Writing Difficult Letters of Recommendation

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Cell Biology in Puerto Rico

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How to Get Involved in K–12 Education

It is unquestionable that there are serious problems with the understanding of science in the U.S. Most of us have anecdotal examples of otherwise intelligent people who are dismayingly misinformed about basic scientific issues such as “cloning,” the risks and benefits of vaccination, and the utility of research on model organisms. These observations demonstrate that we as scientists must communicate more effectively with the community at large. To accomplish this goal, we must improve science education for nonmajors in our universities; we also need to engage policy makers aggressively on science-related issues at levels from school boards to senators. A great way for ASCB members (students through faculty) to get involved in these efforts is to participate in the activities of the ASCB Education, Public Information, and Public Policy Committees.

However, while it is imperative that our community takes an active role in informing the public about scientific issues, the problems with science understanding originate in how science is taught to our children. The U.S. Department of Education has reported that as of 2005, 48% of 12th graders were testing at a level below “basic,” 35% tested at the basic level, and only 18% qualified as at least proficient (http://nces.ed.gov/nationsreportcard/science). This lack of science literacy in American students is frightening given the large number of science-related issues that people will be voting upon in the near future. It also has an impact on the students themselves: As jobs for unskilled laborers become harder to find, it is even more important that K–12 students receive high-quality training in science and related fields.

K–12 Education, continued on page 6

In Memoriam

Philip Siekevitz, 1918–2009

Philip Siekevitz, an original member of the ASCB and its first Council as well as the Society’s sixth president, died on December 5 at the age of 91. He participated in many significant advances in the field of modern cell biology.

Siekevitz was born in 1918 in Philadelphia to Joseph and Tillie, garment workers who created their unique last name.

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Appeal for Help: Cell Biologists Hit by Chile Earthquake

Dear ASCB Members,

Cell biology laboratories in the Chilean cities of Concepción, Talca, and Santiago were badly hit by the recent earthquake and the ensuing lack of electric power that lasted up to a week. In addition to losing invaluable tissue samples, DNA constructs, and antibodies that were the fruits of years of hard work, many laboratories lost essential equipment and are now finding it very hard

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Building Community

Why are you a member of ASCB? Why is your colleague down the hall, who has done cell biology research for years, not a member? How can we make the Society more useful or rewarding for you, and more likely to attract or retain her? Our Society is only as strong as its members, and we need to keep asking these questions, and evolving in response.

When we have surveyed our members, one answer we frequently heard to the first question was, “to be part of the international community of cell biologists.” That is also the most important of my own list of reasons for being a member of ASCB. I probably wouldn’t be a long-term member if there were not an Annual Meeting to go to, and I see the work our Public Policy Committee does to educate the government as crucial in helping my science get funding. But at the end of the day, I’m an ASCB member because it’s my community; it has been since I joined as a PhD student in 1983. I think the same is true for many of you. So in planning directions for our Society, strengthening and extending that sense of community is perhaps the overriding concern.

ASCB Annual Meeting Strengthens Bonds

What are the bonds that hold us together as a community? We share a commitment to cell biology research. But so do lots of colleagues who don’t join ASCB, or don’t remain as members after joining to go to the meeting. When I ask colleagues at Harvard who work with cells why they aren’t members, I most often hear, “because I’m not going to the meeting this year.” For them, and for many of our temporary members, ASCB is the Annual Meeting, and nothing more. Or at least it’s not enough more to fork over dues every year. For our core membership, shared research interests must be only one of multiple bonds. I wonder if we are doing enough to identify and enhance these deeper reasons for membership, and to communicate their value to our temporary members, the ones who lapse in years when they don’t attend the meeting.

Like any large community, ASCB consists of a complex, overlapping network of smaller communities that share scientific, social, or professional ties. One of the most important for me is with ex-members of my own laboratory. I may only see them once a year at the ASCB Annual Meeting. Most years we organize a dinner, which is a chance to catch up scientifically and socially. It’s also a time for current—and ex—lab members to put faces to names they know from papers, protocols, or apocryphal stories. I often attend a similar function put on by Ted Salmon’s group. He’s an old friend and collaborator at University of North Carolina, Chapel Hill. These mainly social events are a highlight of my Annual Meeting experience. A related but different network comprises colleagues whose research interests overlap with my own. I interact with this group mostly at poster sessions, and in hallways outside Minisymposia. These interactions are an important part of staying current with developments in my field. But over the years they have often led to initiating a collaboration or obtaining a key reagent.

Many community-building activities, like the ones I described, occur at the Annual Meeting. So it’s important we design the schedule with these in mind. Perhaps most important is to maximize the opportunities for informal scientific interactions. I’m curious how the schedule change in 2009, when we moved the major Symposia to the afternoon, affected these opportunities. My impression is that the poster session experience was enhanced by the change, perhaps at the cost of Symposium attendance. We will repeat the new schedule in 2010, since we feel it takes at least two years to see if the experiment has worked. Please give us your feedback through the meeting survey. There is a tendency for surveys to select for negative feedback; if something worked better in your eyes, it’s important to let us know. Are there other changes that would enhance your meeting experience in terms of building community, or gaining access to an existing community?
I’ve often heard the comment that the ASCB meeting can be a lonely experience for first-time attendees and others who don’t have long-standing communities for networking. Enhancing the meeting experience of this group was one of the goals of the International Affairs Committee (IAC). IAC members organized a meet-and-greet lunch for international attendee graduate students and postdocs on the first day of the meeting. That has been a great experience, and we hope longer-term community building continues on the related Facebook group. It now numbers nearly 1,000 members. (To join this or other groups, go to www.ascb.org and view the options under ASCB Networking Groups.) Are there other things we could do at the meeting to help newcomers find like-minded colleagues to interact with?

Year-Round, Grassroots Community Is Important
To be successful, most communities need to interact more than once a year. The Minorities Affairs Committee (MAC) and Women in Cell Biology (WICB) Committee are good examples of groups that sponsor year-round community-building activities. A powerful experience for me at the 2009 Annual Meeting was hearing career trajectory stories from young minority faculty who had benefitted from MAC support, often at multiple points in their careers. Their sense of community, and of its practical importance in career-building, was deeply moving. The WICB community has long been a vibrant part of the Society. And I think this community is an important part of why many female scientists have been long-term ASCB members. Are we doing enough to support year-round activities of all ASCB communities? The Internet provides new kinds of tools for building and maintaining community, and perhaps we could be using these more effectively. We have added Facebook groups, a Twitter feed, and a Facebook fan page to expand our outreach. We are also seeking ASCB Ambassadors (see March 2010 ASCB Newsletter).

One hallmark of strong organizations is a tendency to encourage, and be shaped by, bottom-up, member-initiated activities. This is how successful efforts like the MAC and WICB Committee started. Are we doing enough to encourage new communities to emerge at the grass-roots level, and to help them grow? The 2009 Annual Meeting saw the first formal meeting of a gay, lesbian, bisexual, and transgender cell biologists group. I heard this was a very positive experience; it provides a good example of self-organization that other groups might follow. The member-initiated scientific sessions (Special Interest Subgroups) on Saturday afternoon of the meeting are another fine example of bottom-up organization. These are always a highlight of the meeting for me. We have discussed building more such sessions into the schedule, but there are significant logistical hurdles.

Something we don’t currently do much of as a formal ASCB activity is to support community-building around specific technologies. Sharing of software, protocols, and reagents through the Internet has become increasingly important in the last few years. I could imagine ASCB sponsoring activities of this kind, for tools are important for cell biologists—image analysis and modeling software, for example. That said, organizing a website is labor-intensive, and staff time is expensive. In the current budget climate ASCB might be most effective as a forum for member-run web activities, connecting like-minded members.

Your Thoughts Are Needed
I sometimes find it difficult to explain in words why ASCB is such an important part of my own self-identity as a scientist. Every long-term member probably has his or her own reasons for loyalty, but community is surely one of the most important for all of us. I would very much like to extend this sense of community to more colleagues, and to increase its relevance to young scientists who are just forging their own scientific self-identities. We have to innovate to stay relevant, and I’m not sure we are using the Internet in a sufficiently innovative way to build and enhance community. I am sure that the most effective efforts will not come from your President and Council as top-down initiatives. The health and future of the Society depend on members self-organizing their own communities and initiatives under the ASCB umbrella. Our job is to help! Please send me your ideas.

Comments are welcome and should be sent to president@ascb.org.
Nature goes beyond merely keeping up with the ever changing world of science; it constantly pushes forward the frontiers of knowledge and provides a forum for informed debates on science ethics and policy. Each week you can count on *Nature* for coverage of breakthrough developments in science and technology.
What can researchers and trainees do about K–12 education? The problems might seem insurmountable, but individual scientists can make an impact on individual students in individual classrooms. Even a few hours on a single occasion can be useful. The impact of these efforts is significant.

Why are we needed? If you talk with high school teachers, one of the largest barriers to teaching science is that students feel that science is boring and/or irrelevant. We know that it isn’t! Exposing students to real scientists and their passion for real scientific problems is one important way that we can encourage an appreciation for science. Moreover, many teachers, especially those in elementary and middle school, simply don’t have the background to get students excited about what they are learning. It is thus critical that we, the scientific community, increase our presence in K–12 education.

Who can participate? Scientists at any level can have a positive impact on K–12 education. In particular, we encourage graduate students to get involved. They are young and enthusiastic, yet old enough to be professional role models to K–12 students. They are capable of bringing a touch of current, “real world science” into classrooms that otherwise wouldn’t see anything close to cutting-edge research.

It is important to point out that contributing to K–12 education is not simply altruistic—it has benefits for us as scientists too. Successful National Science Foundation (NSF) grant applicants are expected to participate in “outreach activities.” Moreover, the experiences gained in K–12 classrooms can contribute to the career development of graduate students and postdocs. This is especially true if they are planning a future in teaching, but experience in effectively communicating scientific ideas and enthusiasm to nonscientists is useful regardless of the career path the trainee plans to take.

**Present to a K–12 Class**
A classroom presentation can be an ideal way to make a small but real contribution to K–12 education. What should you present? Fourth- and fifth-grade students can get very enthusiastic about a discussion of what cells are and what they do (the classic movie showing a neutrophil chasing a bacterium is always a hit). Middle school students also respond positively to discussions of what cells are, but you could include a discussion of how cells move. Cell motility movies, especially those including sperm, catch their attention. High school students become engaged by disease-related topics like cancer (what it is, what causes it, and how we fight it), viruses (AIDS and flu are obvious foci), and neurodegenerative diseases (unfortunately, many students will have a relative with Alzheimer’s or Parkinson’s).

The challenge in these cases is to find the appropriate level. High school students can vary profoundly in background and level of engagement. They are also less forgiving. Therefore, we suggest getting started with middle school students (who tend to be enthusiastic about anything that gets them out of a regular class) or AP Biology students (who will be much closer to the college students many of us teach). Try for the more challenging but ultimately more needy regular high school students once you’ve had a little practice. Whatever you do, don’t try to do too much. If you pique interest, get across one or two concepts, or just show students a movie that sticks in their minds, you’ve achieved your goal.

The remaining question is how to get into the classroom. This can be easy if you have a child in school—just tell your child’s teacher that you will be happy to speak to the class at a time convenient for the teacher. In many cases, you will get an enthusiastic positive response. If you don’t have a direct connection with a particular teacher, avenues include making connections through your University Outreach Coordinator, getting connected with an NSF-funded GK–12 group (more on this below), or simply contacting teachers directly (most schools will list the heads of the science departments online). Don’t be discouraged if you offer your services and do not get a positive response; many teachers (especially those in high school) are constrained by testing requirements. Others might be intimidated by you. Try another teacher, school, or school system.

**Get Involved with an NSF GK–12 Program**
NSF-funded GK–12 programs have two goals: first, to train graduate students to be effective in both research and the communication of science; second, to create a partnership between
If you pique interest, get across one or two concepts, or just show students a movie that sticks in their minds, you’ve achieved your goal.

Consider Other Involvement Ideas

You don’t need to commit yourself to a classroom experience or ongoing effort. You can sign up to judge a science fair and participate in community science exhibitions to share your expertise and passion for science. More significant but still manageable commitments include tutoring or taking a high school student or teacher into your lab for the summer. Funding for the latter may be available from NSF and/or the National Institutes of Health; contact your program director for more information.

All too often, the general public sees “scientists” only through the warped lens used by movies and the media. Science itself may be seen as boring, irrelevant, and perhaps dangerous. Approaches like presenting your research (at whatever level) to local students or putting graduate students in the local classrooms can build relationships among scientists, universities, K–12 schools, teachers, students, and parents. More and more people within the community will then start to see science as accessible, relevant, and maybe even a little bit fun.

—Holly Goodson, Jill Voreis, and Aranda Slabbekoorn, University of Notre Dame
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Siekevitz, continued from page 1

upon emigrating from Russia. His interest in biology began at Olney High School, where Siekevitz read Paul de Kruif’s Microbe Hunters. After high school, he worked two years as a picture framer to earn enough money to attend The Philadelphia College of Pharmacy and Science; he earned a BS in biology there in 1942. He served in the U.S. Army Air Force, first in Georgia to learn how to decontaminate U.S. airbases after chemical warfare attacks. Then he continued his service in California as a medical technician, administering the Wasserman test for syphilis to returning troops.

Thanks to the GI Bill, Siekevitz studied biochemistry at the University of California in Berkeley, receiving a PhD in 1949 under David Greenberg. His thesis described the metabolism of the amino acids glycine and serine in liver slices by using the newly discovered tracing technique with the isotope carbon-14. As one of the first National Institutes of Health postdoctoral fellows, he worked in the Harvard University laboratory of Paul C. Zamecnik (1949–1951). He demonstrated for the first time that well-defined subcellular fractions could be used in in vitro systems to study protein synthesis. He was also the first to demonstrate that energy in the form of ATP was necessary for incorporation of amino acids. He then joined Van R. Potter’s laboratory at the University of Wisconsin–Madison (1951–1954) as an oncology fellow. There he made important contributions studying the control of energy metabolism in mitochondria.

After reading Siekevitz’s papers on protein synthesis, Keith Porter and George E. Palade invited him to join their laboratory at The Rockefeller Institute for Medical Research (now University). He moved rapidly from assistant to associate (1959), and then to full professor (1966).

Siekevitz spent the next 20 years working with Palade to pioneer an integrative approach using biochemistry and morphology to study structural and functional properties of subcellular organelles. This work encompassed studies in pancreatic cells as a system for protein synthesis and secretion. It involved the isolation and description of ribosomes (the major sites of protein synthesis in the cell); protein biosynthesis; and the role of the endoplasmic reticulum in the secretory pathway. Siekevitz then became interested in the organization, function, and differentiation of several intracellular membranes in an effort to determine how the many membrane components function together as a unit, and how they are differentially formed. He developed the concept that cellular membranes are dynamic structures that change during development or environmental stress.

Siekevitz became head of the laboratory of cell biology when Palade left for Yale in 1973. He then changed focus to study membranes from the nervous system and the events occurring at both sides of the neuronal synapse (the junction between nerve cells where chemical signals are transmitted from cell to cell). He identified an important structural element at the synapse called the postsynaptic density (PSD). PSD is a disk or ring of proteins that appears to modulate neuronal transmissions. Siekevitz and his colleagues determined which proteins, such as cytoskeletal elements, neurotransmitter receptors, and ion channels, are attached to the PSD. They then began to unravel interactions among the many protein components of the PSD. This work on the structure and function of synapses led to an understanding of the cell biological basis of plasticity, including learning and memory, in the central nervous system.

He was a member of the National Academy of Sciences, the American Academy of Arts and Sciences, the ASCB (and served as president, 1966–1967), the American Society of Biological Chemists, the Society for Developmental Biology, the American Institute of Biological Sciences, the Federation of American Scientists, Sigma Xi, and the American Association for the Advancement of Science (AAAS). He was president (1976) and honorary fellow of the New York Academy of Sciences and fellow of the AAAS. He received two honorary degrees. The first, in 1971, was from his alma mater, the Philadelphia College of Pharmacy and Science; that institution also honored him with its Alumni Award in 1973. The other was from the Faculty of Sciences of the University of Stockholm, Sweden, in 1974.

Siekevitz was particularly proud of a program he instituted at ASCB that encourages an early interest in science by allowing high school students to attend the Society’s annual meetings. In addition, he and Ariel Loewy reached out to the next generation of productive scientists by co-writing the first text of modern cell biology, Cell Structure and Function (1963; third edition, 1992). Its goal was to acquaint undergraduates with the biological activities and personality of the cell by describing its range of properties that are associated with all living organisms. It was translated into many languages.
On retiring from active research, Siekevitz returned to an early love of writing short stories that began during his Army duty. He was quickly successful when two were published in the annual New Directions series. During retirement, he wrote a series of 10 impassioned short stories called “The Unknown Mozart.”

On a personal note, Phil’s keen interest in the history of modern cell biology was a great help to me. Not long ago he assisted in recruiting many contributors to, as well as wrote several essays for, a study of the origins of this science provisionally titled Entering an Unseen World.

Siekevitz is survived by his wife of 60 years, the former Rebecca Burstein, of New York City, and his daughters Ruth, of New York City, and Miriam, of Redwood City, CA.

—Carol L. Moberg, The Rockefeller University

Siekevitz was consultant to numerous scientific organizations, including the Panel on Molecular Biology of the National Science Foundation, the National Research Council, the National Cancer Program of the National Cancer Institute, and the International Cell Research Organization of UNESCO. He was an outspoken advocate for the social and moral responsibilities of scientists engaged in basic research to inform the public about the potential risks involved. A founding member and treasurer of the New York Scientists Committee for Public Information, he wrote extensively on science and public policy, in articles that appeared in The Nation, The New York Times, and Nature.

Siekevitz loved New York City, music, art, architecture, and travel to Italy and Mexico. While at home he enjoyed playing piano, particularly pieces by Mozart and Beethoven.

The ASCB 2010 Call for Nominations

Norton B. Gilula Memorial Award

Who is Eligible: An outstanding graduate or undergraduate student (at the time of nomination) who has excelled in research or a first-year postdoc whose work was performed while a PhD or MD/PhD student

How to Apply: The student or advisor should submit a one-page research statement, a CV, a list of publications, if any, the abstract submitted to the current year’s Annual Meeting, and the advisor’s letter of recommendation. Duplicate applications from graduate students may be submitted for the Gilula and Bernfield Memorial Awards.

Awards: The winner is presented a plaque and a ribbon for his/her poster board. Expenses to attend the Annual Meeting are paid. Funded by an annual grant from Rockefeller University Press.

Deadline: July 15

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Who is Eligible: An outstanding graduate student or postdoctoral fellow (at the time of nomination) who has excelled in research

How to Apply: The student or postdoc or his or her advisor should submit a one-page research statement, a CV, a list of publications, a copy of the abstract submitted to the current year’s Annual Meeting, and the advisor’s letter of recommendation. Postdocs may also submit the recommendation of their graduate student advisor. Duplicate applications from graduate students may be submitted for the Gilula and Bernfield Memorial Awards.

Awards: The winner is presented a plaque and an honorarium and will speak at a Minisymposium at the Annual Meeting. Expenses to attend the Annual Meeting are paid.

Deadline: July 15

All applications and nominations should be submitted to:
The American Society for Cell Biology
8120 Woodmont Avenue, Suite 750
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ascbinfo@ascb.org

For names of prior awardees or more information, visit www.ascb.org and click on “Awards/Grants,” or contact the ASCB at 301-347-9300 or ascbinfo@ascb.org.
There are many examples where mentorship makes the difference between success and failure. The best mentoring is really empowerment. As mentors our goal is the empowerment of young scientists.

Women scientists in particular need empowerment because they receive so much discouragement. We can play an important role by having positive expectations, offering guidance and encouragement, and opening doors. Here I describe some of the ways mentors have helped me and try to draw some lessons from those experiences.

Positive Expectations
Fortunately, there are many individuals who have positive expectations for women. My father was such a person. He impressed on me that I could do anything that I set my mind on doing. I grew up not knowing that there were things that little girls did that were different from what little boys did. Since I went to all-girls schools from kindergarten through college, it seemed the norm that women were leaders and able to take charge.

And I was lucky that my thesis advisor, Robert R. Wagner, who always appreciated my capabilities, said, “You are going to be a professor some day.” That set my trajectory. I knew that my next accomplishment would be to become a science professor.

Mentoring Small and Large
Mentors can offer advice on large issues, but sometimes a small piece of encouragement can help. For example, John Enders said, “Feel free to come by and tell me about your work and do send me your preprints.” So I started to send preprints to elders in my field whom I respected. The preprints had a good chance of being read and thus more people knew what I was doing and could comment on my work.

Life as an assistant professor was very demanding. I was in a new marriage and had a baby as well as having all the responsibilities of teaching, setting up a lab, hiring support staff, and being responsible for the livelihoods of others by securing grants. That is when I discovered another kind of mentor: the women in the secretarial pool. I was the first female professor they had seen. They not only gave top priority to my manuscripts and correspondence, they counseled me about how to avoid confrontational situations in the department.

Relatives can give wise advice too. My mother-in-law, Gertrude L. Baltimore, a professor at Sarah Lawrence, told me to delegate housework to paid help. She suggested that I hire someone from 2–7 pm rather than the usual 9–5 and that I give vacation time and paid sick leave. Thus we had help with after-school care for our daughter, light housekeeping, and preparation of dinner. When I got home, I was able to enjoy my family and relax rather than start cooking. And by offering benefits I was able to recruit someone amazingly loyal who stayed with us for 16 years.

Staying Focused
Mentors can play an important role by helping others to stay focused on what is essential. For example, it was natural for me to be drawn into studying the status of women when I first started as an assistant professor at Harvard in the early 1970s. My first study was on research associates, and it resulted in several women being immediately promoted to professorships. I served on committees on the status of women and coauthored a survey on women microbiologists that was published in Science.

But luckily I was warned early on by Polly Bunting, a microbiologist who was president of Radcliffe, not to shortchange my science for these extracurricular activities. She urged me instead to concentrate on my own career and do my best to move up the academic ladder to a position of power and influence.
Making Contacts
Mentors can provide important introductions. My chair at Harvard Medical School, Ed Kass, accompanied me to Bethesda, MD, where he introduced me to the executive secretary of the National Institutes of Health (NIH) study section that funded my grant application. This man saw all the funded investigators in his section as members of his personal stable of scientific winners. The personal attention he provided was a tremendous help.

As another example, to help our young family Salvatore Luria at the Massachusetts Institute of Technology introduced my husband to a local biotech company in the 1970s. As a consultant there he not only earned a welcome fee on top of his associate professor's salary, but also learned about an industry that would play an extraordinary role later in our lives. We were also introduced to others who would become important for the development of our scientific careers: book publishers, meeting organizers, NIH Institute directors, journal editors, etc. My circle of contacts continued to increase.

Someone else who helped broaden my circle of contacts is Harlyn Halvorson, a past president of the American Society for Microbiology (ASM). Halvorson invited the new executive director of ASM to Boston and arranged for him to meet promising young microbiologists in the area. In this way I learned about the leadership of a professional society with which I would later be closely affiliated. Later Halvorson put me on the board of trustees of the Waksman Foundation for Microbiology, a group with which I am still actively involved.

For mentees, be aware that there is no way to know where sound advice and help will come from, so seek mentors widely.

Lessons for Mentees and Mentors
What are the lessons from this detailed dissection of my career? For mentees, be aware that there is no way to know where sound advice and help will come from, so seek mentors widely. Focus not only on your own work but also on professional societies and volunteer activities within your department and institution. But in the latter be selective; do not engage in meaningless busywork.

Mentors should anticipate what is unknown to mentees. Don’t just expect the mentee to ask questions and seek help. If problems and the future are unknown to the mentee, how can she ask the right questions or determine what sort of help to get? The mentor’s goal is to expand the mentee’s network and to support and personally empower her with feedback and encouragement.

Be aware that sometimes mentoring can go wrong. Sometimes mentors show tough love by telling young women trainees how hard it is in the real world and saying that a woman needs to be twice as good as a man to survive and succeed in science. The rationale is to prepare these young women by hardening them up. Unfortunately, only a few will rise to this challenge. For many it will be terrifying. Just this kind of discouragement could tip the balance and cause a trainee to quit science. There are too few women in science. We need to do all that we can to retain as many of them in the field as possible.

Another problem for the mentee is success. It is not easy to become a successful woman scientist without adapting to the mainstream culture of science, which is basically a male-oriented culture. There is a danger that we will begin to act and think like the guys. I’ve tried to find a balance,
to be involved in feminist issues but not to the detriment of my career. And I try not to forget that I am a woman now that I have reached the top of my profession. I remember that long ago Polly Bunting urged me to pay back the help I'd received by helping other women.

Some young women believe that we in the U.S. are in a post-feminist era in which it is much easier for young women to realize their ambitions. I agree that, indeed, a great deal has been accomplished. But women still earn less than men for equal work. And the U.S. is not even in the top 10 nations in the world in equity between women and men. Feminism is still needed, and it is still important for women to empower women.

**Mentoring for the Next Stage of Life**

What will you face next as a mature scientist, and where will you find mentors for the next stage of life? How does one gracefully retire and live out what may be one-quarter of a lifetime in a meaningful way? Of course, family and friends become important at this stage, and we all deserve some time to smell the roses. But if you still seek a life that is meaningful and related to your scientific interests, it will take thought and preparation. Plan ahead. Build up the network of friends and colleagues who can help. Look for mentors who have retired and are living full, meaningful lives. And don't forget to use your hard-gained wisdom to empower all of the women scientists with whom you come into contact.

—Alice S. Huang, California Institute of Technology

**Notes**

This article is based on a talk presented at the Rosalind Franklin Society Annual Meeting on December 18, 2010.

Alice S. Huang is President of the AAAS.

**MBoC Publishes Review of Kyoto Morphogenesis Meeting**

The March 15, 2010, issue of *Molecular Biology of the Cell (MBoC)* includes a review of the meeting “Building the Body Plan: How Cell Adhesion, Signaling, and Cytoskeletal Regulation Shape Morphogenesis.” This joint meeting of the ASCB, the Japan Society for Cell Biology, and the RIKEN Center for Developmental Biology was held in Kyoto, Japan, on September 21–23, 2009. Jennifer A. Zallen and Alpha S. Yap reviewed the meeting for *MBoC*. See www.molbiolcell.org/cgi/content/abstract/21/6/845.

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Renato J. Aguilera

You can’t go home again is supposedly one of the great axioms of modern life. But Renato Aguilera did go home again, and rather successfully. Home for Aguilera is the region around El Paso, TX, near the Mexican border. There he was born, grew up, and earned a bachelor’s and a master’s in microbiology at the University of Texas, El Paso (UTEP), before leaving for bright academic “lights” elsewhere. He earned a doctorate from the University of California, Berkeley, and a tenured faculty position at the University of California, Los Angeles (UCLA). Then after 20 years, Aguilera went home to UTEP in 2002.

Aguilera, who is now professor in the department of biological sciences at UTEP, has energized its graduate program. He has increased the number of PhD students from 10 to 50, half of whom are from ethnic minorities. And he has brought in major funding from National Institutes of Health programs that promote minority education and research in bioscience. These include a National Institute of General Medical Sciences (NIGMS) Research Initiatives for Scientific Enhancement (RISE) grant for undergraduate and graduate students and a Support of Competitive Research (SCORE) grant for faculty research at minority-serving institutions.

Meanwhile, the Aguilera lab is going strong. It is divided between a Drosophila-based group probing the role of DNase II enzymes in phagocytic DNA degradation and another developing tandem screening assays that can plow through chemical libraries looking for anti-cancer and anti-mycobacteria compounds. Aguilera is active in a new Border Biomedical Research Center as well as a biomedical research program for undergrads. The latter program led to, among other things, his first publication in epidemiology—a field survey that he supervised of HIV infection and risk behavior among Hispanic farm workers in the West Texas–Mexico border region.

Outside El Paso, Aguilera is known as an advisor on minority science programs and as a leader in organizations such as the Society for Advancement of Chicano and Native Americans in Science. Earlier this year, the American Society for Microbiology named him its William A. Hinton Research Training Awardee for fostering the research training of underrepresented minorities. And in January, Aguilera took over as Chair of ASCB’s Minorities Affairs Committee (MAC).

Coming home has been sweet, he reports. His then-teenage daughters made a smooth transition from Los Angeles to West Texas. His eldest, Kristina, now 21, will soon graduate from UTEP in microbiology and has been accepted into several prestigious PhD programs. Her sister, Elizabeth, 18, has just declared herself a UTEP microbiology major. Aguilera also reports that since returning to El Paso, he has taken up golf.
Zavala describes Aguilera as a perfect illustration of why researchers from ethnic minority backgrounds can be so valuable to science. “We look at things in a little bit different way,” Zavala explains. “We bring in other things and ways of looking at science and then test them by the scientific method.” That’s especially true of Aguilera, she says. “He’s always on the edge, always combining things. He gets something that doesn’t quite fit the model and then he says that if that’s not right, what could it be?”

The job at UTEP allowed him to rethink graduate education for minority students from that different perspective, she believes. “Besides, Renato likes being a Texan,” Zavala says with a laugh. “Goodness knows why, but it’s clear that you can’t cure him of being a Texan. But in going to El Paso, you could see that as part of his giving back.”

“I had always wanted to come back,” says Aguilera of his return to UTEP, “and work with students to make sure that if one of me ended up here, I would be here for that person.”

A “me” quite like Aguilera is hard to imagine outside the Tex-Mex culture of the western Rio Grande valley. Aguilera was born in El Paso, a third-generation American on his mother’s side but a Mexican citizen through his father, who was a small-town judge near Juárez. “How lucky I have been to be born and raised in this part of the world,” says Aguilera. “I’m American but I’ve also lived just across the border in Mexico, so I was fully immersed in two different cultures. Your culture is right here. You don’t feel out of place. This is where you were born and where your people are.”

**Insults and Honors**

Aguilera spent his early years on the Mexican side of the river but went to high school in El Paso. Suddenly language became a source of humiliation. “I really didn’t speak English well until I was a teenager in high school,” he recalls. “One of my proudest accomplishments was getting senior honors in English. I worked so hard at it mainly because I was so upset with the English teacher who treated me so badly in his class. My brother had been in his class and he told me, ‘You’re probably as dumb as your brother.’ ...[I]t made me become more of an ‘American’ than I had ever been.”

The push for higher education came “100%” from his mother, he recalls. “She said, ‘You’re going to college.’ It was expected and there was no arguing.” At UTEP, fate was waiting for him on a bulletin board in the old biology building. The notice board is still there, Aguilera reports, and whenever he walks past, he can see his younger self, standing there, transfixed by a poster. It announced a summer research fellowship in the laboratory of Eppie Rael to be funded by a Minority Biomedical Research Support (MBRS) grant through NIGMS. “I can’t remember what it paid, maybe $1,000, but it was way more than I could have made working in a fast food restaurant, which is what I was doing.”

The notice led him to Rael, a pioneer in promoting minority science education at UTEP, who became Aguilera’s mentor and life model. “He saw something in me and picked me as the student to work in his lab. I took the job and fell in love with it. Dr. Rael considered himself an immunologist and the next thing you knew, I became an immunologist.”

The Rael lab analyzed the exotic, bioactive stew of proteins and enzymes in snake venom. The exacting bench work left Aguilera totally hooked on research.

The Rael lab analyzed the exotic, bioactive stew of proteins and enzymes in snake venom. The exacting bench work left Aguilera totally hooked on research.
had the strong personality that I had by this time, I probably wouldn’t have survived. It was intense,” Aguilera remembers. “The Japanese postdocs were used to this workload. They didn’t see it as unusual. It was as if I’d been transported to Japan, but it made me the scientist that I am today.”

In 1987, Aguilera finished his doctorate on the characterization of factors involved in normal and abnormal antibody gene rearrangements. He left the Sakano lab as first author of papers in Cell and the EMBO Journal and as second author of a publication in Science. He was also exhausted. “I was crispy, tired, brain-dead,” he says.

Career Time

He soon rallied, moving to UCLA in 1989 to take up a faculty position in molecular, cellular, and developmental biology. He also set up a laboratory centered on a group of recombination activating genes that help tailor antibodies in the adaptive immune system. Aguilera quickly became a mentor in UCLA’s MBRS program and later the director of its Minority Access to Research Careers (MARC) group. “I truly believe in this mission to expose minority students, especially undergraduates, to what molecular and cell biology can do for them as a career and as an adventure.”

Aguilera’s first mentee was Gustavo Miranda-Carboni, who is now an assistant professor in obstetrics/gynecology at the UCLA medical school. Aguilera took him into his lab when Miranda-Carboni was a UCLA sophomore. He kept him there as a lab technician after financial problems forced him to drop out. Aguilera pushed him back to school part-time and then into graduate school and a new spot in the Aguilera lab. Over 13 years, Aguilera gave him an education, a career, and a work ethic, says Miranda-Carboni. “Renato drives. It’s a very old-school way of doing graduate school. I was always a hard driver but I worked very, very hard for him and I’ve never stopped since.”

But Miranda-Carboni was not the least surprised when Aguilera told him that he was leaving UCLA for UTEP. It was always clear to Miranda-Carboni that despite all his years in California, his mentor struggled with Los Angeles culture. “For one, if you can’t get over the traffic, then you’re not going to be happy in LA,” says Miranda-Carboni. “So when the opportunity came, he jumped at it. He viewed it as a challenge to come back to his alma mater and to push UTEP to become much stronger and to change the culture.”

His old mentor invited Miranda-Carboni to El Paso last year to give a research talk to undergrads in Aguilera’s MARC group. Miranda-Carboni was happy to see Aguilera looking so at home in the less-hectic culture of El Paso. But he saw no change in his mentor’s goals or his work habits. “We have to compete with the best of the best. That involves a whole change in philosophy. You can’t do it at the pace of a burro. You have to go at the pace of a racehorse.”

Whatever the pace, there has never been any secret about Aguilera’s motivation, says Peter Lipke of Brooklyn College, where Aguilera is on the SCORE advisory panel. “Renato sees himself in the kids,” says Lipke. “It’s a calling. That’s the only way I can describe it.”

—John Fleischman

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HIGHLIGHTS from MBoC

The Editorial Board of Molecular Biology of the Cell has highlighted the following articles from the March 1 and March 15, 2010, issues. From among the many fine articles in the journal, the Board selects for these Highlights articles that are of broad interest and significantly advance knowledge or provide new concepts or approaches that extend our understanding.

**Global Up-Regulation of Microtubule Dynamics and Polarity Reversal during Regeneration of an Axon from a Dendrite**
Michelle C. Stone, Michelle M. Nguyen, Juan Tao, Dana L. Allender, and Melissa M. Rolls

The authors look inside neurons in vivo and identify major cytoskeletal rearrangements that allow a dendrite to become a regenerating axon.


**The Late Endosome Is Essential for mTORC1 Signaling**
Rory J. Flinn, Ying Yan, Sumanta Goswami, Peter J. Parker, and Jonathan M. Backer

Recent work suggests a link between endocytic trafficking and mTORC1 signaling. This paper demonstrates a specific requirement for the integrity of the late endosomal compartment for amino acid and insulin-stimulated mTORC1 signaling to downstream effectors.


**The RhoA Activator GEF-H1/Lfc Is a Transforming Growth Factor-β Target Gene and Effector That Regulates α-Smooth Muscle Actin Expression and Cell Migration**
Anna Tsapara, Phillip Luthert, John Greenwood, Caroline S. Hill, Karl Matter, and Maria S. Balda

TGF-β induces various responses, including Rho signaling. How TGF-β stimulates Rho is poorly understood. The authors present data that indicate that GEF-H1 is a target and effector of TGF-β to regulate Rho signaling, gene expression, and cell migration, suggesting that it represents a new marker and possible therapeutic target for degenerative and fibrotic diseases.

*Mol. Biol. Cell* 21 (6), 860–870

**Mutations in Caenorhabditis elegans him-19 Show Meiotic Defects That Worsen with Age**
Lois Tang, Thomas Machacek, Yasmine M. Mannun, Alexandra Penkner, Jiradet Gloggnitzer, Christina Wegrostek, Robert Konrat, Michael F. Jantsch, Josef Loidl, and Verena Jantsch

Faithful meiotic chromosome segregation requires pairing, synapsis, and recombination of homologous chromosomes. In mammals, chromosomal nondisjunction increases with age. A mutation in *Caenorhabditis elegans him-19* mimics these age-dependent chromosome segregation defects and might therefore further our understanding of this phenomenon.

*Mol. Biol. Cell* 21 (6), 885–896
Emi2 Inhibition of the Anaphase-promoting Complex/Cyclosome Absolutely Requires Emi2 Binding via the C-Terminal RL Tail

Munemichi Ohe, Yoshiko Kawamura, Hiroyuki Ueno, Daigo Inoue, Yoshinori Kanemori, Chiharu Senoo, Michitaka Isoda, Nobushige Nakajo, and Noriyuki Sagata

Both the D-box and the zinc-binding region (ZBR) of Emi2 are implicated in APC/C inhibition. This article shows that Emi2 binds the APC/C via the C-terminal tail, termed here the RL tail. The RL tail apparently promotes the inhibitory interactions of the D-box and the ZBR with the APC/C. The RL tail thus serves as a docking site for the APC/C.

Mol. Biol. Cell 21 (6), 905–913

Requirements and Reasons for Effective Inhibition of the Anaphase Promoting Complex Activator Cdh1

Jonathan A. Robbins and Frederick R. Cross

Inhibitory phosphorylation of Cdh1 by CDK and Polo kinase has been proposed to inactivate APC-Cdh1. Through an exact gene replacement approach, we find CDK, but not Polo, phosphorylation of Cdh1 to be a critical regulatory mechanism. APC-Cdh1 inhibits multiple aspects of spindle morphogenesis, and its activity is modulated by endogenous ACM1.

Mol. Biol. Cell 21 (6), 914–925

Rad17 Plays a Central Role in Establishment of the Interaction between TopBP1 and the Rad9-Hus1-Rad1 Complex at Stalled Replication Forks

Joon Lee and William G. Dunphy

This work provides novel mechanistic insights into how TopBP1 and the Rad9-Hus1-Rad1 (9-1-1) complex dock with one another at stalled replication forks. This step is necessary for the ATR-dependent activation of Chk1 during checkpoint responses.

Mol. Biol. Cell 21 (6), 926–935

Compartmentalized Cyclic Adenosine 3’,5’-Monophosphate at the Plasma Membrane Clusters PDE3A and Cystic Fibrosis Transmembrane Conductance Regulator into Microdomains

Himabindu Penmatsa, Weiqiang Zhang, Sunita Yarlagadda, Chunying Li, Veronica G. Conoley, Junming Yue, Suleiman W. Bahouth, Randal K. Buddington, Guangping Zhang, Deborah J. Nelson, Monal D. Sonecha, Vincent Manganiello, Jeffrey J. Wine, and Anjaparavanda P. Naren

PDE3A functionally and physically interacts with CFTR. Inhibition of PDE3A generates compartmentalized cAMP, which further clusters PDE3A and CFTR into microdomains at the plasma membrane of epithelial cells and potentiates CFTR channel function. The authors’ findings provide insights into the important role of PDE3A in compartmentalized cAMP signaling.

Mol. Biol. Cell 21 (6), 1097–1110
Dear Labby,
How do I write a job letter for a so-so postdoc? This guy came to my lab soon after I got my first NIH grant but has not given me a sense that he will ever be an independent scientist. He does experiments I suggest but did little to generate a submission-ready paper (he is American so no language issues), and I am beside myself about how to write letters for him. He is applying for assistant professor jobs everywhere, all at reasonably or very research-intensive institutions and I almost feel embarrassed. I can’t decline to write, but how do I handle this challenge? I now have had two other postdocs whose superior performances have reinforced my reservations about my first. I can’t go so far as to trash him, but what should I do?

—Perplexed

Dear Perplexed,
Designing letters of recommendation is one of the most challenging things we are ever asked to do, including the analog of your case, writing letters for our students when they are seeking a postdoc. There are different views on the weight letters have in most situations. You can’t decline to write them, as you noted, and in this case what you can write presents a vexing dilemma. While you don’t think your postdoc is likely to ever be an independent investigator, there may be positive remarks you can make to place that reservation in context.

So Labby’s advice is simple. Our profession is defined by a habit of truth. “Habit” in this context does not mean a repetitious action, like compulsively watching “House” or “Lost” on TV every week. It means a way of life, always seeking and stating the truth.

So the underlying foundation of your letter must be honesty. Chicanery such as “I’ll never have a postdoc like Sam again” would be disingenuous. There is actually a book of such ambiguous phrases for letters of recommendation, but it should be read only for amusement, not copied. (Labby once heard a Nobel laureate say to a visitor at the Marine Biological Laboratory in Woods Hole: “Your talk kept me awake all night” and pondered the ambiguity and the intended message, viz. explicit or sotto voce).

The best approach is to state all the positives, however many or few they may be. Getting along well with others, generosity with time and attention to students, comments on teaching ability (if any)—any or all of these could be just what a search committee is seeking. Then you can add your valid reservation, suitably phrased. In your case, this was your first postdoc. So you might position your conclusion in that context (i.e., N is a small number and perhaps this postdoc needed to be pushed more into independence).

As to the specific sentence of endorsement (these letters usually can be distilled down to one key sentence), you need not express your reservation as a strong conclusion that this person has no future. The fact is, you can’t be sure. So you might say: “To summarize, Martin has strengths, as I have seen and recounted here, and may well possess potential to prosper as an assistant professor in the right environment.” Such a sentence conveys two things: there are strengths (whether assistant professor-worthy or not, left unsaid), and there exists the possibility that the search committee reading this letter is the very one that might, for whatever reasons, see all the positives in the context of their particular job search. That said, it is quite possible that in due course your postdoc may initiate another round of applications, aimed at less research-intensive positions. Clearly, that would provide an opportunity for you to refine your letter, perhaps in ways that would augment his chances.

Labby has written hundreds of letters for postdocs and all who were seeking them got faculty jobs, more or less scaled to their talent. Your query conveys an empathy for this issue, one for which we have both felt angst when sitting down to write letters. Your query has done a service in bringing this issue forth.

—Labby

Direct your questions to labby@ascb.org. Authors of questions chosen for publication may indicate whether or not they wish to be identified. Submissions may be edited for space and style.
Elizabeth H. Leduc, 1921–2010

Elizabeth (“Dukie”) Hortense Leduc passed away on January 30, 2010, at 88. Born in Rockland, ME, on November 19, 1921, she grew up in northern Vermont and graduated with a BSc from the University of Vermont in 1943. She subsequently earned an MA from Wellesley College (1945) and a PhD from Brown (1948). Dukie held a National Institutes of Health (NIH) postdoctoral fellowship at Brown (1948–1949), was an instructor in anatomy at Harvard Medical School (1949–1953), and then returned to Brown in 1953 as assistant professor.

At Brown she was appointed associate professor in 1957. In 1964 she became only the third woman to be appointed full professor in Brown's 200-year existence. In 1967 she was appointed director of biology, the first woman to lead an academic department at Brown. From 1973–1977, she served as dean of biological sciences. She served as associate dean for the college from 1987–1988.

Dukie had an illustrious career as an effective teacher, a successful administrator, and a scientist with international credentials. She mentored seven PhD candidates and was a gifted teacher of cell biology and histology. Stanley Falkow, formerly a graduate student at Brown, wrote: “I remember especially Elizabeth Leduc's cell biology lectures seemed like poetry.”

Dukie had broad interests in cell biology. Her early papers co-authored with her PhD mentor, J. Walter Wilson, focus on mitosis in the liver and the effects of different stimuli on mitotic activity, and on the production of polyploid nuclei and multinucleate cells. While her research on liver was ongoing, Dukie was also pioneering important new methodologies in cytochemistry. In 1951 and 1952, she co-authored papers describing the use of histochemistry to localize acid and alkaline phosphatase. Later, in work with Wilhelm Bernhard of the Institut de Recherches Scientifiques sur le Cancer at Villejuif, France, she pioneered the use of water-soluble embedding media and ultrathin frozen sections for electron microscopy. From her summers in France from 1959 to the mid-1980s, she published a series of papers with her collaborators on the formation of perichromatin granules and the effects of quinacrine on nuclear structure. In 1984, shortly before her retirement, she brought together many of her scientific interests in a paper entitled “Immunocytochemical Identification of Nuclear Structures Containing snRNPs in Isolated Rat Liver Cells.”

During her academic career, Dukie was a widely known and influential scientist. She was a member of 12 professional societies and served on several editorial boards. From 1969–1972 she served on the cell biology study section at NIH and was named a member of the National Advisory General Medical Sciences Council of the NIH (1972–1976). In 1975 she served on an ad hoc advisory committee for the Director of NIH. From 1979–1983 she was a member of the American Cancer Society Cell and Developmental Biology study section, serving as co-chair in 1980.

Dukie was a founding member of the ASCB (1960–1961) and was an elected member of the ASCB Council (1976–1979). She also served on the ASCB Constitution Committee and the Legislative Alert Committee. Concurrent with her service on the ASCB Council, Dukie was appointed to U.S. President Gerald Ford's Committee on Science and Technology (1976–1977). She was the only woman on the nine-person committee and one of only a few women to advise the U.S. president on scientific matters. This committee reviewed the entire structure of federal science.

Brown has recognized Dukie's contributions in many ways: the Elizabeth Leduc Award for Excellence in Teaching in the Life Sciences, The Leduc Bioimaging Facility, and the Elizabeth Leduc Prize in Cell Biology to an outstanding Brown undergraduate. For all her achievements, Dukie was an approachable person with a ready smile who delighted in showing schoolchildren her mouse colony. As a pioneer in cell biology and cancer research, as a devoted teacher, and as a stellar administrator, Elizabeth Leduc was truly a role model for women in science.

—Susan A. Gerbi, Yale University; Peter Heywood, Brown University; and Kenneth R. Miller, Brown University

Reference

To the Editor:
I just read Tim Mitchison’s President’s column in the January/February 2010 issue of the ASCB Newsletter. It addressed the tension between basic and translational science, an issue that concerns all cell biologists in this era. Mitchison presented insightful and useful suggestions for navigating these waters, and the writing was superb. As an ASCB member, I know we are in good hands with Mitchison’s leadership.

—Rick Horwitz
University of Virginia

ASCB Is Science Festival Partner

ASCB is proud to be an official partner of the inaugural USA Science & Engineering Festival to be held in the Washington, DC, area in October 2010. The Festival is a collaboration of over 500 leading science and engineering organizations and aims to further the interest of youth in the sciences.

The culmination of the Festival will be a two-day Expo on the National Mall on October 23–24, 2010. The Expo will give children, teens, and adults the opportunity to explore all facets of science and engineering through hundreds of fun, hands-on activities. As an official partner of the event, ASCB will represent the field of cell biology with hands-on activities showcasing the wonders of cells—in animals, plants, and humans.

People across the U.S. are encouraged to hold satellite events in their communities the same weekend that hundreds of thousands of people celebrate science on the National Mall. For more information on all Festival events and how you can get involved, visit www.usasciencefestival.org.

Director of Human Stem Cell Bank and Registry at the University of Massachusetts Medical School

The University of Massachusetts Medical School seeks an outstanding individual to serve as Director of its Human Stem Cell Bank and Registry. The Massachusetts Human Stem Cell Bank and Registry has been developed in partnership with and funded by the Massachusetts Life Sciences Center. Over the past decade, the Medical School has expanded its research program by establishing new departments and programs, by bringing over 120 new faculty to the campus and by constructing state-of-the-art facilities. The next growth phase will focus on translational research including the development of a strong academic program in stem cell biology and regenerative medicine. The Human Stem Cell Bank and Registry is part of the supportive infrastructure for this program and also serves the needs of other academic and commercial organizations in the Commonwealth of Massachusetts as well as nationally and internationally.

Competitive candidates will have a PhD degree and at least five years of professional experience in the field of stem cell research and cell biology. Candidates will also have demonstrated leadership abilities critical for managing a multi-component facility and its staff. An understanding of the stem cell field, especially with regard to issues related to cell banking, NIH and ISSCR guidelines and pluripotent stem cell characterization techniques is desired. The Bank and Registry is also responsible for education and training of students, postdoctoral fellows, and faculty as well as community outreach. The Director will have responsibilities for establishing relationships with academic research institutions, pharmaceutical and biotechnology companies. The Director will participate in advancing the capabilities of the facility via competitive funding from external sources. Information on our current Stem Cell Bank and Registry can be found under Core Facilities at www.umassmed.edu/research. Applicants should submit a cover letter explaining their qualifications and their interest in this position, a resume and the names and contact information for three individuals who could provide letters of recommendation. Minorities and women are especially encouraged to apply.

Applications should be addressed to: Search Committee U Mass Human Stem Cell Bank and Registry - Attn: Joan Lynch, Office of the Vice Provost for Research, University of Massachusetts Medical School, Room S1-859, 55 Lake Ave North, Worcester, MA 01655

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Cell Biology under the Puerto Rican Sun

Located in the northeastern Caribbean Sea, the island of Puerto Rico is neighbored on the east by the Dominican Republic and on the west by the Virgin Islands. The Caribbean Islands are composed of approximately 40 independent island-countries and dependencies with approximately 40 million inhabitants. Puerto Rico has approximately 4 million residents on an island stretching 100 (east to west) by 35 (north to south) miles.

Major Academic Research Institutions
Puerto Rican public and private colleges enroll approximately 210,000 students per year. The University of Puerto Rico (UPR) system (www.upr.edu) has 11 campuses with enrollment estimated at 65,000 students. Most of the research activities take place in Mayaguéz (UPRM; www.uprm.edu), Rio Piedras (www.rrp.upr.edu), and the Medical Sciences Campus (www.rcm.upr.edu). The Cayey (www.cayey.upr.edu) and Humacao (cuwww.upr.clu.edu) campuses also provide comprehensive four-year liberal arts educational programs with some research activities. Cell biology research activities are also carried out at private institutions such as Ponce School of Medicine (PSM; www.psm.edu) and the Universidad Central del Caribe (UCC; www.ucaribe.edu).

Funding, Collaborations, and Government Relations
Despite its privileged location at the heart of the Caribbean, much of the scientific exchange in Puerto Rico takes place with U.S. mainland institutions. Perhaps this is dictated by available funding from federal government agencies. Puerto Rico has access to National Institutes of Health (NIH), National Science Foundation (NSF), and Department of Defense funding, just like any institution in the U.S. mainland. Puerto Rican scientists have been increasingly successful at attracting research funding. To further encourage competitive researchers to apply to mainstream research opportunities in the U.S., the government of Puerto Rico passed the “Law for the Development of the Knowledge-Based Economy in Puerto Rico” in 2008. Among other things, this law provides a tax incentive for salary portions from eligible research funding (research that is open to all). Scientists are anxiously waiting for its implementation, which is dependent on Puerto Rican authorities.

In 2004, another law created the Puerto Rico Science and Technology Trust, which has been focusing its funding priorities on the development of biotechnology start-up companies. One such example is Custom-Designed Immunologics (CDI; www.cdi-lab.com). CDI developed and validated a proprietary platform for the production of monoclonal antibodies against proprietary antigens. This company operates within the Bioprocess Development and Training Complex (BDTC; www.bdtc-pr.com). This facility is a collaboration among industry, government, and academia to enhance Puerto Rico’s capability in biotechnology manufacturing, research, and bioprocess training. A partnership between PSM and Johns Hopkins University is providing funding for graduate students in Ponce to receive cutting-edge training at the BDTC in antibody production. Other large-scale partnerships between Puerto Rican and mainland institutions, such as the U56 PSM–Moffitt Cancer Center and the U54 UPRMSC–MD Anderson Cancer Center, are at the leading edge of collaborative efforts. These provide well-structured support to accomplish larger long-term goals.

Premier Education for U.S. Minority Scientists
By federal standards, Puerto Ricans are considered underrepresented minorities in the sciences. As such, the Puerto Rican scientific community is committed to train the next generation of minority scientists at all levels, from undergraduate to graduate levels. As part of that commitment, the Department of Biology at UPRM has funding support from NSF’s Course, Curriculum, and Laboratory Improvement program and the Howard Hughes Medical Institute to bring innovative cell
term impact, we experience (with certain frequency) university shutdowns. Some argue that shutdowns may be regarded as part of the culture of the UPR system. Violent events in the 70s led to the implementation of a “no-confrontation” policy from the university. This means that demonstrators who decide to block access to university facilities interfere with research activities. This has resulted in significant monetary losses, in addition to other hard-to-quantify losses. These include the negative impact on students’ and researchers’ productivity and morale. Perhaps the “no confrontation” policy should harmoniously coexist with a “research and development” policy that guarantees unrestricted access to facilities whenever others exercise their right to demonstrate.

Overcoming Challenges, Meeting Expectations

One may argue that the Puerto Rican scientific community has been in a privileged position to be successful. However, a generalized opinion is that we have fallen short of that goal. Then, the question is: What do we need to be successful? If we consider the following equation to be true—\(\text{Success} = \text{Funding} \times \text{Time} \times \text{Resources}\)—as soon as any component equals zero, we fail. Thus, the success of the Puerto Rican scientific community on the island requires local institutions to provide adequate start-up funding and enough protected time to jump-start a competitive research program. Success also requires true collaborations with those mainland institutions that benefit from recruitment of our most valuable resource, our students. This type of collaboration will result in mutually beneficial long-term relationships by ensuring a sustained flow of highly trained students. Last, but no less important, is a long-term vision for the consistent development of the sciences in Puerto Rico that is not affected by party politics. After all, scientific inquiry should be free to produce knowledge. This is especially true because we have the talent to do so.

Challenges and Expectations

The process of scientific inquiry, in any field, requires long-term strategies, vision, and investment in human capital, resources, and infrastructure. Unfortunately, the UPR system and its administration are tied to local party politics. Thus, the continuous changes in government vision and priorities significantly slow implementation of any long-term strategies to promote research. On a smaller scale, but nevertheless with significant long-
## PRELIMINARY PROGRAM

### SYMPOSIA

- **Protein Engineering for Solubility and Reconstitution**
- **Imaging and Deconstructing Large Complexes**
- **Protein Stability and Drug Formulation**
- **A special session organized by:**
  - **John Carpenter** (University of Colorado Denver)
  - **Ted Randolph** (University of Colorado Boulder)
- **Visualizing Proteins in Cells**
- **Protein Therapeutics and Diagnostics**
- **Disordered Proteins**
- **Protein Folding**
- **Membrane Proteins and Receptors**
- **Microfluidics and Microarrays**
- **Metalloproteins**
- **Protein Design and Evolution**
- **Amyloids and Disease**

### SYMPOSIUM ORGANIZER

David P. Goldenberg (University of Utah)

### PROGRAM PLANNING COMMITTEE

- James M. Berger (University of California, Berkeley)
- Ineke Braakman (Utrecht University)
- Karyn O'Neil (Johnson and Johnson Internal Ventures)
- Carol B. Post (Purdue University)

### LIAISONS

- Stephen J. Demarest (Biogen Idec)
- Peter Oelschlaeger (California State Polytechnic University, Pomona)

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### PLENARY SESSIONS

#### Frendic Richards Memorial

Macromolecular Machines

#### AWARDS PLENARY SESSIONS

- **The Carl Brändén Award**
- **Nobuhiro Go** (RIKEN Harima Institute)
- **The Christian B. Anfinsen Award**
- **Yoshinori Fujiyoshi** (Kyoto University)
- **The Emil Thomas Kaiser Award**
- **Suzanne Walker** (Harvard Medical School)
- **The Irving Sigal Young Investigator Award** (2009)
- **Virginia Cornish** (Columbia University)
- **The Irving Sigal Young Investigator Award**
- **Charalampos Kalodimos** (Rutgers University)
- **The Stein and Moore Award**
- **Peter Wright** (The Scripps Research Institute)
- **The Dorothy Crowfoot Hodgkin Award**
- **Lila Gierasch** (University of Massachusetts, Amherst)

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More details are available at [www.proteinsociety.org/symposium24th](http://www.proteinsociety.org/symposium24th)
MEMBERS in the News

Two ASCB members were elected American Association for the Advancement of Science Fellows, but were not listed in the January/February 2010 ASCB Newsletter:

Pierre Coulombe
Johns Hopkins University
Member since 1988

Peter Hepler
University of Massachusetts, Amherst
First became a member in 1967

Coulombe has been the E.V. McCollum Professor and Chair of the Department of Biochemistry & Molecular Biology at the Bloomberg School of Public Health of Johns Hopkins University since December 1, 2008.

Eckhard Mandelkow, an ASCB member since 1983, and Eva-Maria Mandelkow, an ASCB member since 1995, of the Max-Planck-Institute for Structural Molecular Biology, were recipients of the MetLife Foundation Awards for Medical Research in Alzheimer's disease.

Lucy Shapiro, Director of the Beckman Center for Molecular and Genetic Medicine, Stanford University, an ASCB member since 1988, is the recipient of the 2010 American Society for Microbiology (ASM) Abbott-ASM Lifetime Achievement Award. This is ASM’s premier award for sustained, remarkable contributions to the microbiological sciences.

F. Gisou Van der Goot, of the Federal Polytechnic School of Lausanne, an ASCB member since 1998, won the Marcel Benoist Prize for 2009. Nicknamed the “Swiss Nobel,” the annual prize goes to a scientist of Swiss nationality or residency for a scientific discovery that affects human life.

The ASCB is grateful to the following members and applicants who have recently given a gift to support Society activities:

Gold
- Ueli Aebi
- David Drubin & Georjana Barnes
- David Kirk
- Thomas Pollard
- Mitsotoshi Setou
- Kenneth Yamada

Sustainer
- Jennifer Lippincott-Schwartz
- Vincent Marchesi
- John Macauley
- Tim Stearns
- Joel Swanson
- Ken Teter
- Ora Weisz
- Helen Piwnica-Worms

Bronze
- Julie Brill
- Trisha Davis & Eric Muller
- Alfred Goldberg
- Szecheng Lo
- Suzie Scales
- Jonathan Scholey

*As of 3/12/10

Chile Earthquake, continued from page 1

to look into the future. Estimated losses amount to US $1 million.

Donations of Scientific Equipment Needed

We are in the process of completing a registry of equipment losses, which up to now includes: CO₂ incubators for cell culture (8), laminar flow hoods (8), PCR blocks (6), stereo microscopes (2), fluorescence microscopes (3), spectrophotometers (4), precision balances (4), real-time PCR systems (2), pH meters (6), thermoregulated water baths (2), and power supplies for electrophoresis (6).

If you can donate any of these items, new or used, please contact Eliseo Campos, treasurer of the Chilean Society for Cell Biology (ecampos@bio.puc.cl).

Many thanks,

Directive Board
Chilean Society for Cell Biology (www.sbcch.cl)
**NSF Director to Leave**

Arden L. Bement, the director of the U.S. National Science Foundation (NSF), has announced that he will leave before the end of his term, which expires in November 2010. Bement will return to Purdue University, where he previously served as a nuclear engineering professor and head of the Purdue University School of Nuclear Engineering, to head the Global Policy Research Institute.

Bement was appointed to the NSF post by U.S. President George Bush in November 2004. Before taking over at the NSF, Bement served as director of the U.S. National Institute of Standards and Technology. From February 2004 until his confirmation to the NSF post in November of that year, Bement actually led both agencies.

—Kevin M. Wilson

**Legislation Would Halt Research**

A bill introduced in Congress last year to prohibit research using great apes has attracted the attention of members of the biomedical research community.

In March 2009, Rep. Ed Towns (D-NY) introduced the Great Ape Protection Act of 2009 (GAPA). The bill prohibits “invasive” research on great apes and the use of federal funds to conduct the research. It also prevents the breeding of apes for invasive research and requires the federal government to provide for the permanent retirement of any apes it owns or controls. The Towns bill also includes civil penalties of up to $10,000 for each violation.

Several members of the biomedical research community, particularly primate research centers around the U.S., have recently written to members of the U.S. Congress expressing concern about GAPA and refuting some of the portions of the bill. In their letter, the groups highlight the major advances that have been made thanks to research using chimpanzee models. The letter also points out that a federally funded sanctuary system is already in place that provides for “retired” chimpanzees.

—Kevin M. Wilson

**NIH, FDA to Work Together**

It’s not often that two agencies of the federal government decide to work together, so when they do it’s worthy of a special announcement. The U.S. National Institutes of Health (NIH) and Food and Drug Administration (FDA) will begin working together to help speed the approval process for experimental drugs.

Present at the February announcement were Francis Collins, Director of the NIH; Margaret Hamburg, U.S. Commissioner of the FDA; and U.S. Secretary of Health and Human Services Kathleen Sebelius.

In her prepared remarks, Secretary Sebelius said, “We’ve all been following the remarkable advances in biomedical sciences led by the NIH with great enthusiasm for years. However, much more can be done to speed the progress from new scientific discoveries to treatments for patients.”

As part of the new collaboration, the NIH and FDA will form a leadership council led by senior scientists that will develop ways the two agencies can work together more effectively. The two agencies will also work together to make sure NIH researchers design their initial studies to include the data FDA regulators will need for drug approval.

The joint initiative also includes $6.75 million in grant funding for studies in regulatory science aimed at improving the drug approval process.


—Kevin M. Wilson
Congress Hears Call for Lab Renovations

Don’t forget the research infrastructure. That was the message coming from a recent hearing held by the U.S. House Committee on Science and Technology.

As part of a review of the America COMPETES Act, the House Science and Technology Committee held a hearing in February to review the research and research training infrastructure needs of universities and colleges in the U.S. The Committee learned that increased fiscal difficulties at the state level have led to a decline in support for research infrastructure at many U.S. public institutions. In addition, private donations and investment returns at both public and private universities and colleges have fallen in the last few years.

This decline is not new. In 2005, before the start of the current economic downturn, the 2005 Survey of Science and Engineering Research found that states were deferring needed facility renovation projects costing as much as $3.5 billion.

During the hearing, witnesses told the Committee that it is necessary to support both researchers and research infrastructure. In many cases, they said, updated facilities improve the productivity of researchers.

Both the U.S. National Institutes of Health (NIH) and the U.S. National Science Foundation (NSF) are devoting sizable amounts of funding to research infrastructure. At the NIH, approximately $2 billion of its $10 billion in ARRA funds has been set aside for infrastructure and instrumentation. President Obama’s FY11 NSF budget request also includes almost $2 billion for research infrastructure.

To view the whole hearing, go to http://science.edgeboss.net/wmedia/science/scitech10/022310.wvx.

—Kevin M. Wilson

Have You Received American Recovery & Reinvestment (ARRA) Funds?

Fight This Kind of Misinformation!
ARRA opponents insist it’s a failure…

“The stimulus created jobs…and the moon landing was faked”
—Illinois Republican Party press release

“Stimulus’ is Not Creating Jobs”
—Rep. Michele Bachmann (R-MN) Blog post

“Stimulus’ cash doesn’t create local jobs”
—Washington Times

…and that the NIH is misspending some ARRA funding.

Act Now!
Tell your elected officials and local newspapers about how NIH ARRA funding is helping your community economically to improve human health.

It’s Easy!
Go to www.ascb.org/ARRA to tell your story.
Congressional Biomedical Research Caucus 2010 Briefing Series

The following series of caucuses is being offered on Capitol Hill by the Coalition for the Life Sciences (CLS), supported by a generous grant from the Howard Hughes Medical Institute.

The objective of the Congressional Biomedical Research Caucuses (CBRCs) is to foster an appreciation for and understanding of biomedical research. The CBRC provides a forum where Congressional Members and staff can interact directly with preeminent researchers responsible for important scientific discoveries. Many of the stunning advances, made possible by NIH funding, highlighted in these presentations have led to improved understanding of the cause, treatment, and prevention of human disease.

Anyone in the Washington, DC, area who is interested in attending should contact CLS National Director Lynn Marquis at lmarquis@jscpp.org.

Robert De Rubreis, University of Pennsylvania

May 12  “Germs We Cannot Always Kill: Methicillin-resistant Staphylococcus aureus (MRSA)”
Henry Chambers, University of California, San Francisco

May 26  “Cancer Cells and Their Neighborhoods”
Mina J. Bissell, Lawrence Berkeley National Laboratory

June 9  “PARP Inhibitors: A Breakthrough in Cancer Therapy?”
Daniel Silver, Dana-Farber Cancer Institute

June 23  “Viruses in Our Genomes: Unending Surprises”
John Coffin, Tufts University

July 21  “The Mammography Controversy Redux”
Ann Partridge, Dana-Farber Cancer Institute

July 28  “Stem Cells in Gene Therapy”
John Tisdale, National Institute of Diabetes and Digestive and Kidney Diseases

Charmane Eastman, Rush University Medical Center

Sept. 22  “H1N1 Influenza (Swine Flu): Where We Stand”
Peter Palese, Mt. Sinai School of Medicine
Educational Opportunity Administrative Supplements. The National Institutes of Health (NIH) announced that $21 million of American Recovery and Reinvestment Act funding for administrative supplements to existing NIH grants over two years has been allocated for educational opportunities in NIH-funded laboratories for summer students and science educators. Applications may be submitted throughout FY09 and FY10, but some NIH Institutes and Centers may have specific deadlines. http://grants.nih.gov/grants/guide/notice-files/NOT-OD-09-060.html.

Mentored Quantitative Research Development Award (K25). The purpose of these National Institutes of Health (NIH) awards is to attract to NIH-relevant research those investigators whose quantitative science and engineering research has thus far not been focused primarily on questions of health and disease. Expiration: January 8, 2012. http://grants.nih.gov/grants/guide/pa-files/PA-09-039.html.


The National Academies’ Research Associateship Programs administer postdoctoral (within five years of the doctorate) and senior (normally five years or more beyond the doctorate) research awards sponsored by federal laboratories at over 100 locations in the U.S. and overseas. Quarterly application deadlines. www7.nationalacademies.org/rap.

National Centers for Biomedical Computing (R01). This funding opportunity is for projects from individual investigators or small groups to collaborate with the National Institutes of Health Roadmap for Medical Research National Centers for Biomedical Computing (NCBCs). Collaborating projects are intended to engage researchers in building an excellent biomedical computing environment, using the computational tools and biological and behavioral application drivers of the funded NCBCs as foundation stones. Expiration: September 8, 2011. http://grants.nih.gov/grants/guide/pa-files/PAR-08-184.html.

NIGMS Grants. The National Institute of General Medical Sciences is accepting applications for funding research in which several interdependent projects offer significant advantages over support of these same projects as individual research. Standard NIH application dates apply. http://grants.nih.gov/grants/guide/pa-files/PA-07-030.html.


Pathfinder Award to Promote Diversity in the Scientific Workforce (DP4). This National Institutes of Health research grant program, supported by funds provided under the American Recovery and Reinvestment Act, is intended to encourage individual scientists to develop highly innovative and possibly transforming approaches for promoting diversity within the biomedical research workforce. Application deadline: May 4, 2010. http://grants.nih.gov/grants/guide/rfa-files/RFA-OD-10-013.html.

Pathway to Independence Award. The primary purpose of the National Institutes of Health (NIH) Pathway to Independence Award (K99/R00) program is to increase and maintain a strong cohort of new and talented NIH-supported independent investigators. The program is designed to facilitate a timely transition from a mentored postdoctoral research position to a stable independent research position with independent NIH or other independent research support at an earlier stage than is currently the norm. Expiration: January 8, 2012. http://grants.nih.gov/grants/guide/pa-files/PA-09-036.html.

Research Supplements to Promote Diversity in Health-related Research. The National Institutes of Health (NIH) and the Centers for Disease Control and Prevention have announced to PIs holding specific types of NIH research grants that funds are available for administrative supplements to improve the diversity of the research workforce by supporting and recruiting students, postdoctoral researchers, and eligible investigators from groups that have been shown to be underrepresented. http://grants.nih.gov/grants/guide/pa-files/PA-08-190.html.
GRANTS & OPPORTUNITIES

Research Supplements to Promote Re-entry into Biomedical and Behavioral Research Careers. These supplements are intended to encourage individuals to re-enter research careers within the missions of all National Institutes of Health (NIH) program areas. This program will provide administrative supplements to existing NIH research grants to support full-time or part-time research by individuals in a program geared to bring their existing research skills and knowledge up-to-date. Expiration: September 30, 2011. http://grants.nih.gov/grants/guide/pa-files/PA-08-191.html.

Ruth L. Kirschstein National Research Service Awards for Individual Predoctoral Fellows in PharmD/PhD Programs. The objective of this National Institutes of Health funding opportunity announcement is to help ensure that highly trained PharmD/PhD graduates will be available in adequate numbers and in appropriate research areas to carry out the U.S. biomedical, behavioral, and clinical research agenda. Expiration: January 8, 2012. http://grants.nih.gov/grants/guide/pa-files/PA-09-029.html.

SCORE Awards. The National Institute of General Medical Sciences is accepting applications for its Support of Competitive Research (SCORE) developmental awards designed to increase faculty research competitiveness at minority-serving institutions. Multiple deadlines through May 18, 2010. The program announcement, as well as three other program announcements (PAR-06-491, PAR-06-492, PAR-06-493), can be found at http://grants1.nih.gov/grants/guide/pa-files/PAR-06-490.html#PartI.

SHIFT Awards: Small Businesses Helping Investigators to Fuel the Translation of Scientific Discoveries SBIR: R43/R44. These National Institutes of Health awards are intended to foster research that is translational in nature and to transform academic scientific discoveries into commercial products and services. They require that an investigator who is primarily employed by a U.S. research institution at the time of application transition to a small business concern (SBC) and be primarily employed (more than 50% time) by the SBC by or at the time of the award. http://grants.nih.gov/grants/guide/pa-files/PA-10-122.html#SectionIV3A.

Supplements for Functional Studies Based on High-resolution Structures Obtained in the Protein Structure Initiative. The National Institute of General Medical Sciences (NIGMS) announces the availability of administrative supplements to provide funds to enable investigators interested in protein function to capitalize on the information and material products of the Protein Structure Initiative (PSI). These supplements are available for 1) NIGMS-funded research grants (R01, R37, and P01) as well as 2) investigators with peer-reviewed research grants not funded by NIGMS, through the PSI research centers. www.nigms.nih.gov/initiatives/PSI/supplements.

Book Reviews in CBE-LSE Extend beyond Textbooks

Do you have a favorite book that has influenced your teaching or engagement with students? Have you read something that has sparked your creativity? Is there a book you wish all of your science students could read? Would you like to share a resource with all of your colleagues? You can! Write a review for CBE—Life Sciences Education (CBE-LSE).

Of course textbook reviews are important to readers, but educational inspiration can come from a variety of sources. Lots of books contain fascinating nuggets of information, insight, and inspiration that many can appreciate. In recent issues, for example, CBE-LSE has published reviews of:

- Outliers: The Story of Success by Malcolm Gladwell: This book shares marvelous insights into positive engagement with the variety of students you'll encounter, at all levels.

- On Food and Cooking by Harold McGee: Want to engage learners of all ages with science? Start with food!

I encourage you to peruse the book reviews that have already been published in CBE-LSE and contribute your own to the growing cache of excellent reviews.

Interested? Please contact either of the book editors with your suggestion (Karen Kalumuck at karenk@exploratorium.edu or Robin Wright at wrightr@umn.edu).

—Karen Kalumuck, for the CBE-LSE Editorial Board
Save the Date

Dec 11–15, 2010

Philadelphia, PA