annual Business Meeting. The theme for this year has been APS heading into the 21st century.

In terms of the discipline of physiology, Navar pointed out that the importance of the physiological sciences is gaining greater recognition. The overall constituency of “functionally oriented investigators is steadily growing as the new century approaches, partially because the funding agencies and legislative bodies want answers that relate to the whole organism. Novel opportunities are available with the new emphasis on functional genomics as well as with the recent technological innovations that allow for inventive approaches to unresolved issues.

As a Society, APS is very well positioned to represent the entire constituency of the physiological sciences. The Society’s publication program is very healthy and prepared to take advantage of electronic publishing. In response to the new opportunities in functional genomics, APS has launched a new journal, *Physiological Genomics*, which will report on all functional aspects of genomic research. The Society approaches the new century and millennium financially secure and operationally sound, allowing optimal service to its constituency.

However, there are challenges that the Society must face. APS needs to provide more creative service to its constituency through more awards and student support, the establishment of a research grant program, further improvement of meetings, and further improvement of publications. APS must continue to work to improve the “image” of physiological sciences in

general and APS in particular within the scientific community. It specifically needs to improve the perception of APS publications by the scientific community to ensure scientists worldwide continue to publish their best work in the Society’s research journals.

Navar reported that when he assumed the Presidency of APS a year ago, he had five goals for his term. The first was to emphasize the international scope of APS, of its publications, and of its meetings. With the passage of the amendments to the Bylaws by the membership, APS has now accomplished this goal and extended regular membership to physiologists worldwide. This should serve to remove any impression that physiologists throughout the world are second-class citizens of the Society. It should also serve to increase the size of the Society as well as to improve communications among physiologists worldwide. With foreign members having full membership in the Society, this should also encourage them to publish more in the Society’s journals.

Navar’s second goal was to work to develop closer links between physiologists and the emerging area of functional genomics. The establishment of the new APS journal *Physiological Genomics* shows the Society’s determination to emphasize genomics in the discipline of physiology and to reach out to nonphysiologists working in the new field.

The third goal was to offer greater service and benefits to APS members. The best way to accomplish this is to ensure that the value of membership continues to grow. For APS members, all journals are available electronically for one small fee of \$49.50. Color figures are free to members who are either the first or last author on articles published in the APS journals. There continues to be increased assistance to members with their educational mission, whether it be outreach; teaching at the high school, undergraduate, or medical school level; or refreshing their own

knowledge in a less familiar area of physiology. New awards are constantly being created to benefit members at all levels of their careers, from students to postdoctoral fellows to young investigators to senior investigators. Increased support for member participants at meetings is also a priority.

Navar’s fourth goal was to work for greater advocacy on behalf of funding for medical research. He pointed out that there has been an increased amount of APS public affairs activity and inter-society participation via FASEB to support efforts to double the NIH budget. A good example of that is the “A Call to Activism” program occurring during the EB meeting.

The last goal was to increase public awareness of the importance of animal experimentation in medical research. Both the APS Public Affairs and Education Offices have been working to ensure that the public is given the correct information about the use of animals in research through the creation and distribution of a color brochure on animal use in research, increased efforts directed at teachers and students in K-12 schools, and proactive interactions with legislative and regulatory agencies.

Navar again reminded everyone that the membership campaign he started last year is ongoing. He pointed out that growth in membership is the single most significant characteristic of a dynamic society. For the first time in the Society’s history, there are over 9,000 members. However, in order to reach the goal of 10,000 members by the year 2000, an increased enthusiasm and effort on the part of all APS members will be needed.

Navar thanked the membership for the opportunity to serve the Society.

## V. Report on Membership

### A. Summary of the Membership Status

President-Elect **Walter F. Boron** reported on the status of the Society



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APS President-Elect, Walter F. Boron.

membership. As of March 29, 1999, the current membership of the Society is 9,015, of which 5,579 are regular members, 38 are honorary members, 1,033 are emeritus members, 934 are corresponding members, 50 are affiliate members, and 1,381 are student members. During this Experimental Biology meeting, Council approved the election of 148 people to regular membership and 69 people to corresponding membership. In addition, at this meeting, one physiologist was elected by Council to honorary membership: **Hartmut R. Kirchheim** of the Physiologisches Institute der Ruprecht-Karls-Universitat Heidelberg, Germany. With the addition of these candidates, the Society's membership stands at 9,233.

### B. Deaths Reported Since the Last Meeting

The names of those members whose deaths had been reported since the last meeting were read by Boron, and the membership stood and observed a moment of silence in tribute to their deceased colleagues.

## VI. Awards and Presentations

### A. Orr E. Reynolds Award

The Orr Reynolds Award, established in 1985 in honor of the second Executive Secretary-Treasurer, is presented for the best historical article submitted by a member of the Society. Members may receive the award only once, and those members who have advanced degrees in the history of science or medicine are not eligible.

The recipient receives \$500 and expenses to attend the spring meeting of the Society. Navar announced that the 1999 Reynolds Awardee is **Stanley G. Schultz**, University of Texas, Houston, for his Centennial article for the *American Journal of Physiology: Cell Physiology* entitled "A Century of (Epithelial) Transport Physiology: From Vitalism to Molecular Cloning."



President L. Gabriel Navar presenting Orr Reynolds Award to Stanley Schultz.

### B. Giles F. Filley Memorial Awards

As a result of a bequest from the family of Giles F. Filley, a memorial fund was established in 1993 to recognize excellence in respiratory physiology and medicine. Two annual awards are made to investigators who hold an academic rank no higher than assistant professor and are pursuing research in respiratory physiology and medicine. Awards are made to APS members working in the United States, who have



President L. Gabriel Navar presenting Giles Filley Award to Stephen Mark Johnson.

demonstrated outstanding promise based on their research program.

President Navar presented the 1999 awards to **Cynthia L. Hartsfield**, University of Colorado and **Stephen Mark Johnson**, University of Wisconsin. Hartsfield's current research is on the targeted overexpression of heme oxygenase-1 attenuating hypoxia-induced right ventricular hypertrophy. Johnson is investigating whether episodic spinal serotonin exposure potentiates descending synaptic inputs to respiratory motoneurons.

Each recipient received a \$25,000 check for use in his/her respective research program, a plaque, and reimbursement of expenses to attend the Experimental Biology meeting.

### C. Arthur C. Guyton Award for Excellence in Integrative Physiology

A donation to the Society in honor of Arthur C. Guyton led to the establishment in 1997 of an award to recognize



President L. Gabriel Navar presenting Arthur Guyton award to Jacob Friedman.

excellence in integrative physiology. One award is made annually to a regular APS member who demonstrates outstanding promise based on his/her research program in feedback, mathematical modeling, and integrative physiology.

President Navar presented the 1999 Arthur C. Guyton Award for Excellence in Integrative Physiology to **Jacob E. Friedman**, Case Western Reserve University. Friedman is studying the

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effects of overexpression of human GLUT4 gene on maternal diabetes and fetal growth in spontaneous gestational diabetic mice.

Friedman received a \$12,000 check for use in his research program, a plaque, and reimbursement of expenses to attend the Experimental Biology meeting.

### D. Shih-Chun Wang

#### Young Investigator Award

As a result of a bequest from the wife of Shih-Chun Wang, a memorial fund was established in 1998 to recognize excellence in physiology. Shih-Chun Wang was the Pfeiffer Professor of Pharmacology at Columbia University and a long-standing member of The American Physiological Society. He was internationally recognized for his research contributions in the areas of neurophysiology and neuropharmacology with an emphasis on brainstem control mechanisms. An award is made to an APS member working in the United States who has demonstrated outstanding promise based on his/her research program. Navar introduced Mrs. Wang and announced that the first Wang Award is presented to **Craig H. Gelband**, University of Florida. Gelband is investigating the functional evidence of cardiovascular pathophysiology in the transgenic rat.

Gelband received a \$12,000 check for

use in his research program, a plaque, and reimbursement of expenses to attend the Experimental Biology meeting.

### E. Liaison With Industry Awards

The Liaison With Industry Awards are given to the graduate student and the postdoctoral fellow submitting the best abstract describing a novel disease model. This is the first year these awards have been given. Navar and Craig Horswill from the Gatorade Exercise Physiology Laboratory, Quaker Oats, representing the Liaison With Industry Group, presented the 1999 Liaison With Industry Awards to **Phyllis Y. Reeves**, from the University of Florida, and **Sonya R. Summerour**, from the University of California, San Diego. Reeves, a postdoctoral fellow, is investigating the permanent prevention of hypertension by angiotensin type I receptor antisense gene therapy in the spontaneously hypertensive rat. Summerour, a graduate student, is studying how mechanical stretch regulates the extracellular signal-regulated kinase activation and fibronectin transcriptional activity in the adult rat cardiac fibroblast.

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

Twenty-six awards were made possi-

ble by the bequests of Caroline tum Suden and Frances Hellebrandt, who were long-time members of the Society. Awards are open to graduate students or postdoctoral fellows who present papers at the spring meeting. Recipients receive a \$500 check for travel to the Experimental Biology meeting, paid registration, and have access to the FASEB Placement Service. **Kim Barrett**, Chair of the Women in Physiology Committee, presented the awards (see p. 180).

### G. Procter & Gamble Professional Opportunity Awards

The Procter and Gamble Company, a multinational, technically based consumer products corporation, provides support for the APS Professional Opportunities Awards. The APS sections selected 17 pre-doctoral students who are within 12-18 months of receiving a PhD degree and are presenting a paper as first author at the spring meeting. Paid registration and \$500 checks were given to the awardees. Nicholas Gantenburg, Procter and Gamble representative, was thanked for the company's support of the program (see p. 180).

### H. Minority Travel Fellowships

Frank announced that 42 Minority Travel Fellowship awards, funded by NIDDK and NIGMS, were presented to



President L. Gabriel Navar and Mrs. Mamie Wang presenting the first Shih-Chun Wang Award to Craig Gelband.



President L. Gabriel Navar and Craig Horswill, representing the Liaison With Industry Committee, present Liaison With Industry Award winners, Sonya R. Summerour (graduate student) and Phyllis Y. Reeves (postdoctoral fellow) with plaques.

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minority students to help them attend the Experimental Biology '99 meeting. (see p. 179)

## I. Recognition of Outgoing

### Councillors

Councillors **Celia D. Sladek** and **John A. Williams** complete their terms at the close of this meeting. Navar expressed pleasure in having had the opportunity to serve on Council with them and recognized their dedication and guidance to the Society, presenting each with a plaque.

Announcing that this is **Allen W. Cowley, Jr.'s** last meeting as an officer of the Society, Navar noted that it was a special pleasure to recognize Cowley for his vision, strong leadership, sound judgement, thoughtful input, and true service to the Society. A plaque honoring his presidency was given to Cowley.

## VII. New Business

### A. International Union of Physiological Sciences

Navar introduced two special international guests: Ewald Weibel, President of the International Union of Physiological Sciences (IUPS), and Anthony Macknight, Organizer of the 2001 IUPS Congress to be held in Christchurch, New Zealand.

Weibel noted that IUPS went through a difficult period last year with the

problems associated with the St. Petersburg meeting. Those who attended the IUPS Congress in 1997 experienced the beautiful city of St. Petersburg and the interesting culture but also experienced the difficult economic situation. The lack of funds to cover the meeting was a terrible crisis for IUPS, but with the solidarity of the various IUPS societies, the organization was able to meet the crisis. Weibel was pleased to announce that at this point 60% of the amount owed to speakers has been paid. He pointed out that the New Zealand organizing group is very eager to make their congress different. Their idea of "synthesia" indicates their desire to change the meeting and make it more attractive to all scientists. He announced that APS had agreed to organize the 2005 Congress in Washington, DC, and he expressed thanks and appreciation for the Society's leadership during the hard times of the past year.

Macknight admitted that he had spent the entire meeting talking about the 2001 IUPS Congress and about New Zealand and how beautiful a country it is. He promised that the Congress will be an innovative one with exciting science being presented. He reminded everyone that New Zealanders are famous for their hospitality and noted he was looking forward to having everyone come and visit.

### B. Establishment of New Award

Frank announced the establishment of a new award. Mrs. Muriel Mandel is establishing an award program in memory of her late husband Lazaro Mandel. The first Mandel Award will be presented at the EB 2000 meeting to a young investigator in epithelial or renal physiology.

## VIII. Passing of the Gavel

Navar then turned the gavel over to **Walter F. Boron**, Yale University, the incoming President of the American Physiological Society. Boron remarked that he first wanted to recognize the outstanding work of Navar as President. Boron noted that he has not met anyone who has loved the Society more, nor anyone who has worked so tirelessly and selflessly on its behalf.

Second, Boron briefly shared his vision of the Society. He noted that APS has a bright future. Membership is growing steadily; the journals are strong; and, as evidenced from the past few days, the annual meeting is steadily improving. He reminded the membership that this November, the APS Council will convene a Strategic Planning Meeting, together with the SAC and Long-Range Planning Committee. The last such meeting was held in 1992, and it led to many of the



President L. Gabriel Navar presents a plaque to outgoing Councillor Celia Sladek.



President L. Gabriel Navar presents a plaque to outgoing Councillor John Williams.



President L. Gabriel Navar presents a plaque to Past President Allen Cowley, Jr.

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improvements that have brought the Society to this point. One of the challenges in plotting the future of the Society is to decide how to invest wisely the proceeds of the Society's considerable endowment, which amounts to some \$30 million. APS has decided—like a university—to spend a fixed percentage of this sum. Currently the authorization exists to spend 4% per year, which amounts to about \$1.2 million this year. The Society's investments, on the other hand, return about 15% per year, averaged out over the last dozen years. Thus, after accounting for inflation of about 3%, the real value of the Society's endowment may very well double every 8-9 years. Boron asked the membership to make suggestions about how the Society should proceed by either talking to him directly or to any other member of Council.

Boron noted that one of his priorities



President L. Gabriel Navar passes the gavel to President-Elect Walter Boron.

would be to maintain the Society's outreach programs. However, he announced that he would like to see the major portions of the assets go in two directions. First, he would like APS to gradually reduce—for **members**—the page charges, manuscript submission fees, and subscription prices for APS

journals. He pointed out that charges for the use of color in APS journals have already been eliminated for members. He predicted that additional journal-oriented member benefits would have a positive impact on membership, since paying \$90 per year in dues could save someone several hundred dollars a year in publication costs. Second, he would like to see APS expand its grants program for graduate students, postdoctoral fellows, and young independent investigators. He said, "I think that these sorts of investments will promote the science of physiology, will tend to attract able individuals to a career in physiology, and, as a byproduct, will also promote the Society."

There being no other business, the meeting was adjourned at 6:22 PM, April 20, 1999. ❖

*Walter F. Boron  
President-Elect*



APS Council: Back (l to r): Martin Frank, Phyllis Wise, John Williams, Judith Neubauer, Richard Traystman, Dale Benos. Front (l to r): Barbara Goodman, Celia Sladek, L. Gabriel Navar, John Hall, Allen Cowley, Walter Boron.

APS Past Presidents: Back (l to r): Franklyn Knox, James Schafer, Ernst Knobil, John West, Brian Duling, Leonard Jefferson, Aubrey Taylor. Front (l to r): Walter Boron, L. Gabriel Navar, Stanley Schultz, Allen Cowley, Jr., Bodil Schmidt-Nielsen, Robert Berne, William Dantzer, Vernon Bishop.



### Ray G. Daggs Award

Ray G. Daggs was the APS Executive Secretary-Treasurer from 1956 until his retirement in 1972. In tribute to his devotion to the Society, the Ray G. Daggs Award was established and is given annually to a physiologist for distinguished service to the Society and to the science of physiology.

Navar was pleased to announce that the recipient of the 1999 Ray G. Daggs Award is **Shu Chien**. Chien was born in Beijing, China and graduated from National Peking University in 1948. His MD degree was awarded by the National Taiwan University College of Medicine in 1953. Immigrating to the US, he attended Columbia University, where he received a PhD in Physiology in 1957.

His early work at Columbia University in conjunction with M.I. Gregersen and others involved the effects of irradiation, splenectomy, and hemorrhage on various aspects of the circulation. Following his initial tenure at Columbia, he spent brief training stints at Oak Ridge National Laboratory and the Jackson Laboratory, where he engaged in nuclear and genetic activities. He returned to Columbia and remained there until 1987. After a brief period as Director of the Institute of Biomedical Sciences in Taipei, Taiwan, he joined the faculty in Bioengineering and Medicine at University of California at San Diego in 1988, where he has remained ever since while holding various administrative positions.

Chien has authored or coauthored over 350 papers in the open scientific literature and has edited or coedited nine books. His interests and contributions in physiology have been many and have focused on such areas as effects of mechanical forces on gene expression and signal transduction, properties and

molecular organization of cell membranes, molecular mechanisms of cellular interactions, macromolecule transport across the vascular endothelium, and rheology and microcirculatory dynamics.

Honors and awards have graced his career, such as the Nanci Medal for Research in Blood Rheology in 1980, the Landis Award from the



APS President L Gabriel Navar presenting the Ray G. Daggs Award to Shu Chien.

Mircocirculatory Society in 1983, an NIH Merit Award from 1989 to 1998, the Zweifach Award from the World Congress of Microcirculation in 1991, and elected as a member of the National Institute of Medicine in 1994 and as a member of the National Academy of Engineering in 1997. He has given numerous special lectures and held several honorary professorships, including some in China. His service to The American Physiological Society has been exemplary; for example, he served as Councillor from 1985 to 1989, as President in 1992-1993, and as Chairman of the Long-Range Planning Committee from 1994 to 1996.

Whenever called upon for other service, he has unselfishly acquiesced with his time and exceptional abilities. An example is his commitment to the activities of the Federation of American Societies for Experimental Biology, having served as Board Member from 1989 to 1993, as President in 1992-1993, and as Chairman of the Public Affairs Executive Committee in 1993-1994. In addition, he has been involved with other societies, namely, the Microcirculatory Society, International Society of Biorheology, Biomedical Engineering Society, several scientific groups in China, and several NIH committees.

Thus, Chien has not only contributed immeasurable to the body of knowledge in physiology, but has served as an ambassador for physiology throughout the world and, particularly, in China and the Far East.

Those who have been associated with Chien know him as a dedicated scientist, with an outstanding personal demeanor, who communicates clearly and well, has time for discourse with colleagues and students, tackles administrative responsibilities with acumen and vigor, and represents exceedingly well the characteristics sought for those honored by the Daggs Award.

In accepting the Daggs Award, Chien noted that he was “proud to be associated with the name of Ray Daggs. I would like to thank the members who elected me and gave me the opportunity to serve. I acknowledge the marvelous job of my colleagues who served with me and of the executive staff. I also thank my wife for her support in everything I do. Everything I have done for the Society has been a privilege. Paraphrasing Yogi Berra, ‘Thank you for making this necessary’.” ❖

## Awards



President L. Gabriel Navar presenting the Walter B. Cannon Lecture Award plaque to Aubrey Taylor.



Past President Allen Cowley, Jr. presenting the Henry Pickering Bowditch Lecture Award plaque to Howard Jacob.



Vernon Bishop congratulating Edward J. Masoro on giving the Dorothy Dillon Eweson Lecture on the Advances in Aging Research.



Martin Frank, Joyce Helyer, David Randall, and Kenneth Dormer, present plaque to Frank E. Young (center) for his delivering of the first Walter C. Randall Lecture on Biomedical Ethics.



APS Section Advisory Committee: Back (l to r): Robert Gunn, Charles Tipton, David Evans, David Wasserman, Ronald Freeman, John Hall. Front (l to r): Robert Carroll, Mark Knepper, Eileen Hassler, Hannah Carey, Thomas Martin, and Bruce Lindsey.

## Awards

### Predocctoral Students Recognized by Procter & Gamble Professional Opportunity

The Procter & Gamble Company has again provided a generous contribution to the APS to allow the recognition of valuable contributions of predoctoral students to the science of physiology. Students apply for the Procter & Gamble Professional Opportunity Award through one of the 12 Sections of the Society. Seventeen awardees were selected to attend Experimental Biology '99 in Washington, DC. Each Section participates in the selection of awardees; the number of awards made by each Section is based on the number of applications submitted. Each awardee received \$500, a certificate of recognition, and complimentary registration for the Experimental Biology meeting. Awards were presented during the APS Business Meeting at EB '99. Awardees were:

**Douglas G. Johns**, University of Michigan  
**Theresa L. O'Donoghue**, Univ. of New Mexico  
**Michael J. Ryan**, University at Buffalo  
**Mark S. Taylor**, Univ. of South Alabama  
**Binh Q. Tran**, University of Iowa  
**Gerald M. Herrera**, University of Vermont  
**John Kapoor**, Finch University of Health Sciences

**Amanda L. Southwood**, University of British Columbia  
**Aaron F. Miller**, University of Texas Health Sciences Center  
**Heather Mitchell-Felton**, Boston University  
**I. Mark Olfert**, University of California, San Diego  
**Nichole K. McDaniel**, University of California, Riverside  
**Julia A. Moffitt**, University of Missouri  
**Kit Purdy**, University of North Carolina  
**P. William Conrad**, University of Cincinnati  
**Jan Melton Machart**, University of Texas  
**Ryan J. Grindstaff**, University of Missouri, Columbia



### Minority Students Attend EB '99 on NIDDK/NIGMS Travel Fellowships

The APS has awarded Travel Fellowships to minorities to attend the APS/Experimental Biology meeting each spring since 1987. These travel awards are supported by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) and the National Institute of General Medical Sciences (NIGMS). Awardees are provided with funds for transportation, meals, lodging, and complimentary meeting registration. The APS Porter Committee reviews and selects applicants for this award. This year, 38 minority students were awarded fellowships, enabling them to attend EB '99 in Washington, DC. The Fellows were each assigned to APS member mentors to help them fully experience all aspects of the EB meeting. Mentors provided guidance on sessions to attend, introduced Fellows to other scientists, and offered career advice. Fellows and their mentors also attended a closing luncheon during which they compared their scientific activities of the week, and heard an address by Porter Committee Co-Chair, Pamela Gunter-Smith, of Spelman College. Gunter-Smith spoke to the students about her career in physiology, including the value of networking.

The travel awards are open to graduate students, postdoctoral students, and advanced undergraduate students from minority groups underrepresented in science (i.e., African Americans, Hispanics, Native Americans, and Pacific Islanders). Students must be US citizens or permanent residents. The specific intent of this award is to increase participation of pre- and postdoctoral minority students in the physiological sciences.

#### EB '99 Awardees were:

**Sean R. Abram**, University of Mississippi Medical Center  
**Yoli G. Casas**, University of Colorado, Boulder  
**Sonya Coaxum**, Meharry Medical College  
**Ana Y. Estevez**, Wayne State University School of Medicine  
**Martin Farias**, Univ. of N. Texas Health Sciences Center  
**Gerald D. Frank**, Meharry Medical College  
**Annette M. Gabaldon**, University of California, Davis  
**Felipe B. Galicia**, California State Univ., San Bernardino  
**Josephine M. Garcia-Ferrer**, St. Louis University  
**Terri D. Gomez**, University of Wisconsin, Madison  
**Orlando Gonzalez**, University of Puerto Rico  
**Adea Green**, Dull Knife Memorial College  
**Kawanza L. Griffin**, University of Missouri, Columbia  
**Gerald M. Herrera**, University of Vermont  
**Shunda R. Irons**, University of Missouri, Columbia  
**Keith E. Jackson**, Univ. of N. Texas Health Sciences Center  
**Harlan P. Jones**, Univ. of N. Texas Health Sciences Center  
**Ollie Kelly-Appleberry**, Emory University  
**Keri Kles**, University of Illinois, Urbana-Champaign  
**Rhonda J. Kuykindoll**, University of Tennessee  
**Kimberly D. Lee**, Ind. Univ.-Purdue Univ. at Indianapolis  
**Joseph P. Lopez**, Vanderbilt University School of Medicine  
**Robert Madsen**, Dull Knife Memorial College  
**Edward A. Medina**, University of California, Davis  
**Laura Milo**, University of Illinois, Urbana-Champaign  
**Andres Mora**, University of Florida  
**Juan A. Morales**, Wayne State University  
**Nomeli Nunez**, Washington State University  
**Donna A. Ortiz**, New Mexico Highlands University  
**Jewel R. Payne**, Montana State University, Bozeman

## Awards



**Cherilynn M. Reynolds**, Meharry Medical College  
**Christy Russo**, Georgia State University  
**Jesse S. Rodriguez**, University of Texas, San Antonio  
**Sharon L. Samuel**, University of Alabama, Birmingham  
**LaTonia M. Stiner**, Wright State University  
**Jo Ann G. Storlie**, Dull Knife Memorial College  
**Sonya R. Summerour**, University of California, San Diego  
**Brian Underhill**, California State Univ., San Bernardino

### EB '99 MENTORS WERE:

**Mouhamed Aawayda**, Tulane University Medical Center  
**Marvin H. Bernstein**, New Mexico State University  
**Steven Britton**, Medical College of Ohio  
**Robert G. Carroll**, East Carolina Univ. School of Medicine  
**William Chilian**, Medical College of Wisconsin  
**Parimal Chowdhury**, Univ. of Arkansas for Medical Sci.  
**Julio Cruz**, Ohio State University

**Christopher DeSouza**, University of Colorado  
**Stephen DiCarlo**, and **Heidi Collins**, Wayne State Univ.  
**Maria Florez-Duquet**, University of Delaware  
**Alan R. Hargens**, University of California, San Diego  
**Jeremiah Herlihy**, Univ. of TX Health Sci. Ctr. at San Antonio  
**Cynthia A. Jackson**, State University of W. Georgia  
**Irving G. Joshua**, University of Louisville  
**Carole M. Liedtke**, Case Western Res. Univ. School of Med.  
**Dewan Majid**, Tulane Medical Center  
**James Martins**, University of Iowa College of Medicine  
**Michael P. Massett**, New York Medical College  
**Frederick Miller**, Univ. of Louisville School of Medicine  
**Luke H. Mortensen**, Univ. of Osteopathic Med. and Hlth. Sci.  
**Evangelina D. Motley**, Meharry Medical College  
**James Mrotek**, Meharry Medical College  
**Jeffrey L. Osborn**, Medical College of Wisconsin  
**J. Michael Overton**, Florida State University  
**C. Subah Packer**, Indiana University School of Medicine  
**Richard Paul**, University of Cincinnati Medical Center  
**Jane Reckelhoff**, University of Mississippi Medical Center  
**Roy D. Russ**, Mercer University School of Medicine  
**Dee U. Silverthorn**, University of Texas, Austin  
**Celia Sladek**, Finch Univ. of Hlth. Sci./Chicago Med. School  
**John Stallone**, Texas A&M University  
**Colleen Talbot**, California State University, San Bernardino  
**Catherine F.T. Uyehara**, Tripler Army Medical Center  
**Alice R. Villalobos**, University of Connecticut  
**Marian R. Walters**, Tulane University School of Medicine  
**Donald Watenpaugh**, Univ. of N. Texas Health Sci. Center  
**Stephen C. Wood**, Summa Health Systems Foundation

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

Graduate students and postdoctoral fellows who were first authors on an abstract submitted to Experimental Biology '99 in Washington, DC were eligible to apply for the Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Award. The APS Women in Physiology Committee, chaired by Kim Barrett, University of California, San Diego, selected 25 awardees from a pool of 81 applicants. Applicants were chosen based on two criteria: the quality of their abstracts; and the content of letters written by the applicants detailing their accomplishments, goals, and research focus. Each awardee received \$500, a certificate of recognition, and complimentary registration for the EB '99 meeting. Awardees were:

**Hamda Al-Naemi**, University of Arizona  
**Robert W. Brock**, University of Western Ontario  
**Jinah Choi**, University of Southern California  
**Kenneth D. Cohen**, University of Rochester  
**Branimir Cvetkovic**, University of Iowa  
**Frank A. Dinunno**, University of Colorado  
**Sharyn M. Fitzgerald**, Univ. of Mississippi Med. Ctr.  
**Jennifer A. Florian**, Michigan State University  
**Smita Garde**, University of Southern California  
**Thomas J. Hawke**, University of Guelph  
**Jeffrey R. Henegar**, University of Mississippi  
**Rebecca A. Johnson**, University of Wisconsin  
**Brian P. Lipton**, Louisiana State Univ. Med. Center

**Amanda C. Marsh**, University of New South Wales  
**Wenjun Z. Martini**, Shriners Burns Hospital  
**Kevin M. Mohazzab-H.**, New York Medical College  
**Melissa M. Morse**, Medical College of Wisconsin  
**Janos Peti-Peterdi**, Univ. of Alabama at Birmingham  
**Jonathan E. Phillips**, University of Illinois at Chicago  
**Phyllis Y. Reeves**, University of Florida  
**Alp Sener**, University of Calgary  
**Eugene W. Shek**, University of Florida College of Medicine  
**Patrick L. Sinn**, University of Iowa  
**Xiaoping Tang**, University of Florida College of Medicine  
**Daliao Xiao**, Loma Linda University School of Medicine





# APS Awards

## Ray G. Daggs Award

This annual award is presented to a physiologist who is judged to have provided distinguished service to the science of physiology and APS. Selection is made by Daggs Award Committee.

The recipient receives an honorarium of \$500, a plaque, and expenses to participate in the EB meeting. The Award is presented at the spring business meeting of the Society.

## Orr E. Reynolds History Award

**Deadline: December 1**

The Orr E. Reynolds History Award is given annually by APS for the best historical article submitted by a member of the Society.

Articles may deal with any aspect of the history of physiology, including the development of physiological ideas and their application, instrumentation, individual and collective biography, departmental and institutional history, history of societies including APS, and physiology in its public context. Manuscripts submitted for the award should represent original research and be adequately documented. Articles published in APS journals or books during the prior calendar year are also eligible for the award upon request by the author(s). The award is open to all classes of APS membership except for those members who have advanced degrees in the history of science and medicine. A member may receive the award only once.

The awardee will receive \$500 plus expenses to attend the annual spring EB meeting. If the awardee wishes, and there is a suitable place on the program, an oral presentation will be made at the EB meeting or a subsequent conference at the beginning or an appropriate scientific session. It is hoped that, after appropriate peer review, the article will be published in one of the APS journals.

Manuscripts will be evaluated by a Society Awards committee consisting of three members of APS appointed annually by Council in consultation with the chair of the History of Physiology

Group. At least one member will be a professional historian.

Manuscripts should conform to the style used in APS journals (instructions will be sent on request). Three copies should be submitted for use of the review committee. Manuscripts should be sent to the Orr E. Reynolds Award, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991, by December 1. The recipient of the award will be announced at the EB Business Meeting.

## G. Edgar Folk, Jr., Senior Physiologist Award

The G. Edgar Folk, Jr., Senior Physiologist Fund has been set up through the generosity of family and former graduate students and postdoctoral fellows to provide modest but helpful assistance to senior physiologists, 70 years or older, who no longer have grant funds available to them. The awards, in the amount of \$500, might be used for such purposes as attending an APS meeting to present a paper, engaging in a series of modest experiments, or completing a manuscript (paying for typists or perhaps page charges). Recipients will be selected with the assistance of the Senior Physiologists Committee throughout the year. Names of awardees will not be made public. When the award was established, it was announced that its purpose was for the Senior Physiologists Committee "to have fun assisting colleagues and for Emeritus APS members to keep in closer touch with APS."

## Research Career Enhancement Awards

**Deadlines: February 15 and August 15**

The APS Career Enhancement Awards are designed to enhance the career potential of APS members. The awards will provide up to \$4,000 to allow individuals in the early phases of their careers to obtain special training and in the later phases of their careers to develop new skills and to retrain in

areas of developing interests.

The awards can be used to support short-term visits to other laboratories to acquire new specific skills and to support attendance at special courses devoted primarily to methodologies appropriate for both new investigators and more senior investigators entering a new field of research.

Members in good standing interested in applying should submit an application form including a curriculum vitae, justification for requesting an award, description of enhancement activity and current research program, and anticipated budget for the proposed program of enhancement. The applicant must also include a letter of support either from his/her department chair, laboratory host, or other appropriate individual.

## Teaching Career Enhancement Awards

**Deadlines: April 15 and October 15**

The Teaching Career Enhancement Awards are designed to enhance the career potential of regular members. The awards will provide up to \$4,000 to allow individuals to develop innovative and potentially widely applicable programs for teaching and learning physiology.

The awards can be used to support short-term visits to other schools to consult with experts who can assist with the development project or attendance at special courses devoted to methodologies appropriate for the educational development project.

Regular members in good standing may submit an application form including the following: 1) a 2-page description of the proposed project, including the aim, the educational problem that the project is designed to ameliorate, identification of the innovative aspects, a plan to evaluate the educational outcomes, and the kinds and sources of expertise needed by the applicant to carry out the project; 2) an anticipated budget with justification for requested funds; 3) a letter of support from the

## APS Awards

applicant's department chair or other appropriate individual; 4) letters of agreement from individual or departmental hosts of schools to be visited; 5) description or outline of courses to be attended; and 6) a brief curriculum vitae focused on activities and achievements related to education.

Successful applicants are expected to report, in print or at a physiology conference, a description of the project and its evaluation. Awardees are encouraged to submit such reports for publication in *Advances in Physiology Education*.

### Giles F. Filley Memorial Awards for Excellence in Respiratory Physiology and Medicine

**Deadline: November 1**

The Giles F. Filley Memorial Fund was established in 1993 to recognize excellence in respiratory physiology and medicine. The awards are made to investigators who hold an academic rank no higher than assistant professor and are pursuing research in respiratory physiology and medicine. Each award will be for approximately \$25,000 and is designated for the use of the awardee in his/her research program. Awards do not include any indirect cost reimbursement.

Awards will be made annually to individuals demonstrating outstanding promise based on his/her research program in respiratory physiology and medicine. Applications will be accepted from members of APS working within the US, reflecting Giles F. Filley's contributions to the national research community through his membership in APS. Because of Filley's long association with the University of Colorado, Denver, preference for one award, on a competitive basis, will be given to individuals affiliated with that institution.

The awards will be announced during the APS Business Meeting held at the EB meeting and at the Respiration Section dinner. The recipients receive

reimbursement for their expenses to attend the meeting and a plaque recognizing their designation at Giles F. Filley Awardees. The awardees are selected by a committee composed of members of the APS Respiration Section.

### Arthur C. Guyton Awards for Excellence in Integrative Physiology

**Deadline: November 1**

The Arthur C. Guyton Fund was established in 1993 to recognize Guyton's contributions and his interests in feedback, modeling, and integrative physiology. The awards are made to independent investigators, who hold an academic rank no higher than assistant professor, and are pursuing research that utilizes integrative approaches to the study of physiological function and explores the role of feedback regulation in physiological function.

An unrestricted \$15,000 award is designated for the use of the awardees in their research programs. Awards do not include any indirect cost reimbursement. Applications are accepted from regular members of APS.

The awards will be announced during the APS Business Meeting held at the Experimental Biology meeting. The recipients receive reimbursement for their expenses to attend the meeting and a certificate recognizing their designation as Arthur C. Guyton Awardees.

### Shih-Chun Wang Young Investigator Award

**Deadline: November 1**

The Shih-Chun Wang Memorial Fund was established in 1998 in memory of Shih-Chun Wang, the Pfeiffer Professor of Pharmacology at Columbia University and a long-standing member of The American Physiological Society. Wang was internationally recognized for his research contributions in the areas of neurophysiology and neuropharmacology with an emphasis on brain stem control mechanisms. The Shih-Chun Wang Young Investigator

Award will be made annually to an individual demonstrating outstanding promise based on his/her research program in the physiological sciences. Applications will be accepted from members of APS working within the United States and holding an academic rank no higher than assistant professor. The award is for \$12,000 and is designated for the use of the awardee in his/her research program. The award does not include any indirect cost reimbursement.

### Lazaro J. Mandel Young Investigator Award

**Deadline: November 1**

The Lazaro J. Mandel Young Investigator Award was established in 1999 in memory of Lazaro J. Mandel, professor of physiology at Duke University and long-standing APS member. The Lazaro J. Mandel Young Investigator Award will be made annually to an individual demonstrating outstanding promise based on his/her research program in epithelial or renal physiology. Applications will be accepted from members of APS working within the United States and holding an academic rank no higher than assistant professor. The award is for \$12,000 and is designated for the use of the awardee in his/her research program. The award does not include any indirect cost reimbursement. The first Mandel Award will be presented at the EB 2000 meeting.

### John F. Perkins, Jr., Memorial Fellowships

**Deadlines: May 15 and November 15**

APS invites applications for the John F. Perkins, Jr., Memorial Fellowships. The Perkins Fellowships are designed primarily to provide supplementary support to foreign physiologists who have already arranged for fellowships or sabbatical leave to carry on scientific work in the United States.

The supplementary support is intended to help foreign scientists bring their families to the United States and thus

## APS Awards

enable them to take fullest advantage of other cultural benefits inherent in international exchange. Preference will be given to physiologists working in the fields of respiratory physiology, neurophysiology, and temperature regulation. Applications from scientists in developing countries will also be given special attention.

Application should be made by both the visiting scientist and his/her host. To qualify, the host must be a member of the APS. The application should contain an account of these arrangements with a brief description of the proposed scientific work and an account of how visitors and their families intend to make use of cultural opportunities during their stay. Deadlines for receipt of applications are May 1 and November 1. Applications may be obtained from the Executive Director, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991, USA.

### APS Postdoctoral Fellowship in Physiological Genomics

**Deadline: January 15**

The APS, initially in collaboration with Genentech, Inc., designed a postdoctoral fellowship program to promote careers in mammalian organ system physiology. In 1993, the APS-Genentech Postdoctoral Fellowship was established in recognition of the fact that many advances in cell and molecular will ultimately require an understanding in the context of the organism, and special training will be needed to conduct this type of research. A central criterion is that the postdoctoral project uses the tools of cellular and molecular biology in the setting of the whole animal. In 1996, APS made the commitment to continue supporting the Fellowship without the support of Genentech, leading to its renaming.

Candidates must identify a laboratory and sponsor under whose supervision a project in mammalian organ system physiology and molecular biology can be combined. The award is for a two-year period and includes an annual

stipend (\$30,000) and a trainee allowance of \$3,500.

Two awards are made per year.

### William T. Porter Fellowship Awards

**Deadlines: January 15 and July 15**

This award is designed to support the training of talented students entering a career in physiology and to provide predoctoral fellowships for minority students, postdoctoral fellowships, and limited sabbatical leave aid for faculty members of predominantly black schools who wish to update their expertise in physiology. In addition, funds have been made available to lecture-ships and laboratory equipment to develop teaching consortia linking predominantly black colleges with medical schools in the same area. Summer research fellowships are also awarded for minority undergraduate opportunities for physiological research.

The recipients receive basic stipends, and an institutional allowance is given to the training department or laboratory where the recipient will work.

### NIDDK Travel Fellowships for Minority Physiologists

**Deadline: November 16**

NIDDK Travel Fellowships for Minority Physiologists are open to under-represented minorities who are advanced undergraduate, predoctoral, and postdoctoral scientists, including students, who have obtained their undergraduate education in Minority Biomedical Research Programs and MARC-eligible institutions, as well as students in the APS Porter Development Program. Applications may also be submitted by minority faculty members at the above institutions. Funds will provide transportation, meals, and lodging to attend the annual spring Experimental Biology meeting. The specific intent of this award is to increase participation of the pre- and postdoctoral minority students in physiological sciences. Applicants need not

be members of the APS but should be US citizens or hold permanent resident visas. With the application form, candidates should include 1) a brief curriculum vitae; 2) a letter of recommendation from the applicant's advisor; and 3) an estimate of required travel and per diem expenses. Faculty applicants should also include a statement of current and pending support.

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

**Deadline: November 8**

The APS Caroline tum Suden Professional Opportunity Awards (\$500, complimentary registration, and placement service fees) are granted to as many as 30 graduate students or postdoctoral fellows who present a contributed paper at the EB meeting. Candidates must be the first author of an abstract submitted to APS. An accompanying letter, signed by the sponsor of the abstract, must contain 1) certification that the author is a student or postdoctoral fellow and 2) the approximate date the nominee will be available for employment. Applicants must also submit a one-page letter stating his/her research goals, role in their research, and reasons why he/she is deserving of the award. Awardees are notified by the Womens Committee prior to March 1 and presented with their awards during the APS Business Meeting.

### Liaison With Industry Awards

**Deadline: November 8**

Liaison With Industry Awards will be made to the graduate student and postdoctoral fellow submitting the best abstract describing a novel disease model. The awards provide \$500 to the graduate student and \$800 to the postdoctoral fellow.

Awards are announced during the APS Business Meeting held at the Experimental Biology meeting.

## APS Awards

### AAAS Mass Media Science and Engineering Fellowship

**Deadline: January 15**

APS will sponsor an AAAS Mass Media Science and Engineering fellow who will spend 10 weeks over the summer working for a newspaper, maga-

zine, radio or television newsroom. The program includes a one-week orientation in Washington, DC to help fellows develop their ability to communicate complex scientific issues to nonscientists. Applicants must be currently enrolled as a graduate or postgraduate

student of physiology or a related discipline.

The fellowship will include expenses for traveling to sessions and the job site as well as a weekly stipend based on the local cost of living.

## Section Awards

### Distinguished Lectureship Awards

The 12 Distinguished Lectureship Awards are named after outstanding contributors to the disciplinary areas of physiology. The recipient is chosen by the section as a representative of the best within the discipline. The annual lecture is presented at the EB meeting. Each recipient receives an honorarium of \$1,000 and up to \$2,000 to cover travel expenses.

The 12 named Lectureships are:

- Robert M. Berne Distinguished Lectureship of the Cardiovascular Section
- Hugh Davson Distinguished Lectureship of the Cell and Molecular Physiology Section
- Joseph Erlanger Distinguished Lectureship of the Central Nervous System Section
- August Krogh Distinguished Lectureship of the Comparative Physiology Section
- Solomon A. Berson Distinguished Lectureship of the Endocrinology and Metabolism Section
- Edward F. Adolph Distinguished Lectureship of the Environmental and Exercise Physiology Section
- Horace W. Davenport Distinguished Lectureship of the Gastrointestinal Section
- Carl Ludwig Distinguished Lectureship of the Neural Control and Autonomic Regulation Section
- Carl W. Gottschalk Distinguished Lectureship of the Renal Section
- Julius H. Comroe, Jr., Distinguished

Lectureship of the Respiration Section

- Claude Bernard Distinguished Lectureship of the Teaching of Physiology Section
- Ernest H. Starling Distinguished Lectureship of the Water and Electrolyte Homeostasis Section.

### Procter & Gamble Professional Opportunity Awards

**Deadline: November 8**

The Procter & Gamble Professional Opportunity Awards (providing \$500 and complimentary registration for the EB meeting) are granted to at least 17 predoctoral students who present a contributed paper at the meeting. Candidates must be the first author of an abstract submitted to APS and within 12-18 months of completing his/her PhD degree. All recipients must be US citizens or hold a permanent resident visa. An accompanying form, signed by the sponsor of the abstract, must contain 1) certification that the author is a predoctoral student and 2) the approximate date of degree completion.

Awardees will be notified before March 1. Awardees are selected by the following sections of APS: Cardiovascular, Cell & Molecular Physiology, Central Nervous System, Comparative Physiology, Endocrinology & Metabolism, Environmental & Exercise Physiology, Gastrointestinal, Neural Control & Autonomic Regulation, Renal, Respiration, Teaching of Physiology, and Water & Electrolyte Homeostasis.

### Cardiovascular

The Cardiovascular Section presents two annual awards: the Lamport Award and the Carl J. Wiggers Award.

The Lamport Award is presented to a young investigator under the age of 36 showing outstanding promise in his/her field of cardiovascular research. The recipient, who receives a certificate and a \$500 check, is selected by an awards committee. The Carl J. Wiggers Award honors a founder of the section and is presented to a scientist who has made outstanding and lasting contributions to cardiovascular research. The selection is made by the Steering Committee. The recipient receives a plaque and presents a lecture on their research at the annual EB meeting.

### Central Nervous System

The Van Harreveld Memorial Award (\$250) is presented by the Central Nervous System Section to recognize outstanding research in neuroscience by a graduate student or post-doctoral fellow. The recipient must be first author on an abstract presented at the EB meeting.

### Comparative Physiology

The Comparative Physiology Section Scholander Award is presented annually to recognize an outstanding young investigator presenting a paper as first author in a designated comparative physiology session at the EB meeting or the Comparative Physiology Intersociety fall meeting. Candidates must be not

## Section Awards

more than five years beyond their highest degree. The recipient receives a cash award or prize and a certificate.

### **Environmental and Exercise Physiology**

The Environmental & Exercise Physiology (EEP) Section Gatorade Young Investigator Award (\$500) recognizes outstanding research in either environmental, exercise or thermal physiology by a pre-doctoral graduate student. Applicants must be first author on an abstract submitted to an EEP topic category (see Physiology topic category list under the heading "Environmental & Exercise Physiology Section") and a pre-doctoral graduate student at the date of abstract submission. Awardee must be present at the EEP Section Banquet to receive their award.

The Environmental & Exercise Physiology Section Gatorade Beginning Investigator Award (\$650) recognizes outstanding research in either environmental, exercise or thermal physiology by a postdoctoral fellow or equivalent. Applicants must be first author on an abstract submitted to an EEP topic category (see Physiology topic category list under the heading "Environmental & Exercise Physiology Section") and have received an advanced degree within four years at the time of the abstract submission. Applicants must submit certification that their research contributions in the abstract were deserving of first authorship. Awardee must be present at the EEP Section banquet to receive their award.

The EEP Honor Award is presented to a previous or current primary member of the Section whose research has made significant national and international contributions to the advancement of environmental, exercise, or thermal physiology. Membership nominations are directed to the Nominations Committee who will make recommendations to the Steering Committee for their final

selection. The recipient will receive a plaque, a check for \$1,000, reimbursement of their registration fee, and the opportunity to discuss their research as the featured speaker at the annual Section banquet.

### **Gastrointestinal**

The Gastrointestinal Section presents two annual awards: the Gastrointestinal Section Student Prize and the Distinguished Research Award in Gastrointestinal Physiology.

The Gastrointestinal Section Student Prize is designed to challenge and reward trainees who are engaged in gastrointestinal research. Two awards will be made at the EB meeting. One will be given for work done while enrolled as a doctoral or medical student. A second award will be given for work performed during the first through third postdoctoral years or during a medical residency. In order to be considered, the applicant must be first author on an abstract submitted for the EB meeting, and either the applicant or sponsor must be a member of APS. Awardees are presented with a \$300 cash prize and certificate at the annual section banquet.

The Distinguished Research Award in Gastrointestinal Physiology recipient is selected by the Steering Committee to recognize outstanding achievement in gastrointestinal research. Nominations for the award are welcomed from the membership. The recipient presents a lecture during the annual section banquet and receives a cash prize.

### **Liaison With Industry**

The Novel Disease Model Award (\$500/graduate student, \$800/postdoctoral fellow) will be granted to the graduate student and postdoctoral fellow submitting the best abstracts describing a novel disease model. The model can be cellular or in vivo but should clearly emphasize the potential utility of the system for further research related to a disease process.

### **Neural Control and Autonomic Regulation**

The Michael J. Brody Young Investigator Award recognizes a promising young investigator who has made a significant contribution to the understanding of neural control and autonomic regulation. The Award is sponsored jointly by Merck & Co., Inc. and the Neural Control and Autonomic Regulation Section and consists of a certificate and \$500. The award is open to graduate students (post-candidacy exams), postdoctoral fellows, and clinical fellows who present and are first authors on an abstract at the EB meeting. The applicant or abstract sponsor must be a member of APS. Applications must include: a copy of the abstract; the completed APS Student Award Certification Form; a list of publications; a one-page summary and evaluation of research contributions, written by the applicant; and a cover letter signed by both the applicant and sponsor indicating the date, or expected date, of highest degree.

### **Renal**

The Hoechst Marion Roussel Excellence in Renal Research Awards are sponsored by Hoechst Marion Roussel and are designed to promote and develop excellence in research pertaining to molecular, cellular, or organ mechanisms involving the kidney. Awards are presented to two categories of students: predoctoral students (including graduate students and medical students) and postdoctoral fellows. Award recipients must be first authors on an abstract submitted to Renal and Electrolyte Physiology for programming at the EB meeting. Prior to the meeting, a first level of evaluation is conducted based on the submitted abstract. A subset of abstracts are further judged during oral presentation at the meeting. Award winners are announced at the annual renal dinner held in conjunction with the meeting and are presented with a cash prize.

## Section Awards

The Young Investigator Award for Excellence in Renal Physiology recognizes an outstanding young investigator working in any area of renal physiology. Nominees must be less than 41 years old as of the date of the renal dinner or less than 15 years beyond receipt of their first doctoral degree.

### Teaching of Physiology

The Teaching of Physiology Section sponsors the Arthur C. Guyton Physiology Teacher of the Year Award. The award is sponsored by the W. B. Saunders Company. Nominees must be full-time faculty members of accredited colleges or universities and members of APS. They must be involved in classroom teaching and not exclusively teaching graduate students in a research lab. Each nominee must be nominated by a member of APS. The nominator is

responsible for completing application materials and forwarding copies to the chair of the Award Selection Committee. The person selected receives the award at the annual banquet of the Teaching of Physiology Section. The Teacher of the Year receives a certificate, an honorarium of \$1,000, and expenses of up to \$750 to attend EB.

### Water and Electrolyte Homeostasis

The Young Investigator Award in Regulatory and Integrative Physiology was established to encourage young investigators to continue research careers in regulatory and integrative physiology. The award is presented annually at the business luncheon of the Water and Electrolyte Homeostasis Section to a young investigator (<40

years old) who has made important contributions to our understanding of the integrative aspects of cardiovascular, renal, and neuroendocrine physiology in health or disease. The award consists of \$500, a plaque, and complimentary registration to the EB meeting. The recipient of the award is invited to present a short lecture on his/her research during a scientific session of the EB meeting. Any member of APS in good standing may apply or be nominated for the award. Applications will be reviewed by the Section's Award Committee and should include a curriculum vitae of the nominee, a brief (one-page) summary and analysis of the research contributions of the nominee, a complete list of publications, and two letters of nomination from members of APS.

## Did you receive your APS Membership Card?

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Beginning in January, 2000, you'll need your member number to:

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If you have not yet received yours, contact the APS Membership Services Department at 301-530-7118, or fax to 301-571-8313, and provide them with your name, address, phone number, fax number, and email address.

### THE AMERICAN PHYSIOLOGICAL SOCIETY

9650 Rockville Pike, Bethesda, Maryland 20814-3991 (USA)



John S. Doe, Ph.D.

Member Type: Regular

Account # 6789

**Online# 123456**

*(The Online # is also the Membership ID number)*

Cell & Molecular Physiology Section

Member Since: 1970

Paid through: 6/30/00

# Membership

## Elected Regular Members

\*Transferred from Student Membership

**Gregory R. Adams**

University of California-Irvine

**Sue A. Aicher**

Cornell University Medical College

**Margery Kronk Anderson**

University of Kentucky

**Mark A.W. Andrews\***

NY College of Osteopathic Medicine

**Matthew Tucker Andrews**

North Carolina State University

**Judy Lynn Aschner**

Wake Forest University

**Jan Bakker**

ZcA Lukas Hospital, The Netherlands

**Jean-Claude Barthelemy**

University St Etienne

**Stephane Claude Baudet**

Intervet International

**Richard Vincent Benya**

University of Illinois

**Robert Joseph Bloch**

University of Maryland

**James Travis Buchanan**

Marquette University

**Ruy Ribeiro Campos**

Escola Paulista de Medicina

**Scott Hayden Carlson\***

University of Alabama-Birmingham

**John William Castellani\***

USARIEM

**David Cepoi**

Oregon Health Sciences University

**Ludek Cervenka**

Inst. for Clinical and Exper Medicine

**Victor V. Chaban**

University of California-Los Angeles

**Dennis J. Cheek**

Duke University Medical Center

**Alex F.Y. Chen**

Mayo Clinic

**Deoclecio Alves Chianca, Jr.**

Julia Nunes Guerra

**William Harold Cooke\***

Michigan Technological University

**Blair Emerson Cox**

Univ. of Texas Southwestern Med Sch.

**Arthur D. Craig**

Barrow Neurological Institute

**Phillip Daniel Cremer**

Johns Hopkins University

**Michael D. Crutcher**

Emory University

**Richard John Davies**

UMDNJ

**Christopher A. DelNegro**

NIH-NINDS

**Kees De Meer**

University Children's Hospital

**Daniel C. Devor**

University of Pittsburgh

**Christaina Dimitropoulou**

Medical College of Georgia

**Michael B. Dwinell\***

University of California-San Diego

**Ford E. Ebner**

Vanderbilt University

**Zhiwu Fang**

University of Alabama-Birmingham

**Jonathan S. Fisher**

Washington University

**Robert H. Fitts**

Marquette University

**Reiko Maki Fitzsimonds**

Yale University

**Leslie C. Fuchs**

Medical College of Georgia

**Dario Ghigo**

University of Turin

**Ararat Derenick Giulumian**

Medical College of Georgia

**Kevin L. Grove**

Oregon Regional Primate Res Ctr

**Zhi-Ling Guo**

University of California-Irvine

**Georges E. Haddad**

Howard University

**Damir Hamamdzcic**

Medical University of South Carolina

**Chuangming Hao**

Vanderbilt University

**Carroll McWilliams Harmon**

University of Michigan

**Joseph A. Hill**

University of Iowa

**Warren Gary Hill**

University of Pittsburgh

**Tracy Jane Horton**

University of Colorado Hlth Sci Ctr

**Joseph Alan Houmar**

East Carolina University

**James B. Hoying\***

University of Arizona

**Dallas Melvin Hyde\***

University of California-Davis

**Patrick L. Janssen\***

University of Arizona

**Hong-Long Ji**

University of Alabama-Birmingham

**Chung Jiang**

Georgia State University

**Dianna A. Johnson**

University of Tennessee

**James F.X. Jones**

University College Dublin

**Armin Johannes Just**

University of Heidelberg

**Kenneth Wicker Kambis**

College of William and Mary

**Stavros A. Kabouras\***

Yale University

**Mikito Kawamata**

Sapporo Medical University

**Bradley B. Keller**

University of Kentucky

**Mark David Kellogg**

USARIEM

**Bellankonda K. Kishore**

University of Cincinnati

**Rosemary Knapp**

University of Oklahoma

**Shuichi Kohayashi**

University of Cincinnati

**Bernat Kocsis**

Harvard Medical School

**Robert Day Lasley**

University of Kentucky

**Michel Lavallee**

University of Montreal

**Andrew John Lawrence**

Monash University

**James Russell Linderman\***

Medical College of Wisconsin

**Gyorgy Losonczy**

Semmelweis University

**Neil Stanley Mandel**

VA Medical Center-Milwaukee

**Lawrence Edward Mays**

University of Alabama-Birmingham

**Joseph E. Mazurkiewicz**

Albany Medical College

## Membership

**Timothy Scott McClintock**

University of Kentucky

**Donald Ross Menick**

Medical University of South Carolina

**Allison Winecoff Miller**

Medical College of Georgia

**Mariela Minerva Molero**

Medical College of Georgia

**Andrew Paul Morris**

University of Texas

**Rene Jean Leon Murphy\***

University of Arkansas

**Coral Lyn Murrant\***

University of Rochester

**Vladimir R. Muzykantov**

University of Pennsylvania

**Kenneth Takeshi Nakamura**

Kapiolani Medical Center

**Philip Theodore Nowicki**

Ohio State University

**Adebayo O. Oyekan**

New York Medical College

**Lisa Dianne Parks\***

Georgia State University

**Karen Elizabeth Pemberton**

Viatech Imaging/Cognetix Inc

**Satish Rattan**

Thomas Jefferson University

**R. Clay Reid**

Harvard Medical School

**Vanessa Hope Routh\***

UMDNJ

**Terence David Sanger**

Children's Hospital-Boston

**Reza M. Sanii**

Ross University

**Brett C. Sheridan**

University of Colorado

**Malcolm Slaughter**

University of Buffalo

**Sinclair Allan Smith**

Belmont University

**Claudette Marie St Croix**

University of Wisconsin

**Cindy Manhua Sun**

Dartmouth Medical School

**Makoto Takada**

Saitama Medical School

**Gary Evan Truett**

Pennington Biomedical Res Ctr

**Dennis Robert Trumble**

Allegheny General Hospital

**Duncan L. Turner**

South Bank University

**Alice Renee Villalobos\***

University of Connecticut

**David D. Vogel**

Ross University

**Yanlin Wang\***

University of Texas Medical Branch

**Christopher R. Woodman\***

University of Missouri

**Daliao Xiao**

Loma Linda University

**Weiguo Zhang**

Univ. of Texas Southwestern Med Ctr

**Liang Zhu**

University of Maryland

**Michael Robert Zile**

Medical University of South Carolina

### Accepted Affiliate Applicants

**Chris Marie Brotski**

BioSource International, Inc.

**Jaimie Lee Goulding**

BioSource International, Inc.

**Yong-Ho Lee**

K.H.D. Technology Co. Ltd.

**Henry Rushin**

Humber College

**Hector Stella**

Private Practice, Puerto Rico

### Accepted Student Applicants

**Ana Paula Lima Abdala**

UNIFESP

**Sally Wahba Aboelea**

Oregon Health Sciences Univ.

**Julye Marie Adams**

University of Kentucky

**Daniel Adelbert**

Hanyang Technological University

**Andrea Iesularo Alford**

Penn State Univ. College of Medicine

**Andrea Dineane Anderson**

University of California-Los Angeles

**Elyzabeth Anderson**

Florida State University

**Wilhelmína Anderson**

Florida Atlantic University

**Jonathan Hopkins Anning**

University of Toledo

**Peggy Marie Arnos**

University of Toledo

**Amy R.G. Aslamkhan**

University of Hawaii

**Christine A. Atkinson**

University of Illinois

**Trish Michelle Barker**

Michigan State University

**Jennifer-Anne Barnhart**

Florida Atlantic University

**Kristin Bergman**

College of St. Scholastica

**Nathalie Berthiaume**

University of Sherbrooke

**Max P. Bracero**

Adelphi University

**Todd J. Brown**

East Carolina University

**Anthony John Bull**

University of Nebraska-Lincoln

**Vinicia Campana Biancardi**

UNIFESP

**Rivera Ada Cedeno**

Inter American University

**Gerard F. Celia, Jr.**

University of Vermont

**Aaron Cheng**

Harvard University

**Troy David Chinerere**

Brigham Young University



## Membership

- Brian Charles Cholewa**  
Medical College of Wisconsin
- Murray Justin Chrusch**  
University of Saskatchewan
- Colleen Passow Cleves**  
University of Kansas
- Scott L. Cobbs**  
Marshall University
- Carla Welang Coelho**  
Gama Filho University
- Michall Keith Connor**  
York University
- Ragere Sherdrel Conway**  
Grambling State University
- Lisa Marie Cosentino**  
Florida Atlantic University
- Jeanette Marie Criglar**  
Baylor College of Medicine
- Patrick Nicholas Colleran**  
Texas A&M University
- Karrie Elizabeth Comatas**  
University of Florida
- Rochelle DaCosta**  
Florida Atlantic University
- Michael John Davies**  
Old Dominion University
- Elaine Monica Davis**  
University of West Indies
- Chatsri Deachapunya**  
University of Minnesota
- David W. DeGroot**  
Boston University
- Punita Dhawan**  
University of Arkansas
- Jerome A. Differding**  
University of North Texas
- Edgar Lichar Dillon**  
Texas A&M University
- Arthur Charles Downie**  
University of Buffalo
- Joshua Marlvn Dziba**  
University of Kentucky
- Joyce Jeannette Evans**  
Florida Atlantic University
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- Jessica Andrea Filosa**  
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University of Florida

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Kansas State University

## Honorary Membership

### Hartmut R. Kirchheim

Hartmut R. Kirchheim was born in 1934 in Allenstein, a small town in East Prussia, Germany. When the town was conquered by the Russian army in January of 1945, he and his family had to leave and finally settled in Giessen, Germany, where he went to school. In 1955, he began his medical education at the University of Marburg. From 1956 to 1957 he received his preclinical training at the University of Mainz and in 1957, changed to the University of Giessen, where he finished his clinical education and his thesis for the “Dr. med” degree in 1961. After medical internships at the University hospitals in Giessen and Heidelberg, he joined the I. Physiologisches Institut der Ruprecht-Karls-Universität in Heidelberg, headed by Hans Schaefer. It was at the Physiologisches Institute, as a Research Assistant (1963-65), that he set up his first cardiovascular research laboratory, which was assembled with the most modest means available. His first measurements were recorded with an instrument to measure blood flow (the “Thermostomuhr” as described at that time by Rein in 1937) and consisted of several Statham-elements operated by a car battery, a self-made drop-counter, a bunch of galvanometers, and a camera in a dark room.

Using these techniques, Kirchheim was able to publish several manuscripts on the pathophysiology of shock and the influence of an acid-base balance and renal blood flow during hemorrhage. He read and was fascinated by a book entitled *Cardiovascular Dynamics* by Robert F. Rushmer. After studying this book, he realized that his research approach and methods were rather old-fashioned and that he needed to go to the University of Washington to seek further training of cardiovascular techniques involving conscious animals, as well as more physiology. He applied for a NATO fellowship to train in Rushmer’s laboratory in Seattle. From 1966-67, he worked as a postdoctoral fellow in the Department of Physiology

and Biophysics and participated in a Bioengineering Training Program on Cardiovascular Research Techniques, under the direction of Rushmer. To this



Hartmut R. Kirchheim

day, Kirchheim believes that his experience in this training program added greatly to his knowledge of cardiovascular physiology and that his interactions with Rushmer were most important in attributing to his successful career. He is also very appreciative of the training that he received by other teachers at the University of Washington and the interactions with such investigators as Allen Scher and Loring Rowell. From this experience, he developed many long lasting friendships with American colleagues.

On returning to Heidelberg in 1968, he developed an outstanding research program and trained a number of well known physiologists. Key participants in his research program during the 1970-90’s included Rainer Gross, Heimo Ehmke, and Pontus Persson. His studies on effector mechanisms of the arterial baroreceptor reflex and interactions with cardiopulmonary reflexes were important in our understanding of blood pressure control. As a result of his early studies, in 1976 he published a major review article in *Physiological Reviews* entitled “Systemic Arterial Baroreceptor Reflexes,” which remains a key article for all students interested in the area of cardiovascular regulation.

Subsequently, his laboratory focused more on the reflex control of renal sympathetic activity, renal perfusion pressure, and renin release in blood pressure control. In collaborations with Heimo Ehmke, Eberhard Hackenthal, and Pontus Persson, they were among the first to quantitate the effects of renal perfusion pressure on renin release and its role in blood pressure control.

Kirchheim is currently Professor of Physiology and Head of the Biophysik des Kreislaufs at the Physiologisches Institut in Heidelberg. He also serves the university administration as Pro-Vice-Chancellor of Medicine and has served as Dean of the Faculty for Basic Medical Sciences. He is a member of various professional societies, serves on numerous Editorial Boards for such prestigious journals, such as the *Journal of Physiology (London)*, the *American Journal of Physiology: Circulatory System*, and *Circulation Research*, and is surveyor for various research institutions, such as the German Space Agency, German and Danish Research Foundations, the Swiss National Science Foundation, and the Ministry for Science and Art in Vienna, Austria.

The above-mentioned research narrative does not do justice to the extensive collaborations and scientific accomplishments of Kirchheim during past years. Kirchheim and his group have made major contributions to the understanding of renal hemodynamics on renal function, the impact of tubuloglomerular feedback on autoregulation and on the integrative control of sodium excretion, and the renal effects of neuropeptide Y. The wave of nitric oxide enthusiasm did not pass him by in that they were among the first to demonstrate the effects of nitric oxide on renal autoregulation and renin release. He currently is studying work on the postulated role of adenosine in renal vascular control and on the contributions of endothelin to renal vascular tone and the interaction between endothelin and the renin-angiotensin-system. ❖

# Experimental Biology

## Physiology and Experimental Biology '99

Experimental Biology '99 was held April 17-21 in Washington, DC and was a joint meeting of six FASEB societies, APS, American Society for Pharmacology and Microcirculatory Society. EB '99 was organized around eight themes: cardiovascular biology; cell injury, inflammation and repair; cellular growth and various themes are included in Tables 1 and 2. Of the 6,636 total abstracts received, 3,038, or 46%, were incorporated into themes; the remaining

**Table 1. EB '99 Abstracts by Theme and Society**

	APS	ASPET	ASIP	ASNS	AAI	AAA	Total
Total Abstracts Received	2,605	661	398	1,406	1,396	169	6,636
Theme Name							
Cardiovascular Biology	830	151	131	36	9	38	1,195
Cell Injury, Inflammation & Repair	This theme did not have topic categories to which abstracts could be submitted						
Cellular Growth & Development	27	14	15	20	3	18	97
Epithelial Cell Biology	132	21	13	5	1	2	174
Metabolic & Disease Processes	72	26	21	204	9	3	335
Neurobiology	92	97	6	9	2	18	224
Respiratory Biology	253	22	11	6	1	6	299
Signal Transduction & Gene Regulation	59	80	9	22	10	2	110
Total Abstracts per Theme	1,465	411	206	302	35	87	2,434
% to Themes of Total Received by Society	56%	62%	52%	21%	2%	51%	37%
+/- From 1998 meeting	-7%	+1%	+5%	-3	-1%	+12%	-3%

ogy and Experimental Therapeutics (ASPET), American Society for Investigative Pathology (ASIP), American Society for Nutritional Sciences (ASNS), American Association of Immunologists (AAI), and American Association of Anatomists (AAA). APS hosted 4 of the 19 participating guest societies: AFMR, BMES, SEBM, and the

development; epithelial cell biology; metabolic and disease processes; neurobiology; respiratory biology; and signal transduction and gene regulation.

A total of 6,636 volunteered abstracts were submitted for presentation. Of this total, 2,605 papers, or 39%, were received from the APS membership and its guest societies. Details about abstract submission for each of the var-

abstracts, 3,621, or 54%, were presented under the auspices of the sponsoring societies. Of the 2,605 abstracts submitted to the APS, nearly two-thirds (1,672, or 64%) were presented as part of themes, whereas the remainder, 933, or 36%, were presented as part of a societal program.

EB'99 accepted late-breaking abstracts which were submitted by the

**Table 2. EB'99 Number and Type of Sessions Programmed by Theme (Number of Abstracts)**

	Invited	Oral/Mini	Poster	Poster Discussion	Total
Theme Name					
Cardiovascular Biology	29	24 (73)	89 (1,349)	0	142 (1,422)
Cell Injury, Inflammation & Repair	18	18 (137*)	2 (33)	0	35 (170)
Cellular Growth & Development	17	35 (253*)	14 (149)	0	66 (402)
Epithelial Cell Biology	3	7	10 (120)	0	24 (120)
Metabolic & Disease Processes	17	25 (116*)	31 (340)	0	73 (456)
Neurobiology	19	1	22 (192)	0	42 (192)
Respiratory Biology	7	12 (12)	25 (303)	3 (20)	47 (347)
Signal Transduction & Gene Regulation	8	4	14 (201)	0	26 (201)
Total Sessions (and Abstracts) Programmed by Theme	118	126 (603*)	207 (2,687)	3 (20)	458 (3,310)

\*Number of abstracts inaccurate due to dual programming of AAI sessions

## Experimental Biology

deadline of February 22, 1999 and printed in the program addendum. All late-breaking abstracts were scheduled as posters on the last day of the meeting. A total of 403 late-breaking abstracts were received, of which 23% (94) were sponsored by members of APS. Another new development was the carpeting of the poster area, which greatly reduced fatigue caused by walking on hard concrete and reduced the noise level in the exhibit hall. Poster sessions for each society were scheduled in one designated area of the exhibit hall for the duration of the meeting. There was increased signage in the exhibit hall, and APS provided program directories at the end of poster rows, which included the session titles with appropriate poster board numbers. Attendees could easily see which sessions were scheduled without having to refer to the program book. APS continues to explore ways to improve the signage and make the poster area more user-friendly.

Of the 2,605 APS abstracts, 22% (576) were presented by female scientists as first authors and 14% (377) were received from institutions outside of The Americas. Government laboratories represented 5% (135) of the abstracts received, and industry laboratories represented 2% (54). Table 3 provides information on the departmental affiliations of the first authors and indicates that 25% (641) were received from departments of physiology and 6% (163) from departments of physiology and biophysics.

The APS programmed 259 total sessions, which included 143 poster, 39 featured topic, 38 symposium, 16 lectures, 7 Physiology InFocus, 6 poster-discussion, 1 refresher course, 1

point/counterpoint and 6 miscellaneous sessions. The lecture sessions included 11 Section Distinguished Lectureships (Teaching of Physiology Section declined a lectureship this year) and the Cannon and Bowditch Lectures. The Microcirculatory Society held their annual Landis Award lecture and APS held the first annual Walter C. Randall Lecture in Biomedical Ethics. In addition, the American Federation for Aging Research selected EB'99 as the venue for their annual Dorothy Dillon Eweson Lecture Series on the Advances in Aging Research. The miscellaneous sessions included the APS Business Meeting and the exciting "Call to Activism" session organized by the APS Public Affairs Committee and sponsored by the other EB participating societies.

The APS Mixer was held on Saturday evening and included sumptuous desserts, dancing, and an opportunity to meet with colleagues in a relaxed, festive atmosphere. The first annual Young Experimental Scientist (Y.E.S.) Mixer was designed to enhance interaction between younger members of the par-

ticipating societies. Sponsored by several participating societies, the mixer was considered a great success, with over 350 attendees, and will be repeated at EB 2000.

The total meeting registration was 13,349, which slightly exceeded that of the EB '98 meeting held in San Francisco. Of the 11,247 total scientific registration, 5,020 (45%) were members, 3,228 (29%) were non-members, 157 (1%) were retirees, and 2,842 (25%) were students. There were 1,454 exhibitors, 336 guests of exhibitors, 252 guests of scientists, and 60 press registrants.

The American Physiological Society gratefully acknowledges financial support through educational grants from Burroughs Wellcome Fund, Glaxo Wellcome, Inc., The Grass Foundation, Merck & Company, Inc., Merck Genome Research Institute, NASA-Ames Research Center, Procter & Gamble Company, SmithKline Beecham Pharmaceuticals, Taylor University, and William Townsend Porter Foundation. ♦

Table 3. EB '99 Author Affiliations of Programmed Volunteered Papers

Department	Number of Papers	% Total
Physiology	641	25%
Medicine	179	7%
Biology	163	6%
Pharmacology	141	5%
Physiology & Biophysics	96	3%
Surgery	90	3%
Anesthesiology	81	3%
Biomedical Engineering	81	3%
Cardiology Sciences	77	3%
Pediatrics	46	2%
Biochemistry	30	1%
Exercise/Sports Medicine	29	1%

### Don't Miss It!

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

**Abstract Deadline: November 8, 1999!**

# Experimental Biology

## Experimental Biology 2000

April 15-18 • San Diego, CA

Physiology InFocus:  
Channels and Transporters

Organizer: Walter F. Boron

*Aquaporins and Other Members of the MIP Family*  
**Peter Agre**

*Structural Biology of Channels*  
**Mark Yeager**

*Genetic Abnormalities of Channels and Transporters*  
**Seth Alper**

*Structure-Function Relationships in Voltage-Gated Ion Channels*  
**Rick Aldrich**

### Section Distinguished Lectureships

#### Robert M. Berne Distinguished Lectureship of the Cardiovascular Section

Lecturer: **David R. Harder**, Medical College of Wisconsin  
Title: to be decided

#### Horace W. Davenport Distinguished Lectureship of the Gastrointestinal Section

Lecturer: **Ernest M. Wright**, University of CA-Los Angeles  
Title: *Molecular Insights Into Intestinal Salt, Sugar, and Water Absorption*

#### Hugh Davson Distinguished Lectureship of the Cell & Molecular Physiology Section

Lecturer: **Ferid Murad**, University of Texas, Houston  
Title: *Cellular Signaling with Nitric Oxide and Cyclic GMP*

#### Carl Ludwig Distinguished Lectureship of the Neural Control & Autonomic Regulation Section

Lecturer: **Francois M. Abboud**, University of Iowa Col. Med.  
Title: *Functional Genomics of Baroreceptors*

#### Joseph Erlanger Distinguished Lectureship of the Central Nervous System Section

Lecturer: **Catherine Rivier**, Salk Institute  
Title: *Role of Gaseous Neurotransmitters in Regulating Hypothalamic-Pituitary-Adrenal Axis*

#### Carl W. Gottschalk Distinguished Lectureship of the Renal Section

Lecturer: **Rainer F. Greger**, Albert Ludwigs Univ., Freiburg, Germany  
Title: *K<sup>+</sup> Channels and Cl<sup>-</sup> Secretion*

#### August Krogh Distinguished Lectureship of the Comparative Physiology Section

Lecturer: **George N. Somero**, Stanford University  
Title: *Co-evolution of Proteins and Their Aqueous Milieu: Messages From the Medium*

#### Julius H. Comroe, Jr. Distinguished Lectureship of the Respiration Section

Lecturer: **John A. Clements**, University of CA-San Francisco  
Title: *Lung Surfactant: A Fantastic Voyage From Theory to Practice*

#### Solomon A. Berson Distinguished Lectureship of the Endocrinology & Metabolism Section

Lecturer: **Jeffrey S. Flier**, Beth Israel Deaconess Med. Ctr.  
Title: *Leptin: Physiology and Role in Disease*

#### Claude Bernard Distinguished Lectureship of the Teaching of Physiology Section

Lecturer: **Clyde F. Herreid**, State Univ. of NY, Buffalo  
Title: *Teaching in the Year 2061*

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

Lecturer: **Carl V. Gisolfi**, University of Iowa  
Title: *What's Your 'Gut' Reaction to Exercise?*

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

Lecturer: **Gerald F. DiBona**, Univ. of Iowa  
Title: *The Neural Control of the Kidney in Health and Disease*

# Experimental Biology

## Societal Lectures

### The Walter B. Cannon Memorial Award Lecture

**M. Judah Folkman**, Children's Hospital, Boston

### Henry Pickering Bowditch Award Lecture

**Curt D. Sigmund**, University of Iowa

### Walter C. Randall Lecture in Biomedical Ethics

**Edmund D. Pellegrino**, Georgetown University

### 8th Annual Women in Physiology Mentoring Luncheon

### Career Opportunities in Physiology Symposium

### Physiology for Life Science Teachers and Students Workshop

### APS Business Meeting

#### Special Symposia

*Interaction of Body Fluid Balance and Thermal Strain*

**Gary W. Mack**

*Physiological Function Explored in Microgravity*

**Charles E. Wade**

*Physiology of Water Transport*

**Ernest M. Wright**

#### Physiological Genomics

*Cells and Genes and Their Applications for Therapies for the Brain*

**Beverly L. Davidson and Howard Federoff**

*Bioinformatics: Analysis From Sequence to Disease*

**Peter J. Tonellato**

## Section-Sponsored Symposia

*Capillaries: How Their Structure and Function Can Alter to Meet Tissue Demands*

**Ann Baldwin**

*Extracellular ATP and cAMP as Paracrine and Interorgan Regulators*

**Lise Bankir and Edward Inscho**

*Muscle Research in the 20th Century*

**Michael Bárány**

*Neurobiology of the GnRH Neuron*

**Darrell W. Brann**

*Hypoxia-Induced Muscle Damage From Reactive Oxygen Intermediates: From Pathways to Function*

**Marco A.P. Brotto and Thomas M. Nosek**

*Oxygen Sensing and Signaling: Role of Reactive Oxygen Intermediates*

**H. Franklin Bunn**

*Redox Signaling in Ischemic Myocardium*

**Dipak K. Das**

*The Mammalian Distal Tubule: Physiology and Disease*

**David H. Ellison and James B. Wade**

*The History of Organ Transplantation: Physiological Aspects*

**G. Edgar Folk, Jr. and Henry Brown**

*Molecular and Functional Diversity of Epithelial Chloride Channels*

**Cathy Fuller**

*The Metabolic Status of Theropod Dinosaurs: New Insights from Comparative Physiology*

**James W. Hicks**

*Epithelial-Microbial Interactions: Lessons in Communication*

**Martin F. Kagnoff**

*MAP Kinases: New Implications for Renal Cell Function*

**Dietmar Kültz and David W. Good**

*Role of TGF- $\beta$  in Renal and Cardiovascular Fibrosis: Mechanisms and Therapeutic Prospects*

**Nicholas J. Laping**

*Ion Regulation in Cell Organelles*

**Terry Machen**

*Involvement of the Cytoskeleton in Regulation of Vascular Smooth Muscle Contractile Function*

**Gerald A. Meininger**

*Lung Redox Homeostasis: Emerging Concepts*

**Marilyn P. Merker and Christopher A. Dawson**

*Afferent Regulation of the Stress Response: New Views and New Approaches*

**David Morilak**

*Differential Control of Sympathetic Outflow: A Window Into Central Mechanisms Mediating Patterned Autonomic Responses*

**Shaun Morrison and Gerard Gebber**

*eNOS Dysfunction in Vascular Disease*

**K.A. Pritchard, Jr.**

*Fever: The Role of the Vagus*

**Andrej A. Romanovsky**

*Regulation of Transporters and Channels by Binding Proteins*

**Daniela Rotin**

*Refresher Course: Integrating Molecular Biology Into the Physiology Curriculum*

**James C. Schadt**

*Intrahypothalamic Interactions: Another Level of Endocrine Regulation*

**Jeff Schwartz**

*Teaching Physiology Laboratories in the 21st Century*

**Dee Silverthorn**

*Complement Activation and Inhibition in the Cardiovascular System*

**Gregory I. Stahl and Scott Rollins**

*Mechanisms Regulating Endothelial Cell Barrier Function*

**Troy Stevens**

*Cellular Transport Systems in the Regulation of FFA Metabolism*

**Lorraine P. Turcotte**

*Apoptosis in Lung Pathophysiology*

**Bruce D. Uhal**

## Section-Sponsored Featured Topics

*Recent Advances in Comparative Solute Transport and Molecular Biology of Aquatic Organisms*

**Gregory A. Ahearn and Michele G. Wheatly**

*Muscle Fatigue*

**William Ameredes**

*Role of Excitatory Amino Acid Neurotransmission in Control of Cardiorespiratory Function*

**Susan M. Barman and Steve Mifflin**

*Phosphoinositide Signaling: Implications for Transport Regulation*

**Kim Barrett and Bonnie Blazer-Yost**

*Impact of Gender and Pregnancy on Renal Function*

**Christine Baylis**

*Control of Gene Expression: Exercise/Environment Stress*

**Frank W. Booth and Jacob Friedman**

*Diseases of Protein Trafficking and Expression*

**Dennis Brown and Janet Van Adelsburg**

*The Threshold of Consciousness in the Zoological Kingdom*

**Michael Cabanac**

*Proteomics and Functional Genomics in Gastrointestinal Tract Research*

**Robert Coffey**

*Mechanics of Cardiac Remodeling*

**James W. Covell**

*Emerging Concepts: Protein Kinase C Isozymes and the Regulation of Diverse Cell Response*

**Edward C. Dempsey and Paul A. Insel**

*Dietary Flavonoids and Cardiovascular Regulation and Pathophysiology*

**John D. Folts**

*Respiratory Control: Plasticity, Redundancy or Both?*

**Hubert V. Forster and David Gozal**

*Cell Physiology of VEGF*

**Michael Goligorsky**

*Medical Physiology Instructional Resources*

**Barbara Goodman**

*Regulation of Water and Electrolyte Homeostasis*

**Joey P. Granger and F.G. Knox**

*Role of Oxidative Stress in Cardiovascular-Renal Disease*

**Kathy Griendling and Christine Schnackenburg**

*Fatty Acid Metabolites and Signal Transduction in the Microvasculature: Genetic, Molecular, and Functional Mechanisms*

**David R. Harder**

*Alpha-Adrenergic Vasoconstriction in the Coronary Vasculature*

**Gerd Heusch**

*Neurohumoral Mechanisms of Hypertension*

**Carmen Hinojosa-Laborde and Cristof Klett**

*Plasticity of the Neuromuscular Synapse*

**Bernard J. Jasmin**

*MAP Kinase Pathways and the Cell Stress Response*

**Gary Johnson and David Sheikh-Hamad**

*Molecular and Cellular Regulation by Nitric Oxide*

**Paul Kubes and Matthew Grisham**

*New Frontiers in Central Autonomic Regulation:*

*Beyond the RVLM*

**Andrew J. Lawrence**

*Cardiovascular Regulatory Effects of Dietary Sodium, Calcium, and Potassium*

**Julian Lombard**

*Intracardiac Ganglia and Cardiac Function: Central and Peripheral Control*

**V. John Massari**

*Ventral Respiratory Group Neurons: Roles in Rhythm Versus Pattern Generation*

**Donald R. McCrimmon and Edward J. Zuperku**

*Physiology and Pathophysiology of Aquaporins*

**Soren Nielson**

*Salt and the Brain: Mechanisms by Which Dietary Salt Alters Autonomic Nervous System Regulation*

**John W. Osborn and Virginia L. Brooks**

*Oxygen Sensitive Ion Channels and Second Messengers*

**C. Peers**

*Endocrine Cells as Sensory Transducers*

**Helen Raybould and Patrick Tso**

*Models of Heart Failure*

**John Ross, Jr.**

*Biomechanics and Bioenergetics of Airway Smooth Muscles*

**Gary Sieck and Jeffrey Fredberg**

*Point/Counterpoint: Does Deconditioning Affect Blood Pressure Regulation?*

**Lawrence Sinoway and James A. Pawelczyk**

*Co-Evolution of Proteins and Their Aqueous Milieu: Messages from the Medium*

**George N. Somero**

*Role of Angiotensin in Central Neural Control of the Circulation*

**Alan F. Sved**

*Interstitial Cells of Cajal*

**Sean Ward and Kent Sanders**

*Imidazoline Receptors and Cardiovascular Control: Brainstem Mechanics and Therapeutic Potential*

**J. Michael Wyss**



# Experimental Biology

## Guest Society Symposia

### American Federation for Medical Research

*Bone Marrow Transplantation in Non-Malignant Diseases*

**George C. Tsokos and Seth Berney**

*Cancer Genetics*

**Peter Wiernik**

*Chemokines: From Bench to Bedside*

**Sudhir Gupta**

*Host Polymorphisms and Susceptibility to Infectious Diseases*

**Mark Goldsmith**

*Therapeutic Manipulation of Angiogenesis*

**Douglas Arenberg**

**AFMR Plenary Session:** Business Meeting, Junior Physician-Investigator Awards and Scientific Presentations, Outstanding Investigator Awards and Scientific Presentations, Trainee Travel Award Presentations

### North American Society for Biorheology

*Adhesion and Motility of Metastatic Cells*

**Cheng Dong and Kim Anderson**

### Biomedical Engineering Society

*Integrin Mechanics*

**K-L. Paul Sung and George A. Truskey**

*Microvascular Remodeling: Physical Stimuli and Molecular Regulation*

**Thomas C. Skalak**

*Tissue Engineering of Vascular Grafts for the Third Millennium*

**John A. Frangos and Nicolas L'Heureux**

### Microcirculatory Society

*President-Elect Symposium: Biochemical Signaling in the Control of Microcirculatory Function*

**Walter N. Duran**

*Microcirculatory Society Landis Award Lecture*

### Society for Experimental Biology and Medicine

*Low Saturated Fat, High Carbohydrate Diets: Effects on Triglyceride and LDL Synthesis, the LDL Receptor and Cardiovascular Disease Risk*

**Robert H. Knopp**

## Plan now to attend!

Joint APS/Scandinavian Physiological Society Meeting

**August 16-19, 2000**

**Stockholm, Sweden**

#### Organizing Committee:

SPS:	APS:
Gunnar Flemstrom	Gerald F. DiBona
Jan Henrikson	D. Neil Granger
Dag Klinnarsson	L. Gabriel Navar
Kerstin Olsson	John A. Williams
Eric Persson	
Jan Skarphedinsson	
Peter Thoren	

Proposed topics to include exercise and muscle physiology, cardiovascular and vascular smooth muscle, neurophysiology and membrane channels, receptor function and signal transduction, membrane transporters, role of endothelium in organ function, hypertension and inflammation (free radical cell injury).

APS will be supporting a Young Investigator Travel Award Program to assist those APS members participating in the joint meeting.

Further details will be available in future issues of *The Physiologist* and on the APS Web site (<http://www.faseb.org/aps>).

**Preliminary abstract deadline: May 1, 2000.**

## Conferences

# Determinants of Vigilance: Interaction Between the Sleep and Circadian Systems

1999 APS CONFERENCE

October 19-22, 1999

Radisson Bahia Mar Beach Resort, Ft. Lauderdale, Florida

### ORGANIZER:

Allan Pack, University of Pennsylvania

### STEERING COMMITTEE:

David Dinges, University of Pennsylvania

H. Craig Heller, Stanford University

Leszek Kubin, University of Pennsylvania

Adrian Morrison, University of Pennsylvania

Amita Sehgal, University of Pennsylvania

Robert Moore, University of Pittsburgh

Fred Turek, Northwestern University

Jerry Siegel, University of California, Los Angeles

**PURPOSE:** This meeting will explore the quantitative nature of the interaction of circadian biology and basic mechanisms of sleep and new potential areas of scientific opportunity. We will examine the neuroanatomical evidence of direct connections between neurons involved in the circadian clock and those involved in the sleep/wake cycle. There will be presentations about how the circadian system affects neuroendocrine function and how such neurohormones might affect sleep. We will address whether the interaction between the circadian and sleep system could occur at the level of regulation of gene transcription.

### TUESDAY, OCTOBER 19, 1999

Opening Reception

### WEDNESDAY, OCTOBER 20, 1999

#### Session 1: Evidence for Interaction Between Sleep and Circadian Systems

Chair: Robert Moore, Univ. of Pittsburgh

Speakers: Charles Czeisler, Harvard Univ.; Irene Tobler, Univ. of Zurich; Dale Edgar, Stanford Univ.; H. Craig Heller, Stanford Univ.

#### Session 2: Molecular Basis of the Circadian Clock

Chair: Fred Turek, Northwestern Univ.

Speakers: Amita Sehgal, Univ. of Pennsylvania; Larry Pinto, Northwestern University; Steven Reppert, Massachusetts General Hospital; Martha Gillette, Univ. of Illinois, Urbana

#### Session 3: Mechanisms Controlling Sleep: Networks and Systems

Chair: Adrian Morrison, Univ. of Pennsylvania

Speakers: Robert McCarley, Harvard Univ.; Ronald Szymusiak, UCLA; Larry Sanford, Univ. of Pennsylvania; Jerry Siegel, UCLA

### THURSDAY, OCTOBER 21, 1999

#### Session 4: Sleep Promoting Factors-Part One

Chair: Alexander Borbely, Univ. of Zurich

Speakers: Osamu Hayaishi, Osaka Bioscience Institute; Robert Greene, Harvard Univ.; James Krueger, Washington State Univ.

#### Session 5: Sleep Promoting Factors-Part Two

Chair: Alexander Borbely, Univ. of Zurich

Speakers: Allan Pack, Univ. of Pennsylvania; David R. Weaver, Massachusetts General Hospital

#### Session 6: Could Interaction be Neurohormonal or Neurochemical?

Chair: Irene Tobler, Univ. of Zurich

Speakers: Eve vanCauter, Univ. of Chicago; Rae Silver, Columbia Univ.

#### Session 7: Could Interaction be Neuroanatomical?

Chair: Gene Block, Univ. of Virginia, Charlottesville

Speakers: Robert Moore, Univ. of Pittsburgh; Clifford Saper, Harvard Univ.; Gary Aston-Jones, Univ. of Pennsylvania

### FRIDAY, OCTOBER 22, 1999

#### Session 8: Consequences of Interaction-Quantitative Aspects

Chair: Michael Menaker, Univ. of Virginia

Speakers: Alexander Borbely, Univ. of Zurich; Derk-Jan Dijk, Brigham & Women's Hospital; David Dinges, Univ. of Pennsylvania

#### Session 9: Consequences of the Interaction Between Circadian and Sleep Systems: Other Systems

Chair: Charles Czeisler, Harvard Univ.

Speakers: Mary Carskadon, Brown Univ.; Gregory Belenky, Walter Reed Army Inst. of Research; Steven Shea, Harvard Univ.; Virend Somers, Univ. of Iowa; Janet Mullington, Harvard Univ.

## DEADLINES

Advance Registration Deadline - August 30, 1999

### Andrea Gwosdow, From Bench Researcher to Science Consultant

As a systems physiologist and endocrinologist in 1999, I see a world of opportunity open to me. I am beginning the third year of business as President of Gwosdow Associates, Science Consultants. I am challenged daily with opportunities to explain science (physiology) and scientific principles to a variety of audiences, such as clinicians, fellow scientists, science teachers, lay audiences, and students. This path was not one I imagined when I began my academic training at the University of Florida in 1977. During my training, I planned a career in bench science and envisioned a career as a research scientist or professor.

I received my PhD from the Department of Metabolism, College of Veterinary Medicine at the University of Florida, Gainesville in June 1984, energetic and enthusiastic. My thesis work was on endocrine regulation of the hypothalamic-pituitary-adrenal axis during heat stress. I began my postdoctoral career in human thermal physiology at the John B. Pierce Foundation Laboratory, New Haven, CT in July 1984. During the course of the next three years, I worked on a number of projects that included the effects of different factors, such as exercise, clothing fabric, and work environment on metabolism and temperature regulation.

As my postdoctoral years ended, I decided to combine my human and animal work in thermal physiology, and in July 1987 I joined the research staff of the Pediatric Endocrine Unit at the Shriners Burns Institute, Boston, MA. Here I faced the challenge of setting up a laboratory to investigate endocrine regulators of inflammation during stress, with particular attention to burn trauma. This was an exciting new opportunity, which I enjoyed, because we were investigating the effects of cytokines, which were new at the time, and the potential for application to human medicine was always present.

After conducting successful experiments, I applied for a FIRST Award from NIH, which I received in January 1990. After receiving the award, I faced the challenges of conducting research as a PhD in a clinical department. To expand my research capabilities, I



Andrea Gwosdow discusses with a kindergarten class how body organs look and feel and how that helps each organ do its job.

moved to a more research-oriented department, the Endocrine Unit at Massachusetts General Hospital (MGH). Here I explored and mastered cellular, molecular biology, and biochemical techniques. I became interested in signal transduction and led my research in this direction. During these years, I was happy and content on the bench. I loved designing experiments, conducting them, discovering new data, and thinking critically. I also enjoyed working with and training students and fellows. In the third year of my FIRST Award, I began reapplying to NIH for the next grant. I applied numerous times over the next three years. Each time I was given different reason(s) why my grant was not “fundable.” I proceeded to ask for advice from my peers and colleagues and revise my grants accordingly. I reapplied several times, experienc-

ing disappointment and frustration. I knew I had to support myself at the end of my FIRST Award, which was rapidly approaching. I began looking at alternatives to bench research.

It was at this time that a friend showed me an article that appeared in an internal MGH publication. The article announced that MGH had received a large grant from the Howard Hughes Medical Institute to support its science education partnership with a local Boston public middle school, the Timilty Middle School. As a scientist, I had seen this program but was always too busy to become involved. Yet, over the years I had been a scientist to kids through the Boston Museum of Science’s Science-By-Mail program. I had always found working with students and teachers fun and rewarding.

On further investigation, I learned that the current coordinator of the program was leaving and a position was open. I found this partnership to be fascinating and was intrigued by the science teachers and staff who were committed to both teach science and help inner-city children develop dreams, goals and expectations for themselves. I applied for this position and was thrilled to learn that I was to be the new Co-Director of the program! This shifted my time on the bench to half time and I spent the next two years in this position.

During these years, I was a member of the Women in Physiology Committee and the Education Committee of the American Physiological Society. As a member of the Women in Physiology Committee, I was actively involved in setting up the APS Mentoring Program. It was satisfying to see this program emerge. When my term ended on the Women in Physiology Committee, I applied to work on the Education Committee.

When I started serving on the Education Committee, both the com-

mittee and APS were becoming more involved in outreach. The Education Committee was developing Local Outreach Teams. Together, with my own school work, I discovered that I loved interesting kids in science, teaching science, working with children and adults, working with teachers, putting together science education programs, such as Science Career programs, Family Science Nights, and starting a Family Education Center. These programs were noticed and received both local and national awards. National recognition of the Timilty Middle School as a National School of Excellence took us to the White House! It was thrilling to know that our program was a contributor to this award. Recognition also included invitations to speak at local and national meetings, serve on review boards, and write about our science education work (1, 2).

As a result of these successes, I found myself thinking of bigger goals. One of my goals was to bring science activities to a larger audience. To do this, I started networking with collaborators and colleagues in education. From these conversations, I realized that the best way for me to direct my interests in science education and use my science background would be to start my own company. This particular suggestion came from a contact who had worked in the Massachusetts Department of Education. With this suggestion, I gave myself time to network and explore my options. During this time, I took a business course through a local adult education program. At the end of this course, I wrote a business plan. I networked with education colleagues and was asked to conduct workshops. I spoke with a friend who was a medical writer, and took a medical writing exam. My high score gave me my first freelance medical writing assignments. A legal friend asked for my expertise on forensic information for particular cases. The more I spoke to people, the more encouragement I received. As I received

jobs, I realized I was in business!

In July 1997, I launched Gwosdow Associates, a science consulting firm that provides medical and scientific writing and editing and scientific support for educators, attorneys, and other industries. This enables me to combine my skills as a scientist, with my interest in science education. I have worked on a number of satisfying and challenging projects. Some are highlighted below:

### Education

Taught a 13 week-anatomy and physiology course to 4th through 12th grade health and science teachers.

Conducted parent workshops on nutrition and eating disorders, asthma and the lung, and sports fitness and injuries.

Organized and implemented elementary science curriculum to meet national and state science education standards.

Provided professional development seminars for teachers in the human body and related science topics.

### Medical and Science Writing

Wrote biology activities for high school students on topics such as nutrition, heart, lung, metabolism, and temperature regulation.

Provided submission-ready grants (including SBIR), manuscripts, and abstracts for scientists in biotechnology and pharmaceutical companies and professionals in academia.

Wrote conference monographs and materials for Continuing Medical Education groups.

Organized and edited a science education newsletter for teachers (grades K-12).

### Legal Consulting

Researched patents and prepared patent materials for biotechnology companies.

Provided scientific information to attorneys with regard to specific cases. This included interpreting laboratory data, explaining laboratory procedures,

and the procedures for obtaining, storing and collecting the data. Discussed relevant physiology and pathophysiology with attorneys on particular cases.

It has been an exciting and interesting road. Each year I face new challenges. This year, I am expanding my connections in industry (biotechnology, pharmaceuticals) and with the legal community. Academically, I have maintained my academic and hospital appointments by teaching at Harvard Medical School and at MGH's Institute for Health Professions.

Personally, my career change has given me the flexibility and freedom to manage my workload. With this flexibility comes the challenge of balancing work and family. I am now able to organize my workload so that I may spend more time with my children. With the freedom to explore new avenues of work, I have learned that I enjoy meeting people with varied backgrounds and experiences in science. As I approach the start of my third year in business I find myself content and happy with this career change, looking forward to many new and exciting challenges ahead.

For further information contact Andrea R. Gwosdow, PhD, Gwosdow Associates, Science Consultants, 115 High Haith Rd., Suite B, Arlington, MA 02476. ❖

### References

1. Soussou, H., Torres, B., Wells, D.T., Johnson, J., Harris, R., Weissman, G.K., and A. Gwosdow. Family Science Nights. *Science Scope* 22: 52-54, 1998.
2. Torres, B., Harris, R.F., Lockwood, D., Johnson, J., Mirabal, R., Wells, D.T., Pacheco, M., Soussou, H., Robb, F., Weissman, G.K., and A.R. Gwosdow. A Hospital/School Science Fair Mentoring Program for Middle School Students. *Adv. Physiol. Ed.* 18: S47-S54, 1997.

### APS Launches New Online Journal To Focus on Link Between Genes and Function

The American Physiological Society has announced the launching of *Physiological Genomics*. This new on-line journal was created to provide the scientific community with a vehicle for the rapid dissemination of information about genetic physiology—the influence of genes on physiological function. The journal was posted to the World Wide Web on July 15, 1999 at <http://www.physiolgenomics.org>

Articles for *Physiological Genomics* will be submitted, reviewed, and published on-line, with a paper version of the journal published as needed for archival purposes. The on-line submission and review process will be handled through the APS web site at <http://www.apscentral.org>. This utilization of World Wide Web information technology will not only speed up the publication process, it will also make it possible for researchers to provide readers with large data sets and to display results in dynamic formats that would be impossible to produce on a printed page.

“The existing and forthcoming DNA sequences of model organisms and human are proceeding at an expeditious pace, and the enormous task of linking genes to function has now begun,” wrote Editor-in-Chief Victor J. Dzau in the welcome editorial. Dzau is the Hershey Professor of Medicine and Chairman of the Department of Medicine at Harvard Medical School.

“New genetic knowledge coupled with existing and emerging molecular genetic, bioinformatic, and other biological techniques have paved the way for the next great challenge and opportunity for physiology and medicine: a

more complete understanding of whole organism functioning,” Dzau noted.

*Physiological Genomics* has been in development for two years. It was conceived by an international group of scientists from academia, government, and industry that convened at Cold Spring Harbor in February of 1997 to discuss “Genomics to Physiology and Beyond: How Do We Get There?” [see *The Physiologist* 40(5): 205, 1997; <http://www.faseb.org/aps/tphys97.htm>].

The group that met at the Banbury Conference Center at Cold Spring Harbor recommended a broad, international “Genes-to-Health Initiative,” including the development of single forum for rapid dissemination of new ideas and discoveries that would bring together investigators of multiple disciplines with a single focus of genetic physiology.

“*Physiological Genomics* intends to be a ‘one-stop shop’ while serving as a bridge linking genome sequencing and mapping to integrative physiology and clinical medicine,” Dzau said in his editorial.

“We now can study biological processes from the initial actions of genes within the nucleus through cellular processes to the functions of tissues and organs and ultimately to the workings of the organism,” Dzau pointed out, noting the enormous implications of this development for clinical medicine: “We will soon have the opportunity to assess individual variation in normal and disease phenotypes. Understanding the variation in these processes will elucidate how small yet different perturbations can produce the same overt disease in two individuals who

have dramatically different responses to treatment. This knowledge will ultimately lead to new therapies, diagnostic tools, and better overall health management.”

*Physiological Genomics* will publish the results of a wide variety of studies from human and informative model systems with techniques linking genes and pathways to physiology, from prokaryotes to eukaryotes. The Journal encourages the submission of research that links genes to cell replication, development, metabolic function, cell signal transduction and intracellular signaling pathways, tissue and organ function, and whole organism function. *Physiological Genomics* encourages the utilization of approaches ranging from expression profiling, assays for molecular interactions, protein mapping, functional predictions from structural assignments, natural and directed gene alteration, selective breeding studies, gene identification, and the assessment of gene-environment interaction. The Journal welcomes important new technologies and concepts that enhance the study of physiological genomics. The Journal encourages publication of new computational approaches, integrative models, and image analysis predictive of gene function. *Physiological Genomics* will also feature invited reviews and perspectives that contribute to enhancing the understanding of the scientific approaches and concepts that link genetics and physiology.

For more information about *Physiological Genomics*, please contact Margaret Reich, APS Publications Manager, at 301-530-7071, or [mreich@aps.faseb.org](mailto:mreich@aps.faseb.org).

### New Editor Appointed for the

#### *American Journal of Physiology: Lung Cellular and Molecular Physiology*

The Publications Committee is pleased to announce that Asrar Malik has been appointed to the editorship of the *American Journal of Physiology: Lung, Cellular and*

*Molecular Physiology*. His term will begin on January 1, 2000. D. Eugene Rannels, current editor, will complete his six-year term on December 31, 1999. ❖

### APS Awards Made at 50th Annual ISEF

On May 4-6, Philadelphia hosted the 50th Annual International Science and Engineering Fair, the “World Series” of high school science fairs. The ISEF originated in this city in 1950 and recently attracted renewed attention for its recognition of student science research in secondary schools through the 1998 film, “October Sky.” Presenting their work in more than 980 individual and team projects, over 1,600 students from around the world competed for more than \$2,000,000 in awards from academic, societal, governmental, and corporate sponsors.

Included among these sponsors were representatives of APS, charged with the difficult task of selecting a First Place and three Honorable Mention Awards from among more than 80 projects that fell within the broad domain of contemporary physiology. Chairing the APS team was Education Committee member **Andrew J. Lechner**, Professor of Physiology, Pharmacology, and Medicine at Saint Louis University School of Medicine. He was joined by local APS members **Steven P. Driska** and **James Heckman** of the Department of Physiology at Temple University School of Medicine,

**Kevin J. Foskett** from the Department of Physiology at the University of Pennsylvania School of Medicine, and **Leonard Rosenfeld** of the Physiology Department at Thomas Jefferson University. Another APS member, **Thomas M. Butler** from Thomas Jefferson University, was a judge in the Grand Awards category, underwritten by the major ISEF sponsor, Intel.

The APS judges narrowed a long list of potential winners to a dozen projects, whose authors were then interviewed at their posters in a setting very similar to that of an Experimental Biology meeting. Claiming the \$500 First Place APS Award before a SRO crowd of nearly 5,000 was **Nisha Nagarkatti**, a 17-year-old eleventh grader at Blacksburg High School in Blacksburg, VA, for her project, “Fas-Fas Ligand Interactions Play an Important Role in Successful Therapy of Cancer.” Joining Nagarkatti on the awards podium for Honorable Mention APS Awards of \$250 each were 15-year-old **Galia H. Porat**, a tenth grader at Cheltenham High School, Wyncote, PA (“The Nematode *C. elegans* as a Model for Investigating Multi-Drug Resistance to Cancer Chemotherapy”); **Rishikesh P. Dalal**, a

17-year-old junior at Shawnee Mission Northwest High School in Shawnee, KS (“Usefulness of Transplanted Hybrid Cells for Gene Therapy to Spinal Cord Motor Neurons”); and **Ahmed S. Mousa**, a 15-year-old ninth grader at Avon Grove High School in West Grove, PA (“Garlic, Antioxidants, and Your Blood Vessels”). In addition to their certificates and cash awards, each of these students also received a free subscription to *News in Physiological Science* and a variety of APS educational brochures that will also be sent to their sponsoring teachers for use in their classrooms. Rounding out the top 10 projects as judged by the APS delegation were: **John T. Rodriguez** from Niceville Senior High in Niceville, FL; **Connie Yueh-Lin Lo** from the Arkansas School of Mathematics and Sciences in Hot Springs, AR; **Songeeta Palchaudhuri** from Ramapo Senior High School in Spring Valley, NY; **Katherine Ann Brezina**, who attends Coral Reef Senior High School in Miami, FL; **Deepti Chauhan** from Susan Wagner High School in Staten Island, NY; and **Mark Ping Chao**, a student at James Robinson Secondary School in Fairfax, VA.

The APS judges were most impressed with the energy and resourcefulness shown by these students as each selected and completed their projects. Summarizing the sentiments of the five-member delegation, Lechner emphasized that the winners all demonstrated laudable independence and creativity, along with impressive scientific rigor during data collection and analysis. “These young men and women exuded genuine enthusiasm for their work while maintaining great poise, during an intensive interview process similar to what we hope our graduate students and postdocs experience in well-attended EB sessions,” he added.

The 51st ISEF is scheduled for next Spring in Detroit. APS members wish-



Judge Andrew J. Lechner presents the four winners of the International Science and Engineering Fair, Nisha Nagarkatti, Galia H. Porat, Rishikesh P. Dalal, and Ahmed S. Mousa.

## Education

ing to volunteer to serve as local judges should contact the Education Office.

Providing awards to high school students at the ISEF is only one of many ways in which APS supports pre-college science education. The APS supports pre-college science education from kindergarten through high school with programs designed to increase science teachers' content and pedagogical skills. Among the programs APS has for pre-college teachers are workshops and curricular materials for grade K-4 teachers through the "My Health, My World" program with Baylor University in Texas.

Grant-funded programs, such as the Frontiers in Physiology and Explorations in Biomedicine, support middle and high school teachers working with APS researchers in their laboratories during the summer. Explorations is specifically designed for teachers in Montana who teach pri-



The judges for the International Science and Engineering Fair were Leonard Rosenfeld, James Heckman, Kevin Foskett, Steven Driska, and Andrew Lechner.

marily Native American students. Frontiers, which is offered to teachers nationwide, also supports local workshops on physiology topics for middle and high school teachers.

For more information about APS Education Programs, email: [education@aps.faseb.org](mailto:education@aps.faseb.org) or visit our Web site at <http://www.faseb.org/aps/Education.html>.

### Mass Media Science and Engineering Fellowship Applications Being Accepted

#### BACKGROUND:

Applications are currently being accepted for an APS sponsored American Association for the Advancement of Science (AAAS) Mass Media Science and Engineering fellow. This individual will spend a summer working in the newsroom of a newspaper, magazine, radio or television station, sharpening his or her ability to communicate complex scientific issues to nonscientists and helping to improve public understanding of science.

#### DUTIES:

The APS-sponsored fellow will spend 10 weeks helping to cover science and technology issues. AAAS will arrange placement at a participating media outlet as part of the selection process. The fellowship will include travel to Washington for an advance orientation to journalism and an evaluation session at the conclusion of the assignment, as well as travel to the job site and a weekly stipend based upon local cost of living.

#### ELIGIBILITY:

You must be currently enrolled as a graduate or postgraduate student of physiology or a related discipline.

#### APPLICATION INFORMATION:

Application forms are available from Alice Ra'anan in the APS Office of Public Affairs at the address below. In addition to the completed form, applicants must submit a current résumé, at least one three- to five-page writing sample directed to the general public, transcripts of graduate and undergraduate work, and three letters of recommendation. Two recommendation letters should be from faculty members, and the third should be a personal reference. The selection process is designed to seek out qualified candidates especially from underrepresented communities, including African-Americans, Hispanics, and Native Americans, as well as scientists with disabilities.

#### DEADLINE & CONTACT:

The application deadline is **January 15, 2000**. For more information, contact Alice Ra'anan, APS Office of Public Affairs, 9650 Rockville Pike, Bethesda, MD 20814-3991. Tel: 301-530-7105; fax: 301-571-8305; e-mail: [araan@aps.faseb.org](mailto:araan@aps.faseb.org).

### House, Senate Vote Animal Welfare Funding Increases

In June both the House and the Senate passed FY 2000 agriculture appropriations legislation that provided increases for Animal Welfare Act enforcement through USDA's Animal and Plant Health Inspection Service (APHIS).

The House bill included \$10.2 million for AWA enforcement, or \$1 million more than the FY 1999 funding level and \$.5 million more than the administration's request. The Senate provided \$11.2 million, an increase of \$2 million over FY 1999 and \$1.5 mil-

lion more than the administration's request.

The final FY 2000 funding level will be determined by a conference between the House and Senate. ❖

### Senate Acts to Toughen Penalties for Animal Enterprise Crime

Federal penalties for crimes of violence against animal research would be increased under a provision added to the juvenile crime bill (S. 254). The "Animal Enterprise Terrorism and Ecoterrorism" amendment, jointly sponsored by Senators Orin G. Hatch (R-UT) and Dianne Feinstein (D-CA), was approved by the Senate on May 20 on a vote of 85-13.

The amendment strengthens the provisions of the Animal Enterprise Protection Act of 1992 and was one of nearly 200 amendments to the juvenile crime bill. Pro-research groups, such as Americans for Medical Progress, the National Animal Interest Alliance, and the National Association for Biomedical Research, applauded the passage of the Hatch-Feinstein amendment. However, S. 254, which is the underlying legislation, has been denounced by organizations ranging from the National Rifle Association (which opposes the new gun control measures) and the American Civil Liberties Union (which opposes the harsher treatment of juvenile offenders).

The Hatch-Feinstein amendment increases penalties for individuals who violate the Animal Enterprise Protection Act (AEPA). It calls for fines as high as double the amount of actual

damages inflicted for basic violations of the AEPA, along with prison terms of up to five years. For aggravated offenses that cause serious bodily injury, the punishment would continue to be prison terms of up to 10 years. Crimes involving fire or explosives could entail sentences of 5 to 20 years in prison, and the death penalty could be imposed if anyone is killed during an attack.

Other provisions of the Hatch-Feinstein amendment include the creation of an FBI clearinghouse for information about animal rights terrorism and its perpetrators. This information would then be made available to federal, state, local, and international law enforcement agencies. The measure also makes it a felony to use the Internet to disseminate information about how to make explosive devices. In a floor statement, Sen. Hatch said that this provision was needed to address the growing use of the Internet by groups such as the Straight Edge and the Animal Liberation Front to encourage illegal activities such as bomb-making.

The Straight Edge is the name for a youth gang that has been particularly active in Utah. Its members observe a strict code of behavior that includes avoiding sex, drugs, alcohol, and tobacco, and often also meat and other animal products. Some have also been

linked to animal rights violence. One Straight Edger has been convicted of arson for firebombing a fur farmers' cooperative, and others are suspected in at least one murder and in attacks on restaurants, a leather store, and fur businesses.

The juvenile justice bill now goes to the House of Representatives for further action. In order for the Hatch-Feinstein amendment to become law, the House must adopt it or a similar provision, and any differences between the two measures must then be resolved through a House-Senate conference committee.

Meanwhile, Minnesota Governor Jesse Ventura signed into law a measure instituting stiffer civil penalties against individuals who unlawfully release animals that are being used for science, research, commerce or education. The Minnesota legislature passed legislation toughening the sanctions of a 1990 statute in response to an incident in April in which more than 100 animals being used for biomedical research at the University of Minnesota were stolen. The Animal Liberation Front claimed responsibility for the vandalism, which did some \$2 million in damages in terms of stolen animals, damaged or destroyed equipment, data, and other property. ❖



### House Committee Will Not Delay FOIA Access to Data

Legislative efforts to stave off implementation of regulations mandating public disclosure of data from federally funded research projects have thus far been unsuccessful.

At issue is a provision that was included in last year's omnibus appropriations bill that requires the Office of Management and Budget to issue new regulations this year that will make data from federally-funded research subject to disclosure under the Freedom of Information Act (FOIA). Sen. Richard Shelby (R-AL) sponsored the provision as a result of a long-running but eventually successful effort by the coal industry to gain access to research data funded by the Environmental Protection Agency and used to justify new pollution standards. Shelby offered the new FOIA language to create a simple procedure for public access to data produced by federally funded research. Shelby remains a staunch advocate of the plan despite objections that the FOIA law is the wrong tool to use.

In February the OMB issued an Advanced Notice of Proposed Rulemaking that would have allowed the public to use FOIA to gain access to "published research findings produced under an award that were used by the Federal Government in developing policy or rules." This was narrower than the language in the bill and satisfied

neither supporters or opponents. Shelby complained that the regulation interpreted the law too narrowly. On the other hand, many scientists and scientific societies noted in their comments to OMB that several key of the key terms in the proposed rule were still subject to broad interpretation and might lead to disruptions of research. In particular, scientists raised numerous concerns about potential for violations of the confidentiality of patient records and the intellectual property rights of scientists. Concerns were also raised that vulnerability to FOIA requests might make industry unwilling to provide funding to researchers who also receive federal grants and that there was a danger that FOIA requests might be used to disrupt or harass researchers working in controversial fields.

Because the new regulation was mandated by law, efforts were also made to seek legislative relief. In January, Rep. George Brown (D-CA) introduced H.R. 88, which would repeal the Shelby provision.

Although many observers thought that a repeal of the Shelby language would eventually be needed, some thought that the best interim strategy would be to delay its implementation. In the spring Representatives James Walsh (R-NY) and David Price (D-NC) decided to offer an amendment to the

House's FY 2000 Treasury-Postal Appropriations bill that would have delayed implementation of the FOIA provision by one year. Action on Treasury funding bill was postponed several times while efforts were made to address other controversies in the legislation. Unfortunately, those delays gave supporters of the Shelby provision an opportunity to muster their forces, and on July 13, the Walsh-Price amendment was voted down in committee.

Two days later on July 15, a House Science Subcommittee held a hearing on Rep. Brown's H.R. 88, during which the pros and cons of using FOIA to give the public access to federally-funded research data were debated by articulate representatives from both sides of the issue. Those speaking against the Shelby law included Harold Varmus, NAS President Bruce Alberts, and Rep. Rush Hold (D-NJ), who is a physicist. Speaking in favor of it were former OMB director James Miller, FOIA expert James O'Reilly, and Robert Hahn of the center for Regulatory Studies.

OMB is expected in late July or early August to issue a second draft the proposed FOIA regulations. Those who have reviewed a draft of the regulation say that in the version they had seen many of the bothersome issues raised during the first comment period have

### Congressional Science Advocate George Brown Dies

Representative George Brown (D-CA), a well-known Congressional advocate for science, died July 15 in Washington, DC. Brown, who was 79, was in his 18th Congressional term. His death was attributed to complications that arose from an infection following cardiac surgery in May. At the time of his death he was the oldest member of the US House of Representatives.

Trained as an engineer, Brown had been the chairman of the House Science Committee and a tireless advocate for scientific research. In January, Brown introduced H.R. 88, a bill that would have repealed the Shelby amendment, which mandated that data from federally funded research be disclosed to the public under the Freedom of Information Act.

(See related article.) A previously scheduled Science subcommittee hearing on that legislation was held July 15.

Brown was also a member of the House Agriculture Committee and was very much involved in animal welfare issues. Brown was involved in crafting the 1985 amendments to the Animal Welfare Act and supported several so-called "pet protection" bills that would restrict researchers' access to non-purpose-bred dogs and cats. In reporting Brown's death, the National Association for Biomedical Research said in its *NABR Update* of July 19 that while "NABR did not always agree with his positions, Rep. Brown was accessible and interested in working with the scientific community." ❖

been favorably resolved. These include narrowing the definition of “data” to mean raw underlying information necessary to validate research findings while excluding information that would violate the privacy rights of research subjects or the intellectual property rights of researchers. In addition, the

term “published” has been defined as the point when research findings are published in a peer-reviewed journal or when a federal agency cites the research findings in a proposed rule. In addition, the term “rule” has been defined as an agency statement of general applicability and future effect, which the agency

intends to have the force and effect of law. Concerns remain that the revised rule still will not address the potential for FOIA to be used as a tool to harass researchers. In addition, it is uncertain whether the draft will undergo further revisions before being made public ❖

### New Zealand Will Not Grant Rights to Great Apes

Lawmakers in New Zealand refused to pass a measure that would have granted certain legal rights to great apes, according to the Associated Press. A group known as the Great Ape Project of New Zealand had recommended that New Zealand become the first nation to grant legal rights to great

apes by passing an amendment to a pending animal welfare bill.

One member of the Great Ape Project of New Zealand, who is a professor from Massey University, said that his group supported the bill on the grounds that “since great apes had the same cognitive ability and emotional complexity

as young children, they should have similar legal standing.” However, a parliamentary committee panel refused to accept the amendment, and its chairman told AP, “We do not agree with the proposed great apes amendment as it would change the intent and approach of the bill from welfare to rights.” ❖

### Budget Politics Overshadow FY 2000 Funding

As Congress returned from its July 4th recess, prospects for NIH funding were still tied to the debate over larger budget issues.

The Republican leadership, particularly in the House, wanted to complete action on all 13 appropriations bills by August, so there was pressure on all the Appropriations subcommittees to draft legislation. The problem for NIH’s champions was that they were being asked to craft FY 2000 spending plans using under budget-reduction spending caps that limit the amount of funds available for domestic discretionary programs, such as the NIH. The Republican leadership insisted that Congress would continue to abide by those caps despite the fact that the Congressional Budget Office (CBO) and Office and Management and

Budget (OMB) reported budgetary surpluses even larger than previously predicted.

Both Chairman John Porter (R-IL) of the House Appropriations Subcommittee on Labor-HHS-Education and Chairman Arlen Specter (R-PA) of the Senate Labor-HHS-Education Appropriations panel declared earlier in the year that they would seek another \$2 billion increase for NIH in FY 2000. However, it may be impossible for Specter and Porter to make good on those promises if their subcommittees must draft legislation under the current spending caps. To provide an idea of the magnitude of the problem, it was estimated that the Labor-HHS Subcommittees would need an additional \$10-12 billion just to be able to fund programs at their FY 1999

levels.

Sen. Specter’s subcommittee was scheduled to mark up its legislation on July 13, and Rep. Porter’s panel was scheduled to mark up on July 15, but both sessions were postponed repeatedly. According to some sources, Labor-HHS funding bills might still be drafted at this stage as an interim measure to demonstrate progress. However, it is generally hoped that final decisions on NIH’s FY 2000 funding level will not be made until larger questions about the shape of next year’s budget have been resolved. Observers remained cautiously optimistic that at that point, additional funds would be made available for high priority programs, and that NIH would be on the list of favored programs. ❖

## People & Places

### Paape Recognized by USDA

Research Physiologist Max Paape was recognized by the US Department of Agriculture Secretary Dan Glickman for his exceptional research and leadership in controlling mastitis in dairy cattle. Paape is with the department's Agricultural Research Service (ARS).

"Dr. Paape's research and leadership have resulted in major advances in the control of nationally important livestock diseases, particularly bovine mastitis," said ARS administrator Floyd P. Horn. Mastitis costs the US dairy industry more than \$2 billion annually.

"Among his many contributions, he developed a procedure for diagnosing infected cows now used by regulatory agencies worldwide as an index of milk

quality," Horn added. He said the procedure, which counts somatic cells in cows' milk, "is now an industry standard."

Paape went on to develop methods for isolating neutrophils—white blood cells that ingest and kill bacteria—from other cells in the milk and to demonstrate their key role in preventing mastitis, especially after calving. This stimulated industry interest in using immune system messengers, or cytokines, to stimulate cows' neutrophils after calving.

He was the first to demonstrate that differences existed among cows in the ability of their neutrophils to kill bacteria and that this influenced the animal's

susceptibility to mastitis.

As team leader for mastitis research in the ARS immunology and Disease Resistance Laboratory in Beltsville, MD, Paape had been awarded four research associates to work on projects. He has also served as research advisor to two doctoral and nine master's degree candidates.

Internationally recognized for his expertise in mastitis, he interacts with laboratories worldwide in coordinating scientific investigations.

Paape is an adjunct professor at the University of Maryland, and the University of Ghent, Belgium, from which he received an honorary doctorate in 1997. ♦

### 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

Research Career Enhancement Awards  
Teaching Career Enhancement Awards  
Shih-Chun Wang Young Investigator Award  
Arthur C. Guyton Awards in Integrative Physiology  
Giles F. Filley Memorial Awards for Excellence in  
Respiratory Physiology and Medicine  
Lazaro J. Mandel Young Investigator Award  
Experimental Biology 2000 Registration  
Procter & Gamble Professional Opportunity Awards  
Caroline tum Suden/Francis A. Hellebrandt  
Professional Opportunity Awards  
Liaison With Industry Award for Novel Disease Models  
John F. Perkins, Jr., Memorial Fellowships  
NIDDK Travel Fellowships for Minority Physiologists for EB Meeting  
Orr E. Reynolds History Award  
William T. Porter Fellowship Awards  
APS Postdoctoral Fellowship in Physiological Genomics  
AAAS Mass Media Science and Engineering Fellowship

#### Next Deadline

August 15  
October 15  
November 1  
November 1  
November 1  
November 8  
November 8  
November 8  
November 8  
November 15  
November 16  
December 1  
January 15  
January 15  
January 15

### Nicoll Awarded Bristol-Myers Squibb Grant

**Roger Nicoll**, Professor of Cellular and Molecular Pharmacology and Physiology at the University of California, San Francisco (UCSF), will be supervising a \$500,000 no-strings-attached grant from Bristol-Myers Squibb. The Unrestricted Neuroscience Research Grant is to support research on long-term potentiation (LTP), a phenomenon thought to underlie learning.

The grant was announced by Perry Molinoff, Vice President of Neuroscience Drug Discovery at Bristol-Myers Squibb Company, who said, "Roger Nicoll is among the leading cellular neurophysiologists in the world. He always tackles the hard questions vigorously and he is currently providing insights in how LTP works. The unrestricted nature of this grant will allow Dr. Nicoll the freedom to pursue innovative experimentation."

"This grant will have a major impact on my research program," Nicoll said. "In the past my research has been primarily electrophysiological in nature. Many of the questions which we now address require technologies that are new to the lab. In particular, much of the future research will require sophisticated imaging of synapses and the distribution of specific proteins at synapses. The unrestricted funds will allow me to purchase this expensive equipment, which would be impossible to acquire with existing funding."

In Nicoll's laboratory, molecular scientists and organic chemists are working closely on a rational approach to the

design of drug therapies. The long-term goal of the department is to develop a "new pharmacology" based on the latest advances in both protein structure and organic synthesis. By elucidating the detailed structure of key proteins, specific drugs with novel therapeutic effects can be synthesized.

Nicoll has been an innovator throughout his career. At the National Institute of Mental Health, he pioneered the use of electrophysiological approaches to study the pharmacology of synaptic transmission in the nervous system—the specialized contact made by one nerve cell with another.

In 1973, at State University of New York, Buffalo, he examined the physiology of reticular formation (the structure of cell networks) and the pharmacology of synaptic inhibition mediated by the chemical messenger GABA (gamma-aminobutyric acid). Through this work, he discovered the selective actions of barbiturates and various anesthetics on GABA receptors, which helped explain the basis for the sedative and hypnotic effects of these drugs on the brain.

In 1975, he set up his own laboratory at UCSF and quickly adopted and perfected the newly developed technique of using brain slices for probing the electrical activity of living brain cells. Much of his effort has focused on studying LTP, in which the communication between nerve cells is enhanced for a very long time after the cells have previously exhibited brief, repetitive electrical activity of the sort that might be

expected to occur in response to a new experience. He has succeeded in describing how key molecules at the synapse are involved in this process and by implication in learning and memory.

The neuroscience grants program is one of six unrestricted biomedical research grants programs administered by the Bristol-Myers Squibb Foundation. The others support research in cancer, cardiovascular/metabolic diseases, infectious disease, nutrition and orthopaedics. Since this unique Grants Program was initiated in 1977, the company has contributed over \$80 million to 170 academic research institutions throughout the world.

Each of the six Bristol-Myers Squibb unrestricted grants programs also consists of an annual award for distinguished achievements to an individual researcher. As supervisor of an unrestricted neuroscience grant, Nicoll automatically becomes a member of an independent Selection Committee that selects the winner of the annual \$50,000 Bristol-Myers Squibb Award for Distinguished Achievement in Neuroscience Research.

Bristol-Myers Squibb is a diversified, research-based health and personal care company whose principal businesses are pharmaceuticals, consumer products, nutritionals and medical devices. The company is also a leader in consumer medicines, orthopaedic devices, ostomy care, wound management, nutritional supplements, infant formulas, and hair and skin care products. ❖

### Deceased Members

Bruno Balke	Grand Junction, CO	Wallace G. Frasher	Dallas, TX
Paul C. Churchill	Detroit, MI	Harper K. Hellems	Jackson, MS
William W. Douglas	Hamden, CT	Humberto Fernandez-Moran	Stockholm, Sweden
Irving Y. Fishman	Grinnell, IA	Richard W. Schayer	Spring Valley, NY
Roy P. Forster	Hanover, NH	William A. Weber	Pasadena, CA

### Kemnitz Named Director of Wisconsin Regional Primate Research Center

**Joseph W. Kemnitz**, a University of Wisconsin-Madison Medical School professor and an authority on the physiology of aging, has been named director of the Wisconsin Regional Primate Research Center (WRPRC).

Kemnitz becomes the fourth director of the center he has led on an interim basis since the fall of 1996. He assumes the directorship of a key university research center with a staff of 133 people, an annual budget of nearly \$15 million, and world-renowned programs of research in developmental and reproductive biology, AIDS, aging and primate conservation, among others.

Previously, Kemnitz served as a senior scientist and associate director of the center, having joined the center staff in 1976 as a research associate. In addition, he holds an appointment as a professor of physiology.

In naming Kemnitz to lead one of UW-Madison's largest and most visible laboratories, Graduate School Dean Virginia Hinshaw says Kemnitz possesses a combination of dedication, proven leadership skills and a thorough-knowledge of the center's research potential.

"There are only eight primate centers in the United States and such centers are viewed as national research resources," Hinshaw says. "They meet a critical need for research on diseases which impact our nation and world. Directing

such a center requires strong dedication, broad knowledge and the ability to work with many different people—all skills that Joe Kemnitz certainly has."

Supported primarily by the National Institutes of Health through an annual base grant of \$4.5 million, the center is one of eight such centers nationwide. It houses nearly 1,200 primates of two species, rhesus macaques and common marmosets, and serves as a core research facility for scientists from UW-Madison and elsewhere.

Kemnitz, with three degrees from UW-Madison, including a doctorate in physiological psychology, is an expert on eating behavior, obesity and its effects on blood sugar, and the relationship between reproductive function and energy regulation. For nearly a decade, Kemnitz has studied the influence of restricted but healthy diets on metabolism and aging.

As an administrator, Kemnitz directed the center through one of its most difficult periods when the center, under intense public scrutiny, moved primates from an aging facility at Vilas Park Zoo to the Tulane Regional Primate Research Center and the Wild Animal Orphanage in San Antonio, Texas.

During the same period, Kemnitz helped the center grow and modernize. He led a push to obtain significant NIH funding and support for a major building addition to be completed this fall.

Under Kemnitz's direction, the center's research programs have expanded, and its growing core programs continue to improve support for the many scientists who use the center. More than 200 scientists from UW-Madison and around the country conduct research there.

Kemnitz says his top priority will be to extend the WRPRC record of first-rate biomedical research and studies of basic primate biology. "This entails attracting outstanding scientists and maintaining an integrated, multidisciplinary program that efficiently utilizes available facilities and resources," he says.

Kemnitz says we now live in a golden age of biology and biomedicine, and numerous critical advances in our understanding evolve from research with non-human primates. He cited watershed studies of embryonic stem cells, cells with the potential to grow into any tissue in the body, as one key example. That work in humans, Kemnitz noted, was made possible by primate studies conducted at the WRPRC.

"We are also learning about the biology of aging, the genetics of the immune system, vaccines, and about the complex interactions of brain function, experience and behavior. These are examples of current strengths in our program that must be maintained." ❖

## 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.

## People & Places

Transferring from Lady Davis Institute for Medical Research, Montreal, Quebec, Canada, **Isam Abu-Amarah** has joined the Department of Research, University of Loyola, Hines VA Hospital, Hines, IL.

**Nancy M. Aguilar** has affiliated with the Scripps Institute of Oceanography, University of California-San Diego, La Jolla, CA. Previously, Aguilar was with the School of Natural Sciences, Hampshire College, Amherst, MA.

**S. Kelly Ambler** is presently associated with the Division of Cardiology, Denver Health Medical Center, Denver, CO. Ambler was with the Department of Pharmacology and Physiological Sciences, University of Chicago, Chicago, IL.

**Robert J. Anderson** has joined the Department of Medicine, University of Colorado Health Science Center, Denver, CO. Anderson formerly was Professor of Medicine and Chief of Medical Services, VA Hospital, Denver, CO.

Recently, **Helen A. Baghdoyan** has accepted a position with the Department of Anesthesiology, University of Michigan, Ann Arbor, MI. Prior to her new position, Baghdoyan was affiliated with the Department of Anesthesia, Pennsylvania State University College of Medicine, Hershey, PA.

Having affiliated with the Department of Internal Medicine, Division of Gastroenterology, Rush University Medical Center, Chicago, IL, **Ali Banan** has left the Department of Medicine, Division of Gastroenterology, Loyola University Medical Center-Chicago, Maywood, IL.

**Michele Lynn Barnard** has joined the NIH Center for Scientific Review, Pathophysiological Science, Initial Review Group, Bethesda, MD, as a Senior Staff Fellow. Prior to her new assignment, Barnard was with the Laboratory of Kidney & Electrolyte Metabolism, National Heart, Lung, and Blood Institute, NIH, Bethesda, MD.

**A. Lorris Betz** is currently the Senior Vice President for Health Sciences, and the Dean, School of Medicine, Moran Eye Center, University of Utah, Salt Lake City, UT. Betz previously left the Department of Pediatrics, Surgery, and Neurology, University of Michigan, Ann Arbor, MI.

**Brandon James Biesiadecki** is currently a PhD student in the Department of Physiology and Biophysics, Case Western Reserve University, Cleveland, OH. Previously, Biesiadecki was a Masters student in the Department of Physiology and Molecular Medicine, Medical College of Ohio, Toledo, OH.

Having moved from the Weis Center for Research, Pennsylvania State University, Danville, PA, **George Warren Booz** has joined the Cardiovascular Research Institute, Texas A&M University, College of Medicine, Temple, TX.

**Claude Bouchard** has accepted the position of Executive Director of the Pennington Biomedical Research Center, Baton Rouge, LA. Formerly, Bouchard was Professor, Physical Activity Science Labs, PEPS, Ste-Foy, Quebec, Canada.

**Joann D. Bradley** is now the Director of the Department of Program Management, Collateral Therapeutics, San Diego, CA. Bradley was formerly with the Department of Pharmacology, Alliance Pharmaceutical Corporation, San Diego, CA.

**Heddwyn Lisa Brooks** has recently affiliated with the Laboratory of Kidney and Electrolyte Metabolism, National Heart, Lung and Blood Institute, NIH, Bethesda, MD. Brooks was previously associated with the Department of Physiology, University of Arizona, Tucson, AZ.

Having joined Smith-Kline Beecham Pharmaceuticals, Clinical Research Unit, Addenbrooke's Centre for Clinical Investigation, Cambridge, UK, as a Unit Director, **John Brown** recently left the Physiological Laboratory, University of Cambridge, Cambridge, UK.

Moving to the Department of Radiation Oncology, Massachusetts General Hospital, Boston, MA, **Kevin G. Burton** has left the Science & Technology Center, Carnegie Mellon University, Pittsburgh, PA.

Recently affiliating with the Department of Pharmacology, Duke University Medical Center, Durham, NC, **Ray Andrew Caldwell** has moved from the Cystic Fibrosis Center, University of North Carolina, Chapel Hill, NC.

Accepting a position with the Center for Human Nutrition, University of Colorado Health Science Center, Denver, CO, **L. Arthur Campfield** has left Metabolic Diseases Research, Hoffman-La Roche, Inc., Nutley, NJ.

**Anthony M. Carter** has joined the Department of Physiology and Pharmacology, University of Southern Denmark, Odense, Denmark. Carter was previously Docent, Department of Physiology, University of Odense, Denmark.

**William W. Chin** has accepted a position as Vice President, Gene Regulation Research, Eli Lilly & Company, Lilly Research Laboratories, Indianapolis, IN. Prior to his new appointment, Chin was with the Department of Medicine, Brigham & Women's Hospital, Boston, MA.

**Raymond J. Clark** was with the Department of Biological Science, Idaho State University, Pocatello, ID. Recently, Clark became affiliated with the Department of Medicine, University of California, San Diego, La Jolla, CA.

**David Michael Conway** was formerly with the Department of Aviation and Space Education, Oklahoma State University, Stillwater, OK. Currently, Conway is Director and Chair, Department of Aerospace, Southeastern Oklahoma State University, Durant, OK.

Accepting an assignment with Schering-Plough, Kenilworth, NJ, **Michael Corboz** subsequently left the Department of Physiology, University of South Alabama College of Medicine, Mobile, AL.

Having accepted a position with the Department of Physiology and Biophysics, Indiana University, Purdue-University Indianapolis School of Medicine, Indianapolis, IN, **Tamer Coskun** has moved from the Department of Physiology, Marmara University School of Medicine, Haydarpasa, Istanbul, Turkey.

Formerly affiliated with Meakins-Christie Laboratories, McGill University, Montreal, Canada, **Elizabeth Asenath Cowley** has recently moved to the Department of Physiology and Biophysics, Dalhousie University, Halifax, Canada.

## People & Places

Affiliating with the Department of Biology, Marquette University, Milwaukee, WI, **Edward P. Debold** has left the Department of Exercise Science, University of Massachusetts, Amherst, MA.

Transferring from the Department of Exercise and Sport Sciences, Ithaca College, Ithaca, NY, **Steven T. Devor** has affiliated with the Department of Sport and Exercise Science, Ohio State University, Columbus, OH.

**J. David Dickman** has affiliated with the Research Department, Central Institute for the Deaf, St. Louis, MO. Previously, Dickman was with the Department of Surgery, University of Mississippi Medical Center, Jackson, MS.

**James H. Fisher** has accepted a position with the Department of Pulmonary and Critical Care, Denver Health Medical Center, Denver, CO. Previously, Fisher was with the Department of Pulmonary and Critical Care, Wayne State University School of Medicine, Detroit, MI.

**Martin W. Fryer** has joined the Drug Toxicology Evaluation Section, Therapeutic Goods Administration, Woden, Australia. Previously, Fryer was associated with the School of Physiology and Pharmacology, University of New South Wales, Australia.

Accepting a position with the Department of Kinesiology, McMaster University, Hamilton, Ontario, Canada, **Martin Joseph Gibala** has left the Copenhagen Muscle Research Center, Rigshospitalet, Copenhagen, Denmark.

**Brydon J.B. Grant** has accepted a position with the Department of Medicine, Pulmonary Division, Critical Care, SUNY-Buffalo, Buffalo, NY. Grant has moved from the Pulmonary Division, Erie County Medical Center, Buffalo, NY.

Having affiliated with the Department of Product Development, AMBI Inc., Purchase, NY, **Danielle Greenberg** has moved from the Department of Psychiatry, Cornell University Medical College, White Plains, NY.

**Mark Haas** joined the Department of Pathology, Johns Hopkins University School of Medicine, Baltimore, MD. Previously, Haas was associated with the Department of Pathology, University of Chicago, Chicago, IL.

**Christopher Allen Hathaway** has joined the Department of Internal Medicine, University of Iowa Hospitals and Clinics, Iowa City, IA. Hathaway was previously associated with the Department of Physiology and Pharmacology, University of South Dakota School of Medicine, Vermillion, SD.

Having left the Department of Cardiovascular Biology, Rhone-Poulenc, Collegetown, PA, **Christopher Lars Heran** is currently with the Department of Exploratory Biopharmaceuticals and Drug Delivery, Bristol-Myers Squibb, New Brunswick, NJ.

**Denise Carol Hocking** has accepted a position with the Department of Pharmacology and Physiology, University of Rochester, Rochester, NY. Hocking recently left the Department of Physiology and Cell Biology, Albany Medical College, Albany, NY.

**Richard A. Howlett** has joined the Department of Medicine, University of California, San Diego, La Jolla, CA. Prior to his new assignment, Howlett was with the Department of Human Biology and Nutritional Sciences, Guelph, Ontario, Canada.

Accepting a position with the Department of Pharmacology and Neuroscience, Albany Medical College, Albany, NY, **Lauren Jacobson** has left the Division of Endocrinology, Harvard Medical School, Boston, MA.

Recently, **Shane B. Kanatous** moved to the Department of Medicine, University of California, San Diego, La Jolla, CA. Prior to his move, Kanatous was with the Department of Marine Biology, Texas A&M University, Galveston, TX.

Having accepted a position with the Department of Medical Service, GV Sonny Montgomery-VA Hospital, Jackson, MS, **Kent Alan Kirchner** has also maintained his affiliation with the Department of Medicine, University of Mississippi Medical Center, Jackson, MS.

**Matthew J. Kluger** has accepted a position with the Medical College of Georgia as Vice President, Research and Dean of the Graduate School, Augusta, GA. Formerly, Kluger was the Director of Pathophysiology, Lovelace Respiratory Research Institute, Albuquerque, NM.

**Donald E. Kohan** recently became Chief, Division of Nephrology, Department of Medicine, University of Utah, Salt Lake City, UT. Kohan previously was with the VA Medical Center, Salt Lake City, UT.

**Suzanne Kohin** recently accepted a position with the Department of Medicine, University of California-San Diego, San Diego, CA. Kohin was previously with the Department of Biology, University of California-Santa Cruz, Santa Cruz, CA.

**Min Goo Lee** has affiliated with the Department of Pharmacology, Yonsei University College of Medicine, Seoul, Korea. Lee was with the Department of Physiology, University of Texas Southwestern Medical Center, Dallas, TX.

Affiliating with ARPE, University of Paris, Vincennes, France, **Fabiola Leon-Velarde** has moved from the Department of Physiology, University Cayetano Heredia, Lima, Peru.

**Chun-Chin T. Liang** has joined the Department of Intramural Research Affairs, National Health Research Institutes, Taipei, Taiwan. Formerly, Liang was with the Gerontology Research Center, National Institute on Aging, NIH, Baltimore, MD.

**Jose Llanos-Quevedo** has moved from the Department of Physiology, University of Tennessee, Memphis, TN, to the Department of Physiology, Chemistry, and Biology, National University of Trujillo, Trujillo, Peru.

Recently, **Julia Ann Moffitt** became affiliated with the Department of Psychology, University of Iowa, Iowa City, IA. Formerly, Moffitt was with the Department of Veterinary Biological Medical Science, University of Missouri, Columbia, MO.

**Didier Michel Mougnot** has joined the Department of Neuroscience, Research Center, Central Hospital of Laval University, Ste-Foy, Quebec, Canada. Previously, Mougnot was connected with the Department of Physiology and Biophysics, University of Calgary, Alberta, Canada.

**Takeshi Nishiyasu** has recently associated with the Department of Exercise Physiology, Institute of Health & Sports Sciences, University of Tsukuba, Ibaraki, Japan. Formerly, Nishiyasu was affiliated with the Department of Medical Humanities, College of General Education, Yamaguchi University, Yamaguchi, Japan.

## People & Places

Accepting a new position as Vice President, Academic Affairs, Dean of Faculty, Moravian College, Bethlehem, PA, **Randall Kent Packer** has left the Department of Biological Sciences, George Washington University, Washington, DC.

**Ricardo Fernandez Perez** has moved from the Department of Physiology and Biophysics, Institute of Biomedical Sciences, University of Sao Paulo, Brazil. Currently, Perez is with the Department of Physiology and Biophysics, Politechnic Center of the Americas, Curitiba, Brazil.

**Joel G. Pickar** has accepted a position with Palmer College of Chiropractic, Palmer Center for Chiropractic Research, Davenport, IA. Prior to his new position, Pickar was affiliated with the Department of Anatomy and Physiology, Kansas State University, College of Veterinary Medicine, Manhattan, KS.

Recently, **Berry Pinshow** joined the Mitrani Department of Desert Ecology, Ben-Gurion University of the Negev, Midreshet Ben-Gurion, Israel. Pinshow was previously with the Medical Sciences Program, Indiana University, Bloomington, IN.

**Carlos R. Plata-Salaman** has joined the Department of Central Nervous System Research, R.W. Johnson Pharmaceutical Research Institute, Spring House, PA. Prior to his new assignment, Plata-Salaman was affiliated with the Department of Biology, School of Life and Health Sciences, University of Delaware, Newark, DE.

Having affiliated with the Department of Medicine, University of California, San Francisco, CA, **Robert A. Rebres** has left the Division of Infectious Diseases, Washington University School of Medicine, St. Louis, MO.

Accepting a new position with the Sidney Kimmell Cancer Center, San Diego, CA, **Jan Schnitzer** has left the Department of Pathology, Harvard Medical School, Beth Israel Hospital, Boston, MA.

**Gregory G. Schwartz** has accepted a position as Chief, Cardiology Section, University of Colorado Health Sciences Center, Denver VA Medical Center, Denver, CO. Formerly, Schwartz was with the Department of Cardiology, VA Medical Center, San Francisco, CA.

Affiliating with the Institute of Molecular Pharmacology and Biophysics, University of Cincinnati, Cincinnati, OH, **Vladimir B. Serikov** has moved from the Department of Anesthesiology, University of California-Davis, Davis, CA.

**J. Kevin Shoemaker** has moved from the Division of Cardiology, Milton S. Hershey Medical Center, Hershey, PA, and has joined the School of Kinesiology, Faculty of Health Sciences, University of Western Ontario, London, Ontario, Canada.

**Robert A. Star**, has accepted a position as Senior Investigator with Unit of Renal Diagnostics and Therapeutics, National Institute of Diabetes and Digestive and Kidney Diseases, NIH, Bethesda, MD. Prior to his new assignment, Star was with the Department of Internal Medicine, University of Texas Southwestern Medical Center, Dallas, TX.

Affiliating with the Department of Geriatrics, University of Arkansas for Medical Sciences, North Little Rock, Arkansas, **Raymond Dean Starling** has moved from the Department of Medicine, University of Vermont, Burlington, VT.

**Kerst Stelwagen** formerly affiliated with the Ruakura Research Centre, Dairy Sciences Group, Agricultural Research, Hamilton, New Zealand, recently moved to the Research Station for Cattle, Sheep, and Horse Husbandry, Lelystad, The Netherlands.

**John G. Swallow** was formerly associated with the Department of Zoology, University of Wisconsin, Madison, WI. Presently, Swallow is affiliated with the Department of Biology, University of Maryland, College Park, MD.

Having transferred from the Department of Medicine, Pulmonary Division, Georgetown University Medical Center, Washington, DC, **Angelo M. Taveira-Dasilva** has affiliated with the Pulmonary Critical Care Medicine Branch, National Heart, Lung, and Blood Institute, NIH, Bethesda, MD.

**Donna H. Wang** joined the Department of Medicine, Michigan State University, East Lansing, MI. Wang recently moved from the Department of Internal Medicine, University of Texas Medical Branch, Galveston, TX.

Having accepted a position with the Department of Physiology, University of Tennessee-Memphis, Memphis, TN, **Christopher Mark Waters** has moved from the Department of Anesthesia, Northwestern University Medical School, Chicago, IL.

**Wolf-Michael Weber** is currently assigned to the Laboratory of Physiology, K.U. Leuven, Campus Gasthuisberg, Lueven, Belgium. Weber was with the Institute for Animal Physiology, Wartweg, Giessen, Germany.

Moving to Amarillo, TX, **Margaret T. Weis** has affiliated with the Department of Pharmaceuticals, College of Pharmacy, Amarillo, TX. Weis was formerly with the Department of Pharmacology, Philadelphia College of Pharmacy, Philadelphia, PA.

Formerly with the Department of Physiology, University of Heidelberg, Heidelberg, Germany, **Johannes Zanzinger** has affiliated as Principal Scientist with Pfizer Central Research, Animal Health Discovery, Sandwich, UK.

**Dion H. Zappe** has joined the Astra Zeneca Pharmaceuticals, Medway, MA, as a Medical Information Scientist. Prior to his new assignment, Zappe was affiliated with Astra Merck, Inc., Providence, Customer Unit, Providence, RI.

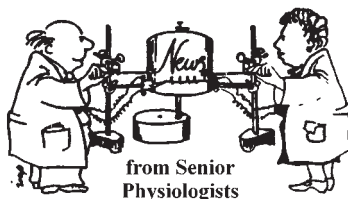


## News From Senior Physiologists

### Letter to William Stekiel

**R.J. Shephard** writes: "I am presently Professor Emeritus of Applied Physiology in the Faculty of Physical Education & Health and the Department of Public Health Sciences, Faculty of Medicine, University of Toronto. I served at the University of Toronto for a total of 34 years, was Director of the School of Physical and Health Education at the University of Toronto for 12 years (1979-1991), and Director of the University of Toronto Graduate Programme in Exercise Sciences from 1964 to 1985. In May of 1998, I moved, with my wife, to a small town some 50 miles north of Vancouver, to be near my younger daughter. Activities in this community include hill-walking with a group of very active seniors and singing in two choral groups. Much of the day is still spent writing, with electronic links to the University of Toronto and other libraries, and research in the area of exercise immunology continues through regular commuting to and from Toronto; a fair number of international lectures have also been given over the past year.

"I remain a Visiting Scientist at the Defense and Civil Institute of Environmental Medicine, a consultant to the Toronto Rehabilitation Centre, the Gage Research Institute, the Directorate of Active Living, Health & Welfare Canada, the Institute for Aerobics, Dallas, the University of New Brunswick (Fredericton), the University of Quebec (Trois Rivières), and the State University of New York at Brockport. I formerly held academic appointments in the Department of Physiology and the Institute of Medical Sciences at the University of Toronto, the Centre des Sciences de la Santé, Université de Québec à Trois Rivières, and the Hôpital Pitié Salpêtrière, Université de Paris, and was Canadian Tire Acceptance Limited Resident Scholar in Health Studies at Brock University from 1994 to 1998.



"Prior to moving to Toronto in 1964, I also held appointments in the Department of Cardiology (Guy's Hospital, University of London), the R.A.F. Institute of Aviation Medicine, the Department of Preventive Medicine (University of Cincinnati), and the UK Chemical Defence Experimental Establishment (Porton Down, UK).

"I hold four scientific and medical degrees from London University (BSc, MBBS, PhD, MD) and honorary doctorates from Gent University (Belgium) and the Université de Montréal, together with the Honour Award of the Canadian Society of Exercise Physiology and a Citation from the American College of Sports Medicine. I am a former president of the Canadian Association of Sports Sciences, a former president of the American College of Sports Medicine, editor-in-chief of the Year-Book of Sports Medicine and founding editor of the Exercise Immunology Review, a former editor-in-chief of the Canadian Journal of Sports Sciences and a member of the Editorial Board of many other journals.

"I am the author of some 70 book on exercise physiology, biochemistry and immunology, and fitness in able-bodied individuals and those with various disabilities, and I have published over 1,300 scientific papers on related topics. The main literary tasks this last year have been editing a second edition of 'Endurance in Sport' for the International Olympic Committee, and preparing the annual edition of the Year Book of Sports Medicine."

### Letters to Arthur Vander

**Marvin M. Schuster** writes: "I am working 60% of the time (on paper) but still pretty fully occupied trying to wind down. I continue as the Director of the

Marvin M. Schuster Center for Motility Disorders, although I have given up the joys of administration and stepped down as Director of the Division of Digestive Diseases at Johns Hopkins Bayview Medical Center. On April 16 there was a dedication of the Janssen, Strauss-Halbreich Professorial Chair at the Johns Hopkins University School of Medicine and I am the first to sit in it. I continue my scientific and clinical activities at a reduced pace and, unfortunately, do more administration than I would elect to do.

"I think it is a good idea that you are doing this, and look forward to reading about what my colleagues are doing as well."

**George Polgar** writes: "Responding to a kind invitation by the Committee on Senior Physiologists, I am pleased to report on what I had been doing during the last decade before my 80th birthday.

"After 14 years at the University of Pennsylvania and 11 years at Wayne State University Medical School in Detroit, under joint appointment in Physiology and Pediatrics in both, I reached mandatory retirement age in 1989. I chose early retirement almost 4 years before, mainly to concentrate on launching and establishing a new international journal for the scientific, primarily physiologic, and related clinical aspects of pediatric pulmonology (also the title of the journal published by Wiley-Liss Inc., Division of John Wiley and Sons, Inc.). I remained Editor-in-Chief for 10 years; the journal, now in its 14th year, is still the only one in the field and one of the most quoted pediatric sub-specialty publications with a worldwide distribution.

"That almost full-time 'retirement hobby' kept me in close touch with the international community and on the meetings and lecture circuit. However, except for consultations at the University of Pennsylvania, where I was given an honorary appointment, I had had no further hands-on experience in research and teaching.

## News From Senior Physiologists

“By my investigative and literary contributions to the functional development of the respiratory system from the newborn age through adolescence, since the early 1960s, I was listed among the ‘milestone setters’ of a new pediatric sub-specialty. My most favored one among other recognitions was the dedication to me of a book on Infant Respiratory Function Testing (John Wiley & Sons, 1996) edited by Janet Stocks and three other internationally renowned neonatal pulmonary physiologists.

“For the last two years, I lived with my wife at a Marriott Life Care Community in a beautiful Philadelphia suburb. I have terminated all professional activities, but, as ample compensation for this, I tremendously enjoy the stimulating and enriching atmosphere in the company of a large number of retired faculty in diverse fields from highest ranking universities and colleges. My simple message to our still active colleagues: fishing, golf, or luxury cruises are not all to be looking forward to in retirement; there is room for intellectual fulfillment outside and beyond one’s own professional expertise.”

### Letters to Ken Zierler

**L. Van Middlesworth** writes: “Thank you for your letter of March 8, 1999, inviting me, as a senior scientist, to submit a few paragraphs for *The Physiologist*.

“I am pleased to comment that with retirement at age 70, I was granted emeritus status with the privilege of continuing my basic research and teach-

ing thyroid physiology and pathophysiology to the medical students. Until this year, I also maintained a thyroid clinic, but, at age 80, I stopped managing patients. At that time, I removed my wrist watch and have not replaced it.

“At the present time I am auditing a graduate course in Cell Biology, and I find it intriguing to incorporate the new concepts into my classical constructs. In addition, I have begun a research program regarding radiation effect on cultured thyroid cells.

“With my wife and other collaborators, I continue my program, begun 45 years ago in 1954, of monitoring radioactivity in animal thyroids, including measurement of  $^{129}\text{I}$  fission product (half-life  $1.5 \times 10^7$  y). For the past seven years, the Smithsonian Institute in Washington, DC, has displayed part of our data on worldwide  $^{131}\text{I}$  fallout as part of the display entitled ‘Science in American Life’ in the National Museum of American History.”

“As I contemplate the marvels of the thyroid gland, I am brought to paraphrase Alfred Tennyson, saying that if we fully understand the thyroid we will understand all Nature.”

**Richard J. Bing** writes: “Thank you very much for your inquiring about me. It is very difficult for a senior citizen to write about himself. If he brags, he is considered immodest; if he complains, he is a frustrated fool. Scanning the obituary column in the *Journal of the American Medical Association*, I am astonished that I belong to the very old survivors.

“You are right, I am in my 90th year. I am still active, I am still head of labora-

tory for experimental cardiology at Huntington Medical Research Institutes in Pasadena. I am still publishing. Much of my leisure time is devoted to writing music, and I am very fortunate to have my orchestral music performed in Vienna five years ago and again this year.

“How does it feel to be 90? Friends and family members are gone. This engenders a feeling of being left behind. There is little understanding for the old folks’ experiences. Hitler, World War II have become matters of historical and psychological speculations, which I, as a participant and witness, read with astonishment at some of the ridiculous and unrealistic descriptions and analyses of history. In research, I feel that I have spent too many years in projects which were quite successful, but which the computer has totally forgotten. Particularly strange (what wild pursuit) appear the efforts of young scientists who with unbridled ambition try to climb the ladder to fame while stepping on those behind them. They will find that very few reach the top. Climbing to success is only worth the effort if the accomplishments are scientific and not administrative or political. Finally, the mountains which seemed so high in the past have diminished in size and become insignificant. The panorama, the relief map of the past, has become flat.

“As to the advice to the younger generation: I pass! I remember that Polonius, in Hamlet, was free with his advice but was stabbed. I rather die a natural death!” ❖

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## Positions Available

**Cardiovascular Research Training:** Pre- and postdoctoral positions are available for training in basic cardiovascular biology at the University of Nebraska Medical Center. These positions are supported by a training grant from the National Heart Lung and Blood Institute. Qualified applicants can choose from several laboratories in basic and clinical departments. Areas of investigation range widely from integrative physiology to molecular mechanisms of cardiovascular disease. Broad areas of research are regulation of extracellular matrix in cardiac, vascular, and pulmonary tissue; characterization of  $\alpha_2$ -adrenergic receptors; cellular regulation of the renal microvasculature; molecular biology of blood coagulation; molecular genetics and cardiovirulence of coxsackie B3 virus; neural regulation of blood volume; regulation of the cerebral blood brain barrier; endothelial cell regulation of cerebral vascular tone and permeability; volume regulation in heart failure and diabetes; developmental biology of the heart and major arteries; ion transport in cardiac myocytes, smooth muscle, and red blood cells; neural regulation of cardiovascular and pulmonary function in heart failure; control of hematopoietic stem cell production; calcium signaling in cardiac muscle; adrenergic signal transduction; and neuro-humoral regulation of the circulation in heart failure. Applicants must be US citizens or permanent residents. Predoctoral applicants should send an undergraduate transcript, GRE scores, and two letters of reference, along with a statement of career goals. Postdoctoral applicants should send a curriculum vitae, a graduate transcript, two letters of reference, and a statement of graduate research and career goals. Information should be sent to: Irving H. Zucker, PhD, Professor and Chairman, Department of Physiology and Biophysics, University of Nebraska College of Medicine, 984575 Nebraska Medical Center, Omaha, NE 68198-4575. Fax: 402-559-4438; email: izucker@unmc.edu.

**Postdoctoral position:** A postdoctoral position is available in the laboratory of Dr. Meredith Bond, Department of Molecular Cardiology, Lerner Research Institute, Cleveland Clinic Foundation. We are seeking a candidate with experience in molecular biology and protein chemistry. Expertise with the Yeast-Two Hybrid System would be advantageous. The position will involve investigations of downstream regulation of the protein kinase A signaling pathway in failing and non failing hearts, and in particular the role of cardiac A-kinase anchoring proteins. Please send applications to Meredith Bond, PhD, at bondm@ccf.org, or Department of Molecular Cardiology, NB50, Lerner Research Institute, Cleveland Clinic Foundation, 9500 Euclid Ave, Cleveland OH 44195.

**Postdoctoral Fellowship:** A unique postdoctoral position is available immediately to study the intestinal microcirculation during shock states. The position is offered through the Center of Excellence in Applied Microcirculatory Research, University of Louisville, under the guidance of David A. Spain, MD, Department of Surgery and Patrick D. Harris, PhD, Department of Physiology and Biophysics. The position is eligible for promotion to permanent status after 2 years. The laboratory is well funded with over \$1.2 million in peer-reviewed grants and has been consistently productive for over 12 years. The laboratory consists of a very congenial group of investigators (3 MDs, 2 PhDs, post-doctoral fellows and graduate students). Applicants should be an MD or PhD in physiology or pharmacology with no more than 5 years of postdoctoral experience in microcirculation or related fields. A minimum commitment of 2 years is anticipated, although funding is secured for 4 years. Salary is competitive and cost of living is low. Please send curriculum vitae and three letters of reference to: David A. Spain, MD, Department of Surgery, University of Louisville, Louisville, KY 40292. Tel: (502)852-5676; email: David.Spain@louisville.edu. Minorities and women are encouraged to apply. [EOE/AA]

**Postdoctoral Fellow:** NIH-funded study of the role of sarcolemmal ion channels and intracellular calcium stores in excitation-contraction coupling in isolated pulmonary and renal arterial smooth muscle cells. Experimental approaches will include contractile measurements on intact arterial rings; global and localized ("calcium sparks") intracellular calcium measurements using standard and confocal fluorescence imaging techniques; membrane potential measurements and whole-cell and single channel current measurements on isolated cells and cell-free membrane patches; and molecular techniques, including Northern analysis, PCR, and immunohistochemistry to determine expression patterns of specific channel subtypes. Current research focuses on the role of intracellular calcium stores (*Brit. J. Pharmacol.* 122:21-30, 1997), chloride channels (*J. Physiol.* 507:729-736, 1998), and nonspecific cation channels in the response to agonists and hypoxia. Experience with conventional cellular electrophysiological or cell calcium measurements would be helpful; interest and/or background in smooth muscle would be advantageous; salary negotiable. Send letter, current curriculum vitae, and names of references to J. R. Hume, PhD, Dept. Physiology & Cell Biology/351, University of Nevada School of Medicine, Reno, Nevada 89557-0046. Email: joeh@med.unr.edu; <http://www.unr.edu/med/physio/>.

## Positions Available

**Postdoctoral Position:** A postdoctoral position is available to study the effects of chronic hypoxia on cardiovascular regulation. Our laboratory uses a wide range of experimental approaches, including study of conscious animals, isolated lung and vessel studies, single-cell calcium imaging, and molecular biological approaches. Current research focuses on 1) the interaction between nitric oxide and endothelin in the pathogenesis of hypoxia-induced pulmonary hypertension (*Am. J. Physiol.* 276: H699-H708, 1999) and 2) the role of the heme oxygenase/carbon monoxide system in vascular regulation following chronic hypoxia (*Am. J. Physiol.* 275: R1025-R1030, 1998). Salary is negotiable depending upon experience. Please send a letter, curriculum vitae, and names of references to Benjimen R. Walker, PhD, Department of Cell Biology and Physiology, University of New Mexico Health Sciences Center, 915 Camino de Salud NE, Albuquerque, NM 87131-5218. Email: bwalker@salud.unm.edu.

**Postdoctoral Fellowship:** Postdoctoral fellowship available in the Department of Physiology, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa. Requirements: PhD, or equivalent level of research or scholarship, in the past three years, and demonstrable skills within one of the research areas of the department. Research areas: cardiovascular pathophysiology, salt and fluid balance, ecophysiology, sleep, pain, fever, temperature regulation, exercise physiology, invertebrate metabolism, and nutrition. Research model: human or animal. Job description: collaboration with staff in a research group to develop new research areas. The Department of Physiology of the University of the Witwatersrand is the largest and most productive physiology department in Southern Africa. It is well-equipped and has access to excellent support facilities. The fellowship has a duration of two years and can start at any time of the year. Interested applicants are invited to contact: Prof G Mitchell; Fax: (+27 11) 643 2765; Email: 057gm@chiron.wits.ac.za.

**Assistant Professor.** The Department of Physical Medicine and Rehabilitation, Boston University School of Medicine, invites applications for a junior faculty position to assist in the development of a scientific program that focuses on spinal cord injury. Applicants should have a PhD or equivalent degree. Knowledge of surgical procedures, neurophysiology, electrophysiology, and/or biomedical and molecular biology laboratory skills are desirable. Salary and level of faculty appointment dependent on level of training and experience. Future faculty development possible. Please direct applications to: Attn: Shanker Nesathurai, MD, FRCP(C), Department of Physical Medicine and Rehabilitation, Boston University School of Medicine, One Boston Medical Center Place (F511), Boston, MA 02118.

**Lectureship-Human Anatomy and Physiology:** Towson University's Biology Department invites applications for a Lecturer position in Human Anatomy and Physiology effective Fall, 1999 semester. Ten-month appointment involves teaching undergraduate courses, advising students, supervising teaching assistants and some departmental service. Salary competitive with peer institutions. Additional summer and night teaching opportunities are also available. PhD in an anatomical or physiological discipline required. Send CV, copies of all transcripts, one page statement of teaching philosophy and experience and two letters of reference to: Jay A. Nelson, Chair; Physiology Search Committee; Dept. of Biological Sciences, Towson University, Towson MD 21252 (jnelson@towson.edu). Applications should be received by 2 July 1999 for full consideration. Electronic versions of application materials should also be submitted on 3 1/2" diskette (IBM or Mac) in Word or text formats or via e-mail to: dreuther@towson.edu. For additional information about the department, see <http://www.towson.edu/biology>. Towson University is an equal opportunity/ affirmative action employer with a strong institutional commitment to diversity. Women, minorities, persons with disabilities, and veterans encouraged to apply.

**Animal Physiologist Assistant Professor:** Towson University invites applications for an entry-level, tenure-track, Assistant Professor position in the Department of Biological Sciences beginning January, 2000. Position involves teaching one to two courses per semester including histology and rotation through other undergraduate and graduate offerings in anatomy and physiology. Broad training in integrative biosciences a plus; research expertise in all subdisciplines considered, but preference for individuals incorporating cell signalling into their research. Successful candidate expected to establish extramurally funded research program involving undergraduates and MS candidates. Salary and teaching load competitive with peer institutions. PhD required, postdoctoral experience preferred. Send CV, copies of all transcripts, one page statements of teaching philosophy and research interests, and two letters of reference to: Jay A. Nelson, Chair; Physiology Search Committee; Dept. of Biological Sciences, Towson University, Towson MD 21252 (jnelson@towson.edu). Review of applications will begin on 8/16/99. Electronic versions of application materials should also be submitted on 3 1/2" diskette (IBM or Mac) in Word or text formats or via e-mail to: dreuther@towson.edu. For additional information about the department, see <http://www.towson.edu/biology>. Towson University is an equal opportunity/ affirmative action employer with a strong institutional commitment to diversity. Women, minorities, persons with disabilities, and veterans encouraged to apply.

## Positions Available

**Assistant Research Scientist:** The University of Iowa College of Medicine, Department of Internal Medicine, Pulmonary, Critical Care and Occupational Medicine Division is seeking an Assistant Research Scientist to perform basic research to advance knowledge of cellular and molecular mechanisms involved in the function of endothelial and epithelial cell-cell adhesion molecules. The work will include theoretical and methodological aspects of cell electrophysiology, microscopy, and computer programming. 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 physiology or biophysics, research experience in the area of endothelial and epithelial cell adhesion molecules, cellular electrophysiology, the use of electrophysiology to measure cell adhesion, and computer programming of cell adhesion software are desirable. Please send resume and cover letter indicating #39303 to: Carol Wehby, Human Resources, Internal Medicine, E400 GH, 200 Hawkins Drive, Iowa City, IA 52242-1081. Women and minorities are strongly encouraged to apply. [EOE/AA]

**Assistant Professor/Laboratory Director:** The Radiology Department at UT Southwestern Medical Center at Dallas invites applicants for a full-time, research-track faculty position available at the Assistant Professor level. The candidate will be the laboratory director for the Mobility Foundation Center's research in stroke, spinal cord injury, and other mobility-limiting diseases. Requirements include a PhD in physiology with a demonstrated interest in neurophysiology. The applicant will be required to oversee the operation of a research laboratory with special emphasis in cerebrovascular disease and spinal cord injury, including supervision of a laboratory technician. The applicant will be expected to pursue animal research in cerebrovascular disease and spinal cord injury in support of existing efforts, as well as development of further projects intended to foster new external funding. Preference will be given for demonstrated abilities in calcium autoradiography and in perfusion measurement via radiolabeled microspheres. Experience with MRI/MRS, angiography, canine research or surgery, and animal models for spinal injury and stroke will be positive factors. Some teaching of medical students and residents will be required. For more information, contact: Phillip Purdy, MD, Director of Neuroradiology, Department of Radiology, UT Southwestern Medical Center, 5323 Harry Hines Blvd., Dallas, TX 75235-8896. Tel: 214-648-3928; fax: 214-648-3904; email: Phillip.Purdy@email.swmed.edu. [EOE/AA]

**Assistant/Associate Professor in Nephrology:** The Department of Internal Medicine, Nephrology, Yale School of Medicine seeks an individual with a strong record of research productivity and grant support in any scientific discipline relevant to nephrology. Although 80% faculty effort will be devoted to research, the successful applicant should also have appropriate clinical training and board certification to serve as a teaching attending in nephrology. Generous start-up funds are available to support the growth of the faculty member's research program. Appointment at the Assistant or Associate Professor level depending on qualifications. Women and members of minority groups are particularly encouraged to apply. Please reply with curriculum vitae and references to Denise Krause, Associate Administrator, Department of Internal Medicine, Yale School of Medicine, PO Box 208029, New Haven, CT 06520-8029. [EOE/AA]

**Assistant Professor, Physiologist:** Luther College invites applications for a tenure-track appointment at the rank of Assistant Professor beginning September 2000. Teaching responsibilities would include, but may not be limited to, human physiology and participation in a team-taught principles of biology course. PhD is required; teaching and post-doctoral experience are desirable. Candidate will be expected to direct undergraduate students in physiology research and to seek external funding for research. We are seeking someone who is committed to undergraduate teaching and research in the context of a liberal arts college; visit our department home page for more information (<http://www.luther.edu/~biodept>). We expect to complete the review of applications by October 15, 1999. Send letter of application, curriculum vitae, three letters of recommendation, and transcripts of undergraduate and graduate work to: Dr. Jim Eckblad, Head, Department of Biology, Luther College, Decorah, IA 52101-1045. Email: eckbladj@luther.edu. An EEO employer.

**Assistant Professor:** The Department of Physiology at Texas Tech University Health Sciences Center invites applications from scientists for a tenure-track position at the rank of Assistant Professor in the Medical School. Exceptional candidates may be considered for more senior positions. The successful candidate will be expected to maintain an independent program of research that complements existing strengths within the department. He/she will also participate in medical and graduate training. The closing date for applications is October 30, 1999. Applicants should send a curriculum vitae, a description of past research and future plans, and the names and addresses of three or more potential references to: Thomas A. Pressley, PhD, Chair, Physiology Search Committee, Department of Physiology, Texas Tech University Health Sciences Center, Lubbock, TX 79430. [EEO/AA/ADA]

## Positions Available

### **Tenure-track positions in physiology and pharmacology:**

The Department of Physiology of the Northeastern Ohio Universities College of Medicine (NEOUCOM) is seeking applicants to fill three tenure-track (assistant/associate professor level) positions in cardiopulmonary physiology (2 openings) and cardiovascular pharmacology (1 opening). The department has a cardiopulmonary research focus and invites applicants who are using modern cellular and/or molecular biology techniques to address integrative physiological problems that complement ongoing research programs. Candidates must have a PhD and/or MD with appropriate postdoctoral fellowship training, a strong record of research accomplishment, and the ability to establish an independent externally funded program. Excellent opportunities exist within the department and institution for collaboration. Major medical student teaching responsibilities will be to participate in teaching either the medical physiology or medical pharmacology course. Department faculty are members of the graduate faculty in programs leading to the PhD through the School of Biomedical Sciences at Kent State University. The successful candidate will have the opportunity to develop graduate courses that relate to his/her specialty. Further information about the department and institution can be obtained from the NEOUCOM web site at <http://www.neoucom.edu>. Candidates should send a letter of application describing research experience and goals, accompanied by a curriculum vitae, and the names and address of three references, by September 15, 1999, to: Human Resources, c/o Michael B. Maron, PhD, Professor and Chairperson, Department of Physiology, Northeastern Ohio Universities, College of Medicine, PO Box 95, Rootstown, OH 44272-0095. [AA/EOE]

**Postdoctoral Position:** A postdoctoral position is available immediately in an active laboratory funded by the NIH, the American Heart Association, and the March of Dimes to study the physiological mechanisms by which the perinatal environment (maternal diet) "programs" the offspring for cardiovascular and renal disease later in life. Our current focus is on the renin-angiotensin system, renal development, and adult blood pressure regulation. Extensive opportunities for interaction with an internationally recognized group of perinatal physiologists, with clinical and basic scientists in the Congenital Heart Research Center, and with a group of NIH-funded nephrologists focusing on various aspects of the renin-angiotensin system. PhD in physiology or a related field required. Funding is available for one year, with a strong likelihood of additional funding for up to three years. The opportunity to live in the beautiful Pacific Northwest is an added bonus! Send a cover letter and names of references to Lori L. Woods, PhD, Division of Nephrology L463, Oregon Health Sciences University, 3181 S.W. Sam Jackson Park Road, Portland, OR 97201-3098. Tel: 503-494-5104; fax: 503-494-5330; email: woods!@ohsu.edu.

**Chair of Physiology:** The UCLA School of Medicine invites applications for Chair of the Department of Physiology. The successful candidate must have an exceptional record of research accomplishment in physiology or a related discipline and a commitment to medical and graduate student education. The Department is committed to an integration of genetic and molecular approaches to physiological and biophysical problems with medical relevance. The Department currently has international stature with strengths in neurocardiovascular and gastrointestinal physiology and biophysics. The position provides a unique opportunity to define physiology in the 21st century. Nominations or letters of interest and curriculum vitae should be sent to: Leena Peltonen, MD, PhD, Chair, Physiology Search Committee, c/o Jeanette Lim, UCLA School of Medicine, Box 951722, Los Angeles, CA 90095-1722. [EOE/AA]

## Ethical Challenges and Practical Solutions

### **Program Summary**

Many articles on research ethics concentrate on actions and responsibilities of the individual researcher. Management has responsibility for creating an environment that is supportive of research integrity. This conference will focus on the problems faced at the management level of research organizations of instilling and maintaining integrity in research and will be a forum for discussing the new Sigma Xi booklet on research ethics, *The Responsible Researcher: Paths and Pitfalls*.

September 10, 1999  
Hyatt Regency Hotel  
Albuquerque, New Mexico

Co-sponsored by Sigma Xi, and  
the Office of Research Integrity

For more information contact Sigma, Xi,  
The Scientific Research Society  
P.O. Box 13975  
Research Triangle Park, NC 27709  
Tel: 800-243-6534;  
or 919-549-4691, ext. 208

### **Registration**

The registration fee for the conference is \$100 (lunch included). Registrations received before August 19, 1999 will receive a \$25 discount. An interactive registration form is available on the Sigma Xi web site at [www.sigmaxi.org](http://www.sigmaxi.org).

### Analysis and Assessment of Cardiovascular Function

Drzewiecki G.M. and Li J. K-J (Editors).

New York: Springer, 1998, 387 pp., illus., index, \$79.95.

ISBN: 0-387-982-825.

This scholarly volume is actually a structured monograph of selected topics in cardiac physiology as seen from the biomedical engineering perspective. The individual chapters appear to be individual papers that have been collected into a common volume. With the exception of part two, their themes and presentations individually reflect complete thoughts and could be read alone. This is a major problem of the volume: lack of a common theme. However, as stated by the editors, "the objective of the book is to provide the researcher and clinician with the recent developments in the analysis and assessment of cardiovascular function." To this extent they have achieved their goals by collecting many excellent reports. The focus of the initial two-thirds of this excellent work is on electrical analogue models of contractile function, ventricular pressure-volume, and stress-strain relations, as well as circuit interactions. These analyses are needed to explain and predict cardiac behavior. Thus, the title of the volume is somewhat misleading because most of the focus of this volume is entirely on cardiac pump function not cardiovascular function. In fact, only 3 of the 21 chapters addressing any issues related to either arterial, venous, or microcirculatory circuit characteristics. Having said this, what the volume does present in a complete and scholarly fashion are many of the most relevant and evolving aspects of biomedical modeling of cardiac function using as its authors some of the most respected and established workers in the field. Thus, those wishing to understand this complex field based on

an up-to-date series of papers would do well to have this volume available to them for their immediate reference and insight. Although a general overview of the volume is provided below, since all chapters are highly specific in their topics, the reader may wish to review the table of contents of this volume when deciding if the topics covered address his or her specific needs.

The book is divided into eight uneven sections or parts. Part One is a two-chapter section that initially focuses on an interesting historical description of the approach to cardiac function as seen first in antiquity and then as applied today. The Egyptian Papyrus translations are especially interesting from this historical perspective. The second chapter uses this concept to present a reworking of "allometry" theory as it applied to the heart. Allometry is the study of changing proportions of functional structures and behavior as organism mass varies. Thus, the heart rate of an elephant is slower than a shrew. Similar analyses have been made with good applications in the assessment of exercise capacity, oxidative reserve, and bone density in previous reports. This chapter reviews these concepts and prior studies so as to develop a model to predict cardiac function. Part Two focuses on cardiac muscle mechanics and interfacing cellular processes with mechanical function (contraction and relaxation). Chapter 3 by Palladino and Noordergraaf is especially good for its overall perspective and completeness. Although all the papers in this part are good, if one needed to read only one chapter to understand the lump parameter model as applied to cardiac function, this would be it. Furthermore, the very interesting insights made in Chapter 5 by Wang and Drzewiecki regarding regional myocardial dysfunction are most appreciated since modeling of regional dysfunction reflects a major field of biomedical research and has practical applications at the bedside. The major strength of the chapters in

this section is their similarity in approach to modeling cardiac muscle function, thus allowing the reader to develop a generalized understanding of complex matrix models present throughout. Part Three comprises two chapters on coronary flow that focus on highly selected aspects of modeling and diagnosis. Part Four is devoted to ventricular dynamics and is divided again into four highly focused papers that share little common theme. Despite their diversity of approach and content, this is perhaps the best section (if grouped with Part Five) in the volume because it covers most aspects of left ventricular cardio-dynamics. Regrettably, nowhere in this volume are the specific differences and problems of right ventricular function addressed. Still, the chapters on diastolic filling and echocardiographic analysis are most complete and could easily stand alone as reviews. The next part, Part Five is actually an extension of Part Four, in that it addresses ventriculo-arterial coupling. Conductance catheter technology, as developed by Jan Baan and presented by him here, represents a powerful tool in the armamentarium of any serious cardiovascular researcher. Its application to the analysis ventriculo-arterial coupling is quite informative. Parts 6 and 7 on the microcirculation and the venous system reflect highly focused and excellent papers but of limited application. These are the least well developed themes in the volume and do not cover major aspects of either topic. They do, however, address their stated topics quite well. Specifically, Chapter 15 is an analysis of the Lee method of determining capillary filtration coefficient, and Chapter 17 addresses the dynamic response of collapsible vessels. The final part is devoted to selected topics in electrophysiology, which appear to be collected without regard to each other or the other chapters. These chapters include "Microvolt T-wave alteratans as a marker of vulnerability to cardiac arrhythmias," "Quantification

## Book Reviews

of heart rate variability using non-linear dynamics,” “Transesophageal electrophysiology,” and “occurrence and diagnostic important of ST-segment depression in ambulatory Holter monitoring.”

In summary, this collection of excellent individual papers reflects cutting edge research in cardiac dynamics. The

strength is this volume is the excellence of each chapter. The weakness of this volume is the lack of completeness of the topics presented, lack of thematic development of the models from one chapter to the next and the individuality of each of the papers. Still, if one were in need of this information, this is clear-

ly the most up to date volume available and one that serious workers in cardiac dynamics would benefit from reading.



*Michael R. Pinsky  
University of Pittsburgh*

### Why Geese Don't Get Obese (AND WE DO)

Eric P. Widmaier.

New York: Freeman, 1998, 213 pp., illus., index, \$22.95.  
ISBN: 0-7167-3147-9.

This is an informative, easy-to-read, at times even spellbinding, 155-page (plus epilogue, notes and an index) book for lay readers that describes the homeostatic responses of living organisms coping with their ever-changing environment. It is, thus, a mini-textbook of physiology for non-physiologists wishing to learn how the body's vital functions are controlled. The motif of the book is, in essence, the regulation of energy metabolism—how it is acquired, distributed, and expended under the multivariate conditions normally encountered during life. The topics are presented in a logical sequence, and the relevant principles are illustrated by representative and frequently fascinating cases, drawn most often from comparative and environmental physiology; failure to cope is illustrated by pathophysiological examples in humans. The book contains 10 chapters, progressing from an historical perspective on the various issues to be developed to a discussion of metabolism and food energy in relation to various endogenous and exogenous factors, the cooperative metabolic needs for water and oxygen, the special problems in this regard faced by species living underwater and at high terrestrial altitudes, the body-wide distribution of nutrients and elimination of wastes, some (particularly

comparative) aspects of the regulation of body temperature, the awareness of stressful environmental changes that trigger appropriate physiological responses, and, among such external stressors, a chapter on psychosocial stress. In the last chapter, the author indulges in a bit of wistful philosophizing on the “perfection” of the human species.

By and large, I judged the treatment of the various subject matters covered to be adequate for such a text, conceptually up-to-date (with a few exceptions; see below) albeit somewhat simplified (but understandably so, for such a text). It is evident that the author enjoyed writing this book; much of his material is presented with a relish and an excitement that are contagious.

That is not to say that the book has no shortcomings. From an editorial standpoint, I found it annoying, at first, to encounter a superscript suddenly in the text, but no clue as to its significance. I had to divine that it referred to a “note” (a footnote, really) assembled with others at the end of the book. Some of those notes could just as well have been incorporated into the text, where their inclusion would have been less distracting than interrupting reading and searching for them elsewhere. The book also contains relatively few illustrations, and those that are present are not numbered, hence, not referred to in the text. This causes them to be viewed out of context when eventually turning to their page, also a distraction. Schematics describing relationships or

pathways, in particular, would have been helpful in a book such as this. Also, occasionally, technical terms (e.g., hyperventilation, syndrome) and abbreviations (e.g., ATP) are used without prior definition, a potential difficulty for readers unfamiliar with those terms. Scientifically, despite the inclusion of some very current terms and concepts (e.g., leptin and the O/B gene), there occur, on the other hand, some outdated terms and concepts (e.g., warm- and cold-blooded animals, appetite and satiety center). I also noted some opportunities missed (e.g., the counter-current heat exchange system of humans is not discussed while that of tunas is, incompleteness in the description of some phenomena (e.g., the nervous control of vasomotion—only the effect of injected epinephrine is mentioned; the loss of heat into an environment cooler than the skin is described, but not that into one warmer than the skin, i.e., evaporative heat loss, the usual conditions on a summer day), and some errors (e.g., the energetic substrate in brown adipose tissue (BAT) is not glucose, nor is thyroid hormone the uncoupling agent that prevents ATP production in BAT mitochondria). Nevertheless, these shortcomings are not fatal, and I would recommend this book, therefore, to anyone wishing an introductory, professional, and succinct exposure to animal physiology. ❖

*Clark M. Blatteis  
University of Tennessee, Memphis*



### Oxygen Transport To Tissue XIX

#### Advances in Experimental Medicine and Biology, Vol. 428

David K. Harrison and David T. Delpy (Editors).

New York: Plenum, 1997, 718 pp., illus., index, \$175.00.  
ISBN: 0-306-45711-3.

*Oxygen Transport to Tissue XIX* summarizes the "Proceedings of the 24th Annual Meeting of the International Society on Oxygen Transport to Tissue" held in West Park Centre, Dundee, Scotland. This book represents an up-to-date and comprehensive collection of articles concerning tissue oxygenation. The editors of this book have done an outstanding job, and the wide range of topics covered make this book a valuable resource not only for the established investigator in oxygen transport, but young scientists and physicians as well.

This book is divided into 14 sections, each containing several chapters. The first section discusses oxygen in vascular diseases. Even though we have known the importance of oxygen transport for well over a century, new strategies to combat disease states with oxygen therapy, such as hyperbaric oxygen, continue to arise. This book provides numerous examples of clinical entities in which oxygen transport is key, rang-

ing from the relatively simple ulceration to tumor production and growth. The clinical importance of many of the chapters in this book cannot be emphasized enough. In addition, this book provides up-to-date information concerning the role of oxygen in ischemia-reperfusion. The production of oxygen derived free radicals, their deleterious effects, and effective therapeutic control of this process continues to be an extremely important line of research. Although there was not a section devoted to oxygen derived free radicals, it was the focus of several chapters.

Over the past few decades, tremendous strides have been made in the ability to non-invasively estimate and/or quantitate oxygen transport and tissue oxygenation. Numerous chapters describe or utilize these techniques, making this book an excellent resource for these technologies.

Although many of the chapters in this book illustrate the clinical importance of oxygen, basic science work has not been excluded. There is a section on methods and instrumentation. A section on theoretical models of oxygen transport has been included. Also, many of the chapters describe basic science experimentation. The melding of clinical and basic sciences is pivotal for understanding complex physiological processes. This book doesn't fall short in recognizing this.

A comprehensive book on oxygen

transport should contain information on oxygen transport to specific vascular beds, and this book provides it. There are sections covering oxygen transport to the brain, heart and lungs, and skeletal muscle. The chapters in these sections describe experiments ranging from awake, human subjects to animal models. In addition, new technologies to assess the oxygenation state of the various tissues are described. Also covered in these sections are experiments examining cellular disturbances associated with changes in the oxygenation state of the tissue, such as ischemia and reperfusion.

In summary, *Oxygen Transport to the Tissues XIX* is a thorough treatise providing current information on oxygen transport. Oxygen transport is a pivotal component of many processes involved in the complex physiology of vertebrates. In an effort to guide the reader, the book is divided into 14 main sections. Although main sections are provided, the editors have expertly compiled this text such that the various chapters provide information concerning not only the main idea of the section but also techniques and data illustrating the physiological impact of oxygen transport between the various sections. This book will benefit both scientists and clinicians. ❖

L. Britt Wilson  
University of South Alabama

### Oxygen Regulation of Ion Channels and Gene Expression

J. Lopez-Barneo and E.K. Weir (Editors).

Armonk, NY: Futura, 1998, 352 pp., illus., index, \$120.00.  
ISBN: 0-87993-694-0.

The cover illustration to this book shows a single-channel recording from the cell-attached configuration of the

patch-clamp technique. This is appropriate given that the emphasis of this book is a collection of brief papers suggesting that voltage-gated ion channels either directly or indirectly serve as oxygen sensors for a variety of cell types. The goal of this book is to link disparate fields of oxygen regulation of cell physiology, gene transcription, and ion channel structure-function relationships. These fields are sufficiently far apart that even the best effort of the editors exposes the large gaps of informa-

tion between oxygen sensing, gene regulation, and control of cellular excitability.

The individual chapters are uniformly succinct and nicely illustrated. This book is organized into 6 sections, with 24 chapters. The initial section gives a three-chapter overview of principals of oxygen sensing. The third chapter by Pongs and colleagues introduces the concept that any cysteine-containing protein is prone to oxidation. The family of voltage-gated K channels are an

## Book Reviews

illustrative model of how the redox state of cysteine residues can acutely regulate protein function. Although Pongs and colleagues performed elegant studies of structure-function relationships of voltage-gated K channels, their chapter does not quite fit into an introductory General Principles of Oxygen Sensing section.

Readers interested in ion channel function, particularly voltage-gated ion channel modulation by oxygen, will find the introductory section and the final three sections quite useful. Sections two and three discuss oxygen sensors in bacteria and plants, and oxygen sensing in eucaryotic gene expression, respectively. In section two nitrogen fixation in plants, redox taxis in bacteria, and ethylene receptors as oxygen (hypoxia) sensors in plants are addressed. Section two is simply not well integrated into this book. Perhaps this reflects the bias created by my own research interests. Nevertheless, if this book is intended at least in part for ion channel researchers, I am left unconvinced that I should consider any of these mechanisms in relation to ion channel modulation of mammalian cellular physiology. Section three on regulation of gene expression offers succinct overviews of oxygen regulation of erythropoietin gene expression and evi-

dence for hydrogen peroxide as a signal transduction molecule in oxygen-dependent regulation of gene expression. In contrast to section two, these chapters beg the question for the future whether there may be a connection between voltage-gated ion channels and gene expression. In particular, Figure 4 in the chapter by Huang and Bunn would have served as an excellent overlay to the cover figure. In one simplistic diagram these authors clearly illustrate the core theme conveyed in the title and the preface to this book. An oxygen sensor is placed at the cell membrane mediating regulation in normoxia, hypoxia, and by hydrogen peroxide. Downstream to this unestablished transmembrane signaling molecule are a couple of intracellular cascades that ultimately result in gene regulation.

The final 14 chapters all fall under the imprimatur of oxygen regulation of ion channel function. Sections are divided by tissue types: neurosecretory mechanisms, vascular smooth muscle, neurons, and finally integrated physiological systems (carotid body and whole-animal physiological responses). Throughout this book the emphasis is mainly on voltage-gated K channels. To a lesser extent treatment is given to the ATP depletion channel (K-ATP), volt-

age-gated Na and Ca channels, and the calcium-permeable AMPA receptors. The chapter on K-ATP channel points out the important caveat that the oxygen sensor can be either the channel itself or other intracellular metabolic sensors. Overall, this book covers just enough information to allow investigators to get a big picture view of the diverse responses and systems affected by oxygen. The material is well presented and the references and index are ample to provide more in depth information.

The editors deserve credit for integrating a broad area of regulation of cellular excitability and physiology. I recommend this book as a resource for information in the rapidly expanding field of oxygen regulation of ion channels. Although I am happy to have this book on my office bookshelf, I would be reticent to spend \$120 on it. The glut of useful reviews of ion channels combined with the rapid pace of innovative research in this area leads me to predict that this book will be dated within the next couple of years. Despite the high cost of this book it is worthwhile reading for ion channel researchers interested in oxygen regulation and for physiologists interested in ion channel function. ❖

*Jonathan Satin*  
*University of Kentucky*

### APS Sustaining Associate Members

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Quaker Oats Company

Rhone-Poulenc Rorer

W. B. Saunders Company

Schering-Plough Research Institute

G. D. Searle and Company

SmithKline Beecham Pharmaceuticals



## Books Received

### *Concepts of Human Physiology.*

Richard L. Malvin, Michael D. Johnson, and Gary M. Malvin.

Menlo Park, CA: Addison Wesley Longman, 1997, 450 pp., illus., index, \$81.00.

ISBN: 0-673-98562-8.

### *Regulation of Sleep and Circadian Rhythms.*

Fred W. Turck and Phyllis C. Zee (Editors). *Lung Biology in Health and Disease*, Vol., 133.

New York: Dekker, 1999, 724 pp., illus., index, \$235.00.

ISBN: 0-8247-0231-X.

### *Hormones and the Heart in Health and Disease.*

Leonard Share (Editor).

Totowa, NJ: Humana, 1999, 258 pp., illus., index, \$99.50.

ISBN: 0-89603-726-6.

### *The Metabolic Basis of Performance in Exercise and Sport.*

David R. Lamb and Robert Murray (Editors).

*Perspectives in Exercise Science and Sports Medicine*, Vol. 12.

Carmel, IN: Cooper, 1999, 394 pp., illus., index, \$49.00.

ISBN: 1-884125-73-5.

### *Lung Development.*

Claude Gaultier, Jacques R. Bourbon, and Martin Post (Editors).

New York: Oxford University Press, 1999, 451 pp., illus, index, \$89.50.

ISBN: 0-19-511278-4.

### *Molecular Mechanisms of Endocrine and Organ Specific Autoimmunity.*

George S. Eisenbarth.

*Medical Intelligence Unit 13.*

Georgetown, TX: Landes, 1999, 271 pp., illus., index, \$89.00.

ISBN: 157059538-0.

### Award of the Professor Pierre Rijlant Academic Foundation of Cardiac Electrophysiology

The Award is destined to recompense a scientist who has made a major contribution to the field of cardiac electrophysiology, in particular as regards the following subjects: hybrid computers in electrocardiography, application of computers to electrocardiography and vectography and analogue simulation.

For the 1998 prize the Foundation received 16 applications from various countries in Europe, America and Asia.

The next Award is scheduled for 2000 and the amount will be 500.000 BF (approximately \$13,000).

Potential applicants are asked to forward the following documents in triplicate, to the Secretary's attention: curriculum vitae, a summary (less than five pages) of last five year works, main publications quoted to have to be enclosed; documents to be mailed prior to **December 31, 1999**.

In the event where any prize of an amount higher as compared to the Award of the Professor Pierre Rijlant Academic Foundation has been obtained during the period of the three previous years, the applicants concerned will be barred from being chosen. The paper will have to be written in French, Dutch, German, or English.

Any further information will be provided gladly by the Secretary of the Foundation, at the following address:

Dr. Marc Renard  
Royal Academy of Medicine of Belgium  
Palais des Académies  
Rue Ducale, 1  
1000 Brussels, Belgium

### Where Does the Buck Stop? Ethics, Economics, and Responsibility

When it comes to ethical responsibility for the humane conduct of animal research, the buck stops with the IACUC. But ethical considerations can (and increasingly do) collide with reality in situations where the IACUC lacks the time, money, or people resources to carry out these responsibilities.

Where does the buck stop with respect to evaluating and providing resources for environmental enrichment, experimental validation of humane endpoints, or retirement programs for animals? How does the IACUC weight the costs of refinement and what can the IACUC do to increase the effectiveness when ethical responsibilities and the resources to carry them out are not clearly linked?

These topics and more, including costs and ethical decision-making in animal research; refinements, alternatives, and environmental enrichment; regulatory and self-imposed burdens; new proposals and their potential costs and ethical benefits; and practical solutions for resolving conflicts between ethics and economics in research animal research, are to be addressed at a National Animal Welfare Education Workshop. Speakers, panelists and leaders of the workshops come from around the United States and bring with them a variety of perspectives.

The workshop will be held **October 2-5, 1999** at the Granlibakken Resort and Conference Center, Tahoe City, CA. For information about the program, accommodations, and registrations, see our web site <http://animalwelfare.ucdavis.edu/conference/default.html>, or contact Joy Mench or Sue Heekin at the Center for Animal Welfare. Tel.: 530-754-8564; Fax: 530-752-4508; Email: [speekin@ucdavis.edu](mailto:speekin@ucdavis.edu).

# Announcements

## Individual Postdoctoral Fellowships in Genomics and Related ELSI Topics

NIGMS is a co-sponsor of a new program announcement entitled "Individual Postdoctoral Fellowships in Genomics and Related ELSI Topics." The purpose of these fellowships is to train scientists in the multidisciplinary skills that will enable them to engage in research to accomplish the short- and long-term objectives of the Human Genome Project and similar genomic projects, as well as to take full advantage of the resulting genomic data and resources to solve biomedical

and bioethical problems. Broad areas of research that are relevant include genomic analysis (including technology development) and the ethical, legal, and social implications of human genetics research. NIGMS will support fellowships that provide training in functional genomic analysis in non-human model systems.

The full announcement is available at <http://www.nih.gov/grants/guide/pa-files/PA-99-122.html>

## NKUDIC Releases New Fact Sheets on Kidneys and Urinary System

The National Kidney and Urologic Diseases Information Clearinghouse (NKUDIC) of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) has published two new fact sheets describing the anatomy and normal function of the kidneys and urinary tract.

*Your Kidneys and How They Work* describes the signs and symptoms of kidney disease, standard tests for renal function, ways to preserve renal function, and treatments for end-stage renal disease.

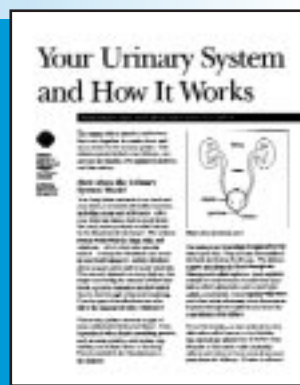
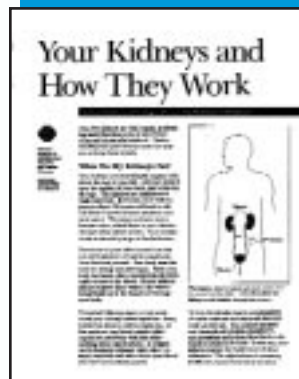
*Your Urinary System and How it Works* explains how aging, illness, or injury can cause problems in the urinary system.

A single copy of each fact sheet is available free. Health care professionals may order a packet of 25 copies for \$5. The fact sheets are also available electronically through the internet. Health care professionals are welcome to insert

them into newsletters or duplicate them for their patients. NIDDK's patient information materials are a public service and are not copyrighted. The NIDDK health information page can be accessed at <http://www.niddk.nih.gov/health/health.htm>.

For more information, contact NKUDIC, ATTN: YUS, 3 Information Way, Bethesda, MD 20892-3580; tel: (301)

654-4415; fax: (301) 907-8906; email: [nkudic@info.niddk.nih.gov](mailto:nkudic@info.niddk.nih.gov).



## Advanced Pediatric Life Support Courses

Two session dates available:

November 8-10, 1999; June 19-21, 2000

Johns Hopkins University School of Medicine and the Johns Hopkins Pediatric Trauma Center are sponsoring a course designed to familiarize physicians with the most common life-threatening conditions in children and to develop skills that allow the physician to competently resuscitate, stabilize, evaluate, and triage a seriously injured or ill child. In order to provide maximum opportunity for presentation of didactic material, a variety of formats will be used, including formal lectures, question and answer periods, skill stations, procedure laboratory sessions, polishing technical procedures, and small-group case discussions. Each registrant will attend all skill stations and a laboratory session on alternate afternoons. Enrollment is limited. A copy of the recently published second edition of the *Golden Hour—The Handbook of Advanced Pediatric Life Support* will be given to each registrant.

The Johns Hopkins University School of Medicine is accredited by the accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians. The Johns Hopkins University designates this continuing medical education for up to 21 credit hours in Category 1 of the Physician's Recognition Award of the American Medical Association.

FEE: \$675

CONTACT:

Program Coordinator  
Office of Continuing Medical Education  
Johns Hopkins University School of Medicine  
Turner 20, 720 Rutland Avenue  
Baltimore, MD 21205-2195  
Phone: 410-955-2959  
Fax: 410-955-0807  
Email: [Cmenet@jhmi.edu](mailto:Cmenet@jhmi.edu)  
Internet: <http://www.med.jhu.edu/cme>

## Announcements

### Fondation de Physiopathologie Professeur Lucien Dautrebande Research Award

The "Fondation de Physiopathologie Professeur Lucien Dautrebande" awards an international Prize for outstanding research in human or animal pathophysiology every three years.

The Prize, amounting to 5,000,000 BEF (~\$125,000), may be awarded either to a single individual or to a team of workers who have contributed to progress of human or animal pathophysiology, with particular reference to advances in Therapy. If there are two or more superior applications of equal merit, the Prize is awarded to the youngest individual(s).

The desire of Professor Lucien Dautrebande was to enable the awardee(s) to facilitate research of proven merit in a sufficiently advanced stage to benefit from substantial support and reward.

The candidate or team of candidates should specify their scientific achievements and future aims in an introductory document.

The application should include:

The introductory document

The curriculum vitae of the candidate(s) and a list of any financial Prizes received in the past 5 years, including their value

A complete list of publications with three copies of the 20 judged to be most representative

A supporting document written and signed by two supporters who should be distinguished scholars expert in the field of work.

This document should describe the scientific achievements of the candidate(s) and the significance of their research.

Applications will be submitted to an international Jury appointed by the "Fondation Professeur Lucien Dautrebande". The Prize may not be awarded to any candidate who has, in the previous five years, already received an award of equivalent or greater amount than the Professeur Lucien Dautrebande Prize.

Presentations, reports and proposals related to the Prize Professeur Lucien Dautrebande are confidential. Submitted documents will not be returned to the candidate(s), unless specifically requested and at the candidate(s) own expenses.

Send application materials accompanied by a confidential seal to the Secretary of the Fondation de Physiopathologie Professeur Lucien Dautrebande, c/o FNRS, 5 rue d'Egmont, 1000 Brussels, Belgium.

Deadline is **December 15, 1999**.

### Volvo Awards for Low Back Pain Research 2000

In order to encourage research in low back pain, the Volvo Company also this year has sponsored three prizes of \$10,000 each. Awards will be made competitively on the basis of scientific merit in one or more of the following three areas:

- 1) Clinical studies
- 2) Bioengineering studies
- 3) Studies in other basic science areas

Papers submitted for the contest must contain **original** material, not previously published or submitted for publication. A multiple authorship is acceptable. The manuscripts, in the English language, should be in the form of a complete report, including original illustrations (please mark with names); not exceeding 15 typewritten pages - references and tables can be added; double-spaced; typed text should not be smaller than Times 12 point; and in a form suitable for submission as an original paper to a scientific journal. Ethics committee approval is necessary for all animal studies as well as controlled clinical studies. **One original and five copies** of each paper in full—including illustrations—must reach the address below **not later than November 15, 1999**. Accordingly, articles sent by fax will not be accepted. Give complete address with telephone number and fax number. Winners will be informed mid-January, 2000.

One of the authors should be prepared, at his own expenses, to come to Adelaide, Australia, at the time of the meeting of the International Society for the Study of the Lumbar Spine, April 9-13, 2000, to present the paper and to receive the award.

The board of referees will be chaired by the undersigned and will contain members from the fields of clinical medicine, bioengineering, and biochemistry.

Please direct all correspondence to:

Professor Alf Nachemson  
Department of Orthopaedics  
Sahlgrenska University Hospital  
S-413 45 Göteborg, Sweden

## Mark Your Calendars!

IUPS 2001

International Union of Physiological Sciences

Christchurch, New Zealand

For more information, see <http://www.iups2001.org.nz>.

## Announcements

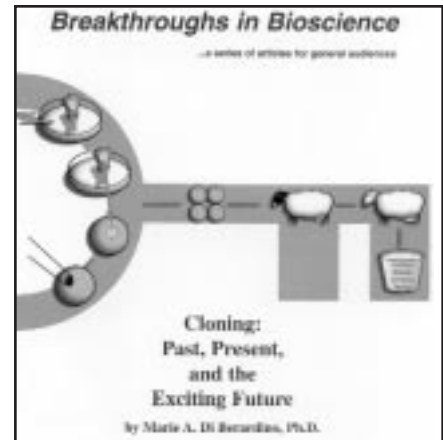
### FASEB Announces Release of Latest Article in *Breakthroughs* Series

FASEB announced the publication of the article, "Cloning: Past, Present, and the Exciting Future" by Dr. Marie Di Berardino. This latest article in FASEB's *Breakthroughs in Bioscience* series includes a historical overview of cloning and describes in a clear and concise manner its scientific development.

Di Berardino accounts how breakthroughs in understanding the scientific principles of cellular development have the potential to be translated into opportunities to save the lives of severely ill

people, improve the quality of life for those suffering from debilitating diseases, and raise the standards of nutrition and health.

This article is the seventh in the series published by FASEB. Other articles are "Serendipity, Science, and a New Hantavirus," "The Polymerase Chain Reaction," "Blood Safety In The Age of AIDS," "Unraveling the Mystery of Protein Folding," "Cardiovascular Disease and the Endothelium," and "*Helicobacter pylori* and Ulcers: a Paradigm Revised."



### "Glue Grants" for Integrative and Collaborative Approaches to Research

NIGMS announces two initiatives that seek to promote the integrative and collaborative approaches that are increasingly needed to solve multifaceted biological problems. Because these programs are meant to provide resources to bring people together, they have been nicknamed "glue grants." One of the initiatives has just been published as a request for applications (RFA) in the NIH Guide for Grants and Contracts; the other will be published as a program announcement (PA) in the NIH Guide in the near future.

The purpose of the RFA, entitled "Large-Scale Collaborative Project Awards," is to make resources available for currently funded scientists to form research teams to tackle complex problems that are of central importance to biomedical science and to the mission of NIGMS but that are beyond the means of any one research group. A high level of resources may be requested to allow participating investigators to form a consortium to address the research problem in a comprehensive and highly integrated fashion.

NIGMS intends to commit up to \$20 million in fiscal year 2000 to fund up to five large-scale consortium awards (depending on the availability of funds).

Awards will be made in two phases: Phase I planning grants of \$25,000 (direct costs) and Phase II awards of up to \$5 million per year (direct costs) to support the large-scale projects themselves. The receipt date for Phase I applications is **August 27, 1999**. Only successful Phase I applicants are eligible to submit Phase II applications, which are due on **January 21, 2000**.

The full text of the RFA is posted at <http://www.nih.gov/grants/guide/rfa-files/RFA-GM-99-007.html>

The purpose of the PA, entitled "Integrative and Collaborative Approaches to Research," is to provide groups of currently funded investigators with additional support for collaborative and integrative activities. These activities should significantly enhance the investigators' existing capabilities and introduce new approaches to the research aims of the funded projects. Applications must be for projects in areas of research supported by NIGMS, and the principal investigator who serves as the consortium leader must have an NIGMS-funded R01 or R37 grant.

This PA is intended to support collaborative activities and resources of a modest scale, involving a small number of funded investigators working on a common problem. The maximum direct costs per year will be \$300,000. The PA is an ongoing announcement for which there is no set-aside of funds.

Additional information for applicants, including answers to questions that might arise, can be found at <http://www.nih.gov/nigms/funding/pa/rfa-gm-99-007info.html> for the RFA and, once the PA is published, at <http://www.nih.gov/nigms/funding/pa/pa-99-076info.html> for the PA.

Inquiries are welcome and should be directed to the contact people listed in the RFA and PA.

## Scientific Meetings and Congresses

*August 22-26*

**Advances in Tissue Engineering (Rice University Institute of Biosciences and Bioengineering's 7th Annual Conference), Houston, TX.** *Information:* Rice University, School of Continuing Studies - MS 550, PO Box 1892, Houston, TX 77251-1892. Tel: 713-527-4803; fax: 713-285-5213; email: scs@rice.edu; Internet: <http://www.rice/scs/tissue>.

*August 22-27*

**9th World Congress on Pain, Vienna, Austria.** *Information:* International Association for the Study of Pain (IASP) Secretariat, 909 NE 43rd St., Suite 306, Seattle, WA 98105. Tel: 206-547-6409; fax: 206-547-1703; e-mail: IASP@locke.hs.washington.edu; Internet: <http://www.halcyon.com/iasp>.

*August 23-28*

**Fifth International Congress of Comparative Physiology and Biochemistry, Calgary, Alberta, Canada.** *Information:* The Secretariat, Fifth International Congress of Comparative Physiology and Biochemistry, Special Events and Conference Office, University of Calgary - Olympic Centre, 2500 University Drive NW, Calgary, Alberta, Canada T2N 1N4. Tel: 403-220-5261; fax: 403-289-9311; e-mail: iccpb@acs.ucalgary.ca; Internet: <http://acs.ucalgary.ca/~iccpb99/>.

*August 24-28*

**First International Conference on Control and Diseases of Sodium-Dependent Transport Proteins and Ion Channels, Shizuoka, Japan.** *Information:* Yasunobu Suketa, PhD, Department of Environmental Biochemistry and Toxicology, University of Shizuoka School of Pharmaceutical Sciences, 52-1 yada, Shizuoka, Shizuoka 422-8002, Japan. Tel: +81-54-264-5673; fax: +81-54-264-5672; email: suketa@ys7.u-shizuoka-ken.ac.jp; Internet: <http://w3pharm.u-shizuoka-ken.ac.jp/~icsdt>.

*August 31-September 3*

**Progesterone, Progestins and Antiprogestins (Satellite Symposium to Sixth International Congress on Hormones and Cancer), Jerusalem, Israel.** *Information:* Irving M. Spitz, MD, DSc, Chair of Organizing Committee, Institute of Hormone Research, Shaare Zedek Medical Center, PO Box 3235, Jerusalem, 91031, Israel. Tel: +972-2-655-5188; fax: +972-2-652-2018; e-mail: hormones@netmedia.net.il; Internet: [http://www.weizmann.ac.il/biological\\_regulation/antiprogl/](http://www.weizmann.ac.il/biological_regulation/antiprogl/).

*September 9-11*

**New Optical Methods in Cell Physiology, The 53rd Annual Meeting and Symposium of the Society of General Physiologists, Woods Hole, MA.** *Information:* Society of General Physiologists, PO Box 257, Woods Hole, MA 02543-0257. Tel: 508-540-6719; fax: 508-540-0155; email: sgp@mbl.edu; Internet: <http://www.emory.edu/HEART-CELL/sgp.htm>.

*September 15-16*

**Obesity - Public Health Crisis, Washington, DC.** *Information:* Morgan Downey, Executive Director, American Obesity Association, 1250 24th Street NW, Suite 300, Washington, DC 20037. Tel: 800-869-1551; fax: 202-776-7712.

*September 22-26*

**15th International Congress of the Society for Leukocyte Biology, Cambridge University, UK.** *Information:* Society for Leukocyte Biology, 9650 Rockville Pike, Bethesda, MD 20814. Fax: 301-571-5704; email: slb@faseb.org; Internet: <http://www.biosci.ohio-state.edu/~slb>.

*September 27-28*

**Head Out Water Immersion Symposium, Graz, Austria.** *Information:* Helmut G. Hinghofer-Szalkay or Melitta Unterlerchner, Physiologisches Institut, Harrachgasse 21, A-8010 Graz, Austria. Tel: +43-316-38-4262 or +43-316-38-3638; fax: +43-316-38-1270; email: helmut.hinghofer@kfunigraz.ac.at; Internet: [http://www-ang.kfunigraz.ac.at/~hinghofer/howi\\_99.htm](http://www-ang.kfunigraz.ac.at/~hinghofer/howi_99.htm).

*September 29-October 1*

**1st European Meeting of Vascular Biology and Medicine, Nuernberg, Germany.** *Information:* H. Michael Piper, Institute of Physiology, Aulweg 129, D-35392 Giessen, Germany. Fax: +49-641-99-47239; email: michael.piper@physiologie.med.uni-giessen.de.

*September 30-October 4*

**American Society for Bone and Mineral Research 21st Annual Meeting, St. Louis, MO.** *Information:* American Society for Bone and Mineral Research, 1200 19th Street, NW, Suite 300, Washington, DC 20036-2422. Tel: 202-857-1161; fax: 202-223-4579; email: ASBMR@dc.sba.com; Internet: <http://www.asbmr.org>.

*October 7-10*

**Society for Advancement of Chicanos and Native Americans in Science National Conference, Portland, OR.** *Information:* SACNAS, PO Box 8525, Santa Cruz, CA. Tel: 831-459-0170; fax: 831-459-0194; email: info@sacnas.org; Internet: <http://www.sacnas.com>.

*October 9-13*

**Annual Congress of the European Respiratory Society, Madrid, Spain.** *Information:* European Respiratory Society, Lausanne Headquarters, 1, boulevard de Grancy, CH-1006 Lausanne, Switzerland. Tel: +41-21-613-0202; fax: +41-21-617-2865; email: scientif@ersnet.org.

*October 14-16*

**4th International Congress of the World Muscle Society, Antalya, Turkey.** *Information:* Haluk Topaloglu, MD, Local Organizer of the 4th Meeting of the WMS, Department of Child Neurology, Hacettepe Children's Hospital, 06100 Ankara, Turkey. Tel: +90-532-234-1226; fax: +90-312-310-6262; email: htopalog@gen.hun.edu.tr.