Lindquist Named E.B. Wilson Medalist

Susan L. Lindquist has been awarded the E.B. Wilson Medal, ASCB’s highest honor, for her pioneering work on stress responses and protein folding. Lindquist’s work spans an enormous spectrum of pathbreaking contributions. Among them is the discovery that chaperones can serve to buffer protein evolution by allowing functional modules to evolve in a covert way until the cell develops a need for them. She exploited yeast as an experimental system to get traction on the fundamental principles underlying numerous conserved processes that are central to our understanding of homeostatic regulation in cell physiology, evolution, and neurodegenerative disease.

A Professor of Biology at the Massachusetts Institute of Technology (MIT) Whitehead Institute for Biomedical Research and an Investigator of the Howard Hughes Medical Institute, Lindquist serves as an associate member of MIT’s Broad Institute and on several advisory boards. She received the 2009 President’s National Medal of Science, the Genetics Society’s Mendel Medal, the Federation of American Societies for Experimental Biology’s Excellence in Science Award, as well as numerous other prestigious awards. Lindquist also holds several honorary doctorates.

Lindquist has made multiple appearances on radio programs and frequently lectures worldwide on topics such as gender bias, careers in science, managing a career while parenting, major discoveries in biological sciences, and running a complex institution in a rapidly changing environment.

The E.B. Wilson Medal will be presented at the 2012 Annual Meeting on Tuesday, December 18, in San Francisco. ASCB congratulates Lindquist and thanks the E.B. Wilson Medal Selection Committee.

—Cheryl Lehr, Executive Assistant/Office Manager, and Peter Walter, University of California, San Francisco

First Graduate Student/Postdoc–Initiated Minisymposium: Cell Biology of Regeneration

Cell Biology of Regeneration is the winning topic in the competition to organize the 2012 ASCB Graduate Student/Postdoc–Initiated Minisymposium. The Minisymposium will be co-chaired by its submitters, Rachel Roberts-Galbraith of the University of Illinois, Urbana-Champaign, and Curtis Thorne of the University of Texas Southwestern Medical Center, Dallas. In their application, Roberts-Galbraith and Thorne state, "Regeneration remains one of the most complex problems in biology. At its core, regeneration requires coordination of an arsenal of cell biological events—wound healing, cell-to-cell signaling, proliferation, apoptosis, cell migration, remodeling of extracellular matrices, and respecification of cell identity and morphology." Roberts-Galbraith and Thorne hope that their Minisymposium will highlight
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iBioSeminars: A Personal Perspective

Ron Vale

The goal of iBioSeminars and its companion iBioMagazine is to record talks by leading biologists and make them available to students and scientists throughout the world for free. This project, which I founded in close association with the ASCB in 2006, is going strong, and I would like to introduce you to this valuable resource and present it as a case study for launching a project with minimal resources and bootstrapping it to a higher level. And finally, I would like to convey the creativity and intellectual excitement of such educational outreach activities. There is no shortage of opportunities in education, and I hope that this column might spark ideas and interest from some of the readers of this Newsletter. I welcome your ideas and comments on the ASCB Facebook page (www.facebook.com/AmerSocCellBio) and will respond during the month of June.

Those not familiar with iBioSeminars and iBioMagazine may want to have a look at the websites. iBioSeminars features full-length scientific talks by leading scientists. It is available at www.ibioseminars.org. iBioMagazine offers short videos (<15 min) on the human side of science—how discoveries were made, how careers develop, what scientists do outside of the lab, science and society, and more. It is available at www.ibiomagazine.org.

Limitations of the Lecture Circuit

In the scientific world, those at privileged institutions tend to collect more resources and have more opportunities. The majority of institutions around the world do not possess the funds to fly in seminar speakers or the cachet to compete for the limited travel time of top scientists. Thus, there is a growing disparity—some institutions have become so saturated with seminars that attendance is problematic, while other institutions rarely, if ever, have visits from leading scientists. We, as scientists, have a moral imperative to communicate our work as broadly as possible, and the current lecture circuit is not fully achieving this mission.

I became acutely aware of this situation when I traveled to India in 2006 to give a seminar at a leading institute. It was a terrific trip, and I had an opportunity to meet many people face-to-face (and indeed it inspired me to spend a sabbatical in India). However, I realized that I had flown a great distance at significant cost to present my science to only 100–150 students and scientists. When I returned from India, I began to consider ways in which the Web might be able to augment the lecture circuit by having scientists give their talks in a way that would be freely accessible through the Internet.

But with increasing free access to journals, do seminars matter? I believe that seminars continue to play an important role in how we communicate and educate, since they convey different and important information that cannot easily be gleaned from reading a paper or review. A lecture conveys not only data but how a scientist thinks about a problem, the personality of the scientist, the path of discovery (which is often rearranged and sterilized in a paper), new ideas (including those that are too speculative to make it into papers), and integration of information from several papers from a lab or several labs.

Advocates, Mentors, and Bootstrapping

There are two models of developing an idea. One is to conceive of the grand vision and, at the onset, get all of the funds in place to realize it (e.g., a large government grant or venture capital funds). However, investors will often demand considerable evidence that the idea is going to work. The other way is to bootstrap through small steps, each one more manageable and less expensive than the grand vision.

iBioSeminars proceeded using the latter model, and it offers a case study of how one can accomplish more than one might imagine with minimal financial resources but with personal energy, goodwill, and a few key advocates. When I presented the idea of iBioSeminars to Haile Debas, the former Chancellor and at the time Director of Global Health Sciences at the University of California, San Francisco (UCSF), he immediately saw the project’s potential
We, as scientists, have a moral imperative to communicate our work as broadly as possible, and the current lecture circuit is not fully achieving this mission.

iBioSeminars... offers a case study of how one can accomplish more than one might imagine with minimal financial resources but with personal energy, goodwill, and a few key advocates.

and offered start-up funds of $2,000 to pilot a few lectures. We wanted to film scientists in a more intimate setting than the back of a lecture hall, so with Matt Epperson of the Education Technology Service department at UCSF, we configured a “chroma key” studio (the technique used by the weather people on television) and recruited four scientists (Julie Theriot, Joe DeRisi, Toto Olivera, and myself) as the first test cases. We also decided to use a format different than that of the standard university seminar, since those tend to include only minimal introductory material. Therefore we developed iBioSeminars so that each seminar has a separate introduction of about 30 minutes (Part 1) that is accessible to students or scientists outside of the field, followed by one or two research talks (Parts 2 and 3).

With a proof-of-principle of four recorded seminars in hand, our next step was to film more and distribute them. Enter a new set of advocates for the project—Mary Beckerle and Bruce Alberts, who were on the International Affairs Committee at the ASCB. They saw great potential for the project and advocated its association with the ASCB. Through their and others’ support at the ASCB, an initial group of lectures was put on the ASCB website. At about the same time, Peter Bruns, who directed the Grants for Science Education at Howard Hughes Medical Institute (HHMI), encouraged me to apply for a grant to support iBioSeminars, which was funded initially at $35,000/year (a big leap from $2,000!) and then several years later at $100,000/year along with additional technology support and filming resources from HHMI. Importantly, the ASCB and HHMI were (and remain) vital intellectual partners and supporters of the project, helping to brainstorm ideas for its development.

One hundred thousand dollars per year supported a bare bones (but enthusiastic) team of people working part-time. Each lecture requires a considerable amount of work, including communicating with the speaker, editing slides in advance, working with the speaker in the studio, editing the talk, and posting the talk and associated content (e.g., teaching tools, subtitles) on the website. Nevertheless, in 4.5 years we were able to complete 64 iBioSeminars lectures, launch iBioMagazine and record 49 videos for it, start English and Spanish subtitling, and begin meaningful partnerships in India, China, and Chile on using the lectures in those countries.

Beginning in September 2011, our funding transitioned to the National Science Foundation (NSF) and the National Institute of General Medical Sciences (NIGMS) in a rare partnership grant between the two agencies. With this grant, we hired a full-time director (Sarah Goodwin) and video technician (Isaac Conway), thus expanding the scope of what we can tackle. At the time of writing this article, we have 80 iBioSeminars and 70 iBioMagazine videos posted on the sites. There have been approximately two million downloads from our websites in the past two years. The talks are also posted on YouTube (>500,000 views) and iTunes U (currently we are in the top 10 of the Science Great Collections), and we have over 4,500 subscribers.

We are continuing to produce iBioSeminars, seeking to expand our breadth into new areas such as ecology and animal behavior. We also aim to produce around 30–40 iBioMagazine videos per year. (See our most recent, fun issue of iBioMagazine, in which we feature videos of what scientists do outside of the lab, including ascending Everest and playing a duet with Emanuel Ax!) In addition to our UCSF studio, we are now filming at HHMI headquarters (Chevy Chase, MD), the Marine Biological Laboratory (Woods Hole, MA), and the European Molecular Biology Laboratory (Heidelberg, Germany), and we are grateful to these institutions for their support.

Inverting the Classical Teaching Model: Using iBioSeminars for Education

Bolstered by the positive feedback that we have received from teachers, we are making a concerted effort this year to develop resources and a new Web interface that will allow our material to be used more easily in educational settings.

In the vast sea of educational material available on the Web, what does iBioSeminars have to offer? We feel that we can uniquely offer 1) access to the world’s top biologists; 2) rich content that describes the process of doing science and making discoveries, including how scientists ask questions, perform experiments, and come to conclusions; 3) a library of cool stories that reveal the human side of our profession, including the serendipity behind famous discoveries, how careers developed
from humble beginnings, and the many passions of scientists beyond collecting data. For the current and upcoming “YouTube generation,” these stories can be both instructional and motivational, providing another window into biology that is not conveyed by textbooks or scientific articles.

We are planning material that will be geared toward two audiences: Introductory Biology will target high school seniors and beginning undergraduates, and Advanced Biology will primarily target upper-year undergraduates. We are working with high school and college teachers to select and edit this material, which will be available (early in 2013) on a new iBioEducation portal on our website.

We are also aiming to produce complete courses. Jon Scholey at the University of California, Davis, is directing an upper-level cell biology course based entirely on iBioSeminars lectures; we will make the material used for this course available on our iBioEducation portal because it will be a good prototype for other courses. Our biggest project in 2012 is to produce a course on the Principles and Practice of Light Microscopy (with applications for the life sciences). There is an enormous desire to learn about light microscopy, but there are few courses on this subject worldwide and only limited student enrollment. We will produce an advanced course of more than 40 lectures and a beginning course of approximately 12 lectures. We are filming these lectures in the iBioSeminars studio style but also filming demonstrations at the microscope to make the course as practical as possible. This premier course will feature many of the world leaders in light microscopy.

iBioSeminars and iBioMagazine are not substitutes for learning biology through a teacher and classroom. Rather our goal is to provide great material that a teacher and student can use to augment classroom learning and that might be hard to find in textbooks. Students can watch Martin Chalfie’s 14-minute talk on the discovery of the green fluorescence protein. Or they can hear Robert Tjian talk about transcription, Melissa Moore explain RNA splicing, or Jack Szostak describe how he thinks life evolved on Earth. After students listen to a talk on their own time, class time can be used to discuss the lecture or go through follow-up questions or articles. This idea of “inverting” education by assigning a lecture on the Web and then using class time to extend the lecture by discussing it with the teacher or doing assignments with peers is being promoted by Sal Khan, the founder of the education online resource called Khan Academy. (See Khan’s talk on TED: www.ted.com/talks/salman_khan_let_s_use_video_to_reinvent_education.html.) Teachers are using iBioSeminars in this manner already, and we hope to make this easier through our upcoming iBioEducation Web portal.

**Deriving Satisfaction from Education**

Over the years, I have come to see the scope of education as much broader than delivering lectures to a large classroom. Education is about communicating knowledge, excitement, skills, and advice in many different ways and through diverse venues to many different audiences. In this broad view of education, there are styles, niches, and forms of gratification for almost everyone, providing one is willing to invest effort and learn.

In developing iBioSeminars, I learned that educational outreach provides many of the same satisfactions as scientific research: It requires creativity, exploration of new ideas, and ability to envision outcomes and develop feasible paths for execution. Like science, educational outreach activities are intellectually fascinating and challenging with regard to converting ideas to practice. My day job as a research scientist certainly keeps me busy, but education has a high “fun factor.” iBioSeminars also provides intriguing challenges that are different from those of research, has distinct rewards, and complements my pure scientific research in interesting ways.

One of the aspects that I most enjoy about iBioSeminars is that it is never static; our team is constantly thinking of ways to improve and innovate. I also meet interesting and passionate people through education who I would not encounter through my research program. Just like research, education requires work, but there is also personal gratification. Making a scientific discovery is thrilling, but it is tremendously satisfying to learn that a teacher from the Sudan subscribes to iBioSeminars or to receive an email from an iBioSeminars user who says, “Really amazing site. Just discovered. Love it totally. I am going to spend many hours listening and reading and informing myself here. Thanks a LOT!”

It took me a long time to come around to...
the idea that I could enjoy and do useful work in education and that it is not incompatible with my research program. And I worry that senior scientists may be steering young people away from educational activities too vigorously by telling them that “it won’t count” and “that teaching is time away from research.” Young people are altruistic and willing to learn many things. As senior scientists, it is our job not only to lead them to scientific publications, but also to help them find balance in their lives and to teach them to take on challenges of many sorts and use their talents as broadly as possible.

Comments are welcome and should be sent to president@ascb.org.

Note
If you want to keep iBioSeminars/iBioMagazine free (and free from commercials), please subscribe to the iBioSeminars/iBioMagazine Newsletter. It is the most important way that we can let NSF/NIGMS know that people are using this product. We ONLY send notifications of new seminars (usually bimonthly). Please visit www.ibioseminars.org/contact-us/subscribe-to-ibioseminars.html. And if you have an iTunes account, please rate us on iTunesU because this increases our visibility on that site.

Minisymposium, continued from page 1

new ideas and approaches for cell biologists who are studying regeneration and regenerative medicine.

The Graduate Student/Postdoc–Initiated Minisymposium competition was introduced for the first time this year as an opportunity for young scientists to become more involved with the ASCB and the ASCB Annual Meeting. Proposals were reviewed by members of the ASCB Council and the 2012 Annual Meeting Program Committee. The ASCB received 36 proposals, many of them top quality, and the reviewers had a difficult time selecting the winner.

Roberts-Galbraith is a third-year postdoctoral research fellow in Phillip Newmark’s lab. She received her PhD at Vanderbilt University and worked in the lab of Kathleen L. Gould. She is a Jane Coffin Childs fellow, has been an ASCB member for six years, and has served as a mentor for other young scientists. Thorne is a third-year postdoctoral research fellow in Lani Wu and Steven Altschuler’s lab. He received his PhD from Vanderbilt University Medical Center and did his research in Ethan Lee’s lab. He has received many awards for his work and holds a patent on a cancer-targeting drug. The two co-chairs met in graduate school, where they were encouraged to join the ASCB and attend the Annual Meetings. “At Vanderbilt, in the Department of Cell and Developmental Biology, there was a strong commitment to the ASCB among the faculty,” says Thorne.

The co-chairs complement each other well since they approach the topic of regeneration from different backgrounds and perspectives—from emerging model systems to systems biology. Roberts-Galbraith studies molecular mechanisms of nervous system regeneration using the amazing regenerative properties of planarians. Thorne’s work focuses on high-content imaging and quantitative single-cell imaging approaches to investigate cellular plasticity and heterogeneity of colonic stem cells. Thorne says, “As we discussed our current projects with each other, we realized we are addressing many of the same fundamental questions but from very different approaches.” Roberts-Galbraith adds, “[However,] because of the nature of our training, we both view ourselves as approaching questions in developmental and regeneration biology from a cell biological perspective.” “Rachel and I both feel that the field of cell biology is at the core of most questions in modern biology and we take this perspective in our own research,” says Thorne. This view is what led them to submit an application to co-chair the first ever Graduate Student/Postdoc–Initiated Minisymposium at the 2012 ASCB Annual Meeting.

Creating opportunities for young scientists to get involved with the Society and to share their excitement about cell biology is a priority of the ASCB. The 2012 Graduate Student/Postdoc–Initiated Minisymposium competition proved very successful, and the ASCB hopes to offer this competition again for 2013.

—Alison Harris, Meeting and Abstracts Manager
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Anita Sil
Taekwondo Black Belt

Hal McGee
The Science of Cooking

Dan Barry
Surviving the Survivor Show

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The ASCB Minorities Affairs Committee has named Georgia M. Dunston to present the 19th annual E.E. Just Lecture on December 16, 2012, at the ASCB Annual Meeting in San Francisco. Dunston is a professor and former chair of the Department of Microbiology, Howard University (HU) College of Medicine. She is the founding director of the National Human Genome Center (NHGC) at HU and Director of Molecular Genetics at the NHGC.

Dunston’s research on human genome variation in disease susceptibility and health disparities has been the vanguard of efforts at HU to build national and international research collaborations focusing on the genetics of diseases common in African Americans and other African Diaspora populations. Under Dunston’s leadership, the NHGC has been instrumental in bringing multicultural perspectives and resources to an understanding of knowledge gained from the Human Genome Project and research on human genome variation. She has been the recipient of numerous awards for her academic accomplishments. She currently co-leads a newly formed biophysics research and development group at HU that is exploring functional aspects of common variation and population genetics from first principles of thermodynamics and statistical physics (i.e., “genodynamics”).

Dunston has published extensively on genetic polymorphisms in human leukocyte antigens (HLA), the major histocompatibility system in humans, and other genetic markers of disease susceptibility in African Americans. She has served on the National Advisory Council for the National Institute of Environmental Health Sciences, the Genetic Basis of Disease Review Committee for the National Institute of General Medical Sciences, and the National Academy of Sciences Review Committee on Human Genome Diversity Project.

Dunston states, “It’s critically important that the biology of population-based differences in genome variation be thoroughly investigated for healthcare equity in the emerging era of personalized medicine with more refined genome-based diagnosis, targeted disease treatment, and customized health promotion tailored to the individual and community.”

Over the course of more than 30 years as a faculty member in the Department of Microbiology at HU College of Medicine, she has mentored hundreds of underrepresented minority students and scientists at all levels of education, including high school, undergraduate and graduate students, postdocs, and new investigators. She received her PhD in human genetics from the University of Michigan in 1972.

—Deborah McCall, Senior Manager, Minorities Affairs

Reference

Cheeseman to Receive BSCB Young Cell Biologist of the Year Award

Liam Cheeseman of the University of Liverpool has received the 2012 British Society for Cell Biology (BSCB) Young Cell Biologist of the Year Award. The award was presented at the joint meeting of the BSCB, the British Society for Developmental Biology (BSDB), and the Japanese Society for Developmental Biologists (JSDB) at the University of Warwick, UK, in April 2012. Cheeseman was honored for his work “Rapid, induced removal of TACC3/ch-TOG/clathrin from metaphase spindles defines new roles for microtubule crosslinkers in spindle assembly and function.”

The award is presented to a PhD student who has not yet received a degree and who is the first author and presenter of a poster at the joint BSCB/BSDB/JSDB spring meeting in any area of cell biology. Cheeseman will receive an expense-paid trip (compliments of BSCB) and meeting registration (compliments of ASCB) to attend the ASCB’s 2012 Annual Meeting in San Francisco. Cheeseman will present his poster or talk during the ASCB Annual Meeting, and will report on his meeting experience for both the ASCB Newsletter and the BSCB Newsletter.

—Alison Harris, Meeting and Abstracts Manager
L.C. Cameron to Receive Bruce Alberts Award

In recognition of his tremendous impact on the scientific career development of a large community of Latin American students, the ASCB has selected L.C. (Cam) Cameron to receive the 2012 Bruce Alberts Award for Excellence in Science Education.

In 2000 he organized the first international symposium on myosin V in his home city of Rio de Janeiro. That meeting became the foundation for a series of hands-on research training courses and education workshops for the next generation of scientists. These programs are particularly directed toward Central and South American students who have limited opportunities to interact directly with international scientists.

Cameron has been the primary force in organizing more than 20 of these workshops, international conferences, and courses in Brazil, Uruguay, Mexico, and the United States. Subject areas have expanded to include other topics in cell biology (calcium signaling, intracellular transport, and other aspects of the cytoskeleton), biochemistry, biophysics, and systems biology.

Students in these courses learn techniques, experimental design, and data accumulation and analysis skills and receive coaching in scientific presentation. These training courses have had a great impact on the students, exposing them to North American and European science. Many have gone on to work in the laboratories of the U.S. and European faculty who have participated, and the courses have sparked multiple intercontinental collaborations.

“Cam has an ability to instill an attitude among the students in his courses that they can achieve almost anything if they set their mind to it. He really is ‘all about the students,’” noted Gregg Gundersen of Columbia University Medical Center, who was one of his many nominators.

He is also described as a unique and tireless educator, unfailingly optimistic, and inspirational to both students and colleagues. As well, Cameron is the major fundraiser for all of these courses, a task that sometimes involves dozens of applications and the occasional need to dip into his own pocket for interim funding.

Cameron and his colleagues founded the International Institute for Collaborative Cell Biology and Biochemistry (IICCBB). The IICCBB is a network of world-renowned experts who want to share their expertise and knowledge to inspire students who will be the future scientific leaders in biochemistry, cell biology, and biotechnology. Their vision is to inspire a new era of international scientific cooperation by exposing young scientists to diverse, multidisciplinary learning experiences via workshops, conferences, and symposia. At these events, established scientists share their wealth of experience with the next generation of scientists who, in turn, act as ambassadors to their colleagues.

The IICCBB team is expanding to other regions of Brazil and the Americas. A course will be held in Fortaleza, a city in the northeast region of Brazil, on October 29–November 9, 2012. Cameron is also actively involved in consolidating the IICCBB with more dependable funding from national and international agencies. He is also trying to motivate colleagues to promote courses in other Latin America countries, Africa, and India.

Cameron will accept the award on Sunday, December 16, at the 2012 ASCB Annual Meeting in San Francisco.

More information is available at www.iiccbb.org and www.facebook.com/IICCBB.

—Thea Clarke

Constantly Changing . . . WICB’s Speaker Referral Service

Looking to diversify and expand your pool of excellent speakers and reviewers? The Women in Cell Biology (WICB) Committee’s Speaker Referral Service was designed for organizers of scientific meetings, scientific review panels, and university symposia/lecture series. Why? Diversity at the podium, or in the review process, often results in a more interesting and better outcome.

The WICB service offers two processes that make it easy for organizers, early in meeting planning stages, to receive a list of outstanding women in relevant field(s) to consider as invitees and reviewers. The list was recently updated with names of the 2011 Annual Meeting speakers and co-chairs. Take a look and refer your colleagues to www.ascb.org/WICBspeakerref.html.
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My wife, Wendie Berg, and I recently had our first opportunity to give talks together at the same meeting. The occasion was the annual board meeting of the Rosalind Franklin Society (www.rosalindfranklinsociety.org), a group devoted to fostering the accomplishments of women in the life sciences and related disciplines. Wendie’s invitation to speak was readily understandable. She is a well-known clinician–scientist who had participated in a lively discussion about the controversies around mammography at the recent Women’s Health Congress. But why was I invited? From the email I received, it was clear that my invitation was related to my recent departure as Director of the National Institute of General Medical Sciences (NIGMS) and the press release that included the statement, “I had no intention of leaving NIGMS at this point, but am doing so in support of the career of my wife, a leading breast imaging clinical researcher. After a change in her situation earlier this year, she was recruited by many institutions around the country, and the University of Pittsburgh offered tremendous opportunities for each of us.”

Achieving Balance

At the Rosalind Franklin Society, I gave a talk entitled “The Give and Take between Two Careers and Family.” The major theme of my talk was the altered decisions and, in some cases, compromises, that we had made over the course of more than 25 years of balancing two careers and our family. My departure from NIGMS was hardly the first time that these issues had arisen. Indeed, the beginning of our marriage was centered on such considerations. As the completion of my PhD studies approached, I was fortunate to line up a postdoctoral fellowship in the laboratory of a Nobel laureate in England. As this was evolving, I was becoming reacquainted with Wendie, whom I had dated in college. Wendie was then a student in the MD-PhD program at Johns Hopkins. After some months exploring possibilities for Wendie to spend some time overseas during her studies, I realized that the far simpler solution was to identify a suitable postdoctoral opportunity for me in Baltimore. Fortunately, I found a position with Carl Pabo, then a young assistant professor at Johns Hopkins University School of Medicine, who was working in areas that overlapped my interests well. From there, I was pleased to receive an offer for a faculty position in the Chemistry Department at Johns Hopkins. My research went very well and, after four years, I was recruited back to the School of Medicine as Director of the Department of Biophysics and Biophysical Chemistry.

My anchor in Baltimore greatly influenced Wendie’s career path. Wendie was very interested in breast imaging, but the institutions in Baltimore were not particularly strong in that field. Nonetheless, she developed her own opportunities, at Johns Hopkins and the University of Maryland and then in an unusual situation where she was doing clinical work in a private practice while running several multicenter clinical trials as a consultant with no formal academic affiliation. Over the years, both Wendie and I were approached regarding potentially interesting career opportunities. However, in many cases, the
Considering a Family’s Needs

Over the years, our career decisions have also depended on considerations of our entire family. We have three children, the youngest of whom, our daughter Monica, moved with us to Pittsburgh. In some cases, potentially attractive career opportunities were quite problematic with regard to options for schools for our children. Finding schools that are a good match to particular children’s needs and interests and the logistics of transportation can be quite challenging for children and parents alike. In another consequence of my departure announcement, David Kroll, a chemist and blogger, asked to interview Monica.2 It was fascinating to see Monica’s perspectives on life–work–school balance issues.

I believe the scientific community would benefit from better aligning the acceptance of open discussion of these issues with their importance. One study has revealed that more than two-thirds of faculty are partnered with someone else working outside the home and more than a third are partnered with another academic.3 Two-career issues are important and even central to many women and men, can be very challenging to solve, and would be better handled with more open information and less stigma.

—Jeremy Berg, University of Pittsburgh

Footnotes and Reference

1www.nigms.nih.gov/News/Results/20101206.htm.

Interested in Submitting an Article to the ASCB Newsletter?

We welcome submissions year-round on any topic.

Whether you’d like to report on the status of cell biology in your country, outreach to the public, classroom issues, or training concerns, consider the ASCB Newsletter. Articles are typically no more than 1,200 words. Want to assess interest or submit an essay? Write to the Editor at mleader@ascb.org.
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8. Bioinformatics

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PART 2: ANALYSIS AND MANIPULATIONS OF DNA/RNA
9. Quantification of DNA and RNA by Real-Time Polymerase Chain Reaction
10. Nucleic Acid Platform Technologies
11. DNA Sequencing
12. Analysis of DNA Methylation in Mammalian Cells
13. Preparation of Labeled DNA, RNA, and Oligonucleotide Probes
14. Methods for In Vitro Mutagenesis

PART 3: INTRODUCING GENES INTO CELLS
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PART 5: INTERACTION ANALYSIS
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2. Commonly Used Techniques
3. Detection Systems
4. General Safety and Hazardous Material

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By Carl M. Cohen, Science Management Associates, Newton, Massachusetts and Suzanne L. Cohen, Science Management Associates, Newton, Massachusetts

Lab Dynamics is a unique guide to the interpersonal side of scientific research and management. The book provides practical solutions to some of the toughest problems that working scientists and science managers face daily – problems for which most scientists are unprepared. Eleven thematically focused chapters show scientists how to communicate and interact more productively and how to develop and improve their management and leadership skills.

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**NEW! MEETING THREADS**

**CELL BIOLOGY AND MEDICINE**

**Saturday**
- **Keynote Speaker:** Arthur D. Levinson, Chair of Genentech and Apple, Inc. *(The public may sign up to attend)*

**Sunday-Wednesday**
- **Frontier Symposium:** Cell Biology and Medicine
- **Panel Discussion:** Sense and Reproducibility: The Problem of Translating Academic Discovery to Drug Discovery, chaired by Ira Mellman
- **Panel Discussion:** Is There a New Paradigm for Drug Discovery?, chaired by James Sabry
- **Career Presentation:** Careers Outside Academia, with biotech representation
- **Minisymposia:** Cell Biology of Neurodegeneration, Cellular Stress, Protein Folding, and Disease; Molecular Basis of Infectious Disease; Stem Cells and Induced Pluripotency
- **Working Groups:** New Technologies in Molecular Biology/Genetics; New Technologies in Proteomics
- **Science Discussion Tables:** Meet Bay Area biotech scientists
- **Career Discussion and Mentoring Roundtables, with biotech representation**
- **Travel awards available for postdocs in biotech**

---

**THE INTERSECTION OF CELL BIOLOGY AND THE PHYSICAL SCIENCES**

**Saturday**
- **Workshop:** Open Problems in Biology Requiring the Physical Sciences, organized by Julie Theriot, Rob Phillips, and Dan Fletcher
- **Interdisciplinary Gathering:** Cell Biologists, Physical Scientists, Engineers, and Computational Scientists
- **Keynote Speaker:** Steven Chu, U.S. Secretary of Energy *(The public may sign up to attend)*

**Sunday-Wednesday**
- **Frontier Symposium:** Applying Physics, Engineering, Computation to Cell Biology, with Bill Bialek, Rob Phillips, and Margaret Gardel
- **Symposium:** Synthetic Biology, with Jay Kiesling, Wendell Lim, and Laurie Zoloth
- **Minisymposia:** Cell Mechanics and Intermediate Filaments; Molecular Motors; Physical and Computational Tools for Cell Biology
- **Working Groups:** New Technologies in Imaging; Visualizing Biological Models and Information
- **Science Discussion Tables:** Informal discussions with leading scientists doing interdisciplinary research
- **Career Discussion and Mentoring Roundtables, with physical sciences representation**
- **Specialized Poster Topics**
- **Travel awards available for postdocs in the physical sciences**

*Programs are subject to change.*

---

**DEADLINES**

- **July 23**
  - Member-Organized Special Interest Subgroup Application
- **July 30**
  - Regular Abstract Submission *(Minisymposium talk or poster consideration only)*
- **Sept 4**
  - Regular Abstract Submission *(poster consideration only)*
- **October 10**
  - Early Meeting Registration
- **October 17**
  - Late Abstract Submission

---

**NEW IN 2012**

Each ASCB member (regular, postdoctoral, and emeritus) may sponsor two abstracts. Undergraduate and graduate student members may sponsor only their own abstract.
You Think It's Bad Now?

Last year, when the Congressional Super Committee failed to make $1.2 trillion in targeted cuts to the federal budget, a process of automatic, across-the-board spending cuts called sequestration went into effect. Broadly speaking, the cuts, which will begin in January 2013, will mean about an 8.4% cut to non-defense programs in the federal government, including the U.S. National Institutes of Health (NIH) and the National Science Foundation (NSF), and a 7.5% cut to defense programs in FY13. In subsequent years the rate of cuts will slowly decline.

Arguing that sequestration of defense programs would jeopardize national security, Republicans in the U.S. House of Representatives passed a FY13 federal budget plan that exempts U.S. Defense Department programs from the cuts. Any reduction in cuts to the defense department will increase cuts in other programs, including the NIH and the NSF.

In a memo to House Republicans explaining their plan, House Republican leaders cited cuts to the NIH as a reason to offer a replacement budget instead of allowing cuts to occur by sequestration, but they did not provide additional funds for the agency in their replacement budget.

A recent report published by the American Association for the Advancement of Science (AAAS) estimates the real and frightening impact of the House budget on federal research and development (R&D), including the NIH and NSF.

The AAAS report estimates that between FY13 and FY21 the portion of the federal budget in the Health category, which includes the NIH and is the largest nondefense R&D portion of the federal budget, would be cut to 22% below the levels proposed by President Obama. The General Sciences, Space, and Technology portion, which includes the NSF, could see its budget cut 29% below the Obama proposal during the same time period. The AAAS report indicates that at the same time, the defense budget would increase 3% above the amount requested by the president.

—Kevin M. Wilson

### Difference in R&D spending Between the President's FY13 Budget and the House FY13 Budget

(Percentage change from the President's Budget to House Budget)

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Defense</td>
<td>1%</td>
<td>1%</td>
<td>2%</td>
<td>2%</td>
<td>3%</td>
<td>3%</td>
<td>4%</td>
<td>4%</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>Gen Sci, Space, Tech (incl NSF)</td>
<td>-9%</td>
<td>-29%</td>
<td>-29%</td>
<td>-30%</td>
<td>-30%</td>
<td>-31%</td>
<td>-32%</td>
<td>-33%</td>
<td>-34%</td>
<td>-29%</td>
</tr>
<tr>
<td>Energy</td>
<td>-55%</td>
<td>-67%</td>
<td>-68%</td>
<td>-68%</td>
<td>-68%</td>
<td>-68%</td>
<td>-69%</td>
<td>-69%</td>
<td>-70%</td>
<td>-67%</td>
</tr>
<tr>
<td>Natural Resources</td>
<td>-10%</td>
<td>-33%</td>
<td>-36%</td>
<td>-36%</td>
<td>-36%</td>
<td>-36%</td>
<td>-36%</td>
<td>-37%</td>
<td>-37%</td>
<td>-33%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>-4%</td>
<td>-24%</td>
<td>-24%</td>
<td>-24%</td>
<td>-24%</td>
<td>-24%</td>
<td>-25%</td>
<td>-25%</td>
<td>-26%</td>
<td>-22%</td>
</tr>
<tr>
<td>Transportation</td>
<td>-37%</td>
<td>-28%</td>
<td>-38%</td>
<td>-41%</td>
<td>-43%</td>
<td>-44%</td>
<td>-44%</td>
<td>-23%</td>
<td>-21%</td>
<td>-28%</td>
</tr>
<tr>
<td>Health (incl. NIH)</td>
<td>-2%</td>
<td>-22%</td>
<td>-22%</td>
<td>-23%</td>
<td>-23%</td>
<td>-24%</td>
<td>-25%</td>
<td>-26%</td>
<td>-27%</td>
<td>-22%</td>
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<tr>
<td>Veterans</td>
<td>0%</td>
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<td>0%</td>
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<td>0%</td>
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</tr>
<tr>
<td>TOTAL</td>
<td>-3%</td>
<td>-11%</td>
<td>-11%</td>
<td>-11%</td>
<td>-11%</td>
<td>-11%</td>
<td>-11%</td>
<td>-11%</td>
<td>-11%</td>
<td>-10%</td>
</tr>
<tr>
<td>Total Non-defense</td>
<td>8%</td>
<td>-27%</td>
<td>-27%</td>
<td>-28%</td>
<td>-28%</td>
<td>-29%</td>
<td>-29%</td>
<td>-30%</td>
<td>-31%</td>
<td>-27%</td>
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</table>

Recognizing that innovation in the biological sciences is a rapidly expanding part of the global economy, last fall President Obama announced plans to craft a National Bioeconomy Blueprint. The Blueprint was to outline the steps his administration would take to harness biological research–based discoveries and innovations that can address critical health, food, energy, and environmental challenges.

At the request of the White House Office of Science and Technology Policy, the ASCB Public Policy and Education Committees provided views on a number of issues. Most importantly, the ASCB called for sustainable and dependable growth for federally funded biomedical research. Specifically, the ASCB urged the White House to commit to a long-term funding rate of at least “inflation + 2%” for biological research.

The White House report was officially released at a ceremony in the Eisenhower Executive Office Building by John Holdren, Assistant to the President for Science and Technology. Holdren was joined by Kathleen Sebelius, Secretary of the U.S. Department of Health and Human Services, and Tom Vilsack, Secretary of the U.S. Department of Agriculture.

The final report includes five strategic objectives:

- Support research and development investments that will provide the foundation for the future bioeconomy.
- Facilitate the transition of bioinventions from research lab to market, including an increased focus on translational and regulatory sciences.
- Develop and reform regulations to reduce barriers, increase the speed and predictability of regulatory processes, and reduce costs while protecting human and environmental health.
- Update training programs and align academic institution incentives with student training for national workforce needs.
- Identify and support opportunities for the development of public–private partnerships and precompetitive collaborations in which competitors pool resources, knowledge, and expertise to learn from success and failures.

The final report included a number of the ASCB’s suggestions. These included the development of new approaches to meet the changing employment opportunities of the next generation of American biological researchers. With a grim federal funding outlook, it is critical that students be exposed to the various employment options available to them. Both the ASCB and the White House report call for increased participation by the private sector and greater awareness of employment options beyond academia. As suggested by the ASCB, options include industry-sponsored internships and a restructuring of training programs to meet the needs of a wider range of potential employers. Also as suggested by the ASCB, the report calls for increased public–private partnerships and the development of technologies to allow researchers to handle “big data.”

You can read the ASCB’s comments at www.ascb.org/ASCBlueprint2012.html. To read the National Bioeconomy Blueprint, go to www.ascb.org/blueprint2012.html.

—Kevin M. Wilson
Science Advocacy in Congress: Does It Matter?
Congressional Staff Views of Constituent and Advocacy Communications

"One of our office’s top priorities is maintaining a high quality of dialogue with the people we represent."
— Senate Correspondence Manager

90%
Say that responding to constituent communications is a high priority in their office.

97%
Say that personalized messages from constituents are very or somewhat important for understanding constituents’ views and opinions.

99%
Say that responding to constituent communications is very or somewhat important for communicating the Member / Senator’s views to constituents.

99%
Say that in-person issue visits from constituents have some or a lot of positive influence on decision-making.

If your Member/Senator has not already arrived at a firm decision on an issue, how much influence might the following advocacy strategies directed to the Washington office have on his/her decision?

<table>
<thead>
<tr>
<th>In-Person Issue Visits from Constituents:</th>
<th>Contact from a Constituent Who Represents Other Constituents:</th>
<th>Individualized Postal Letters:</th>
</tr>
</thead>
<tbody>
<tr>
<td>97%  Some or a lot of positive influence</td>
<td>96%  Some or a lot of positive influence</td>
<td>90%  Some or a lot of positive influence</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Individualized Email Messages:</th>
<th>Phone Calls:</th>
</tr>
</thead>
<tbody>
<tr>
<td>88%  Some or a lot of positive influence</td>
<td>86%  Some or a lot of positive influence</td>
</tr>
</tbody>
</table>

How Can You Get Involved?

Join Project 50, the ASCB Public Policy Advocacy Team, and receive special updates on critical science policy issues, serve as a point of contact in your state to work with the Public Policy Committee, and organize your colleagues in support of biological research. To join Project 50, go to www.ascb.org/project50.

You can also receive additional alerts by joining the ASCB-supported Congressional Liaison Committee (CLC). To sign up, go to www.coalitionlifesciences.org/be-an-advocate.

For more information, contact Kevin Wilson, ASCB’s Public Policy Director, at kwilson@ascb.org.

"We in America do not have government by the majority. We have government by the majority who participate."
— Thomas Jefferson

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Cell image created by Graham Johnson for Pollard T, Earnshaw W. Cell Biology; Elsevier ©2007
The fission yeast septation initiation network (SIN) kinase, Sid2, is required for SIN asymmetry and regulates the SIN scaffold, Cdc11.


The fission yeast septation initiation network (SIN) kinase, Sid2, is required for SIN asymmetry and regulates the SIN scaffold, Cdc11.

Mol. Biol. Cell 23 (9), 1636–1645

Axonal and dendritic synaptotagmin isoforms revealed by a pHluorin-syt functional screen


Synaptotagmin-1 regulates synaptic vesicle fusion, but little is known about the remaining syt isoforms. Syt-pHluorin reporters are used to show that only two syts are on synaptic vesicles, whereas other isoforms are selectively targeted to dendrites, axons, or both axons and dendrites, where they undergo exocytosis and endocytosis with distinct kinetics.

Mol. Biol. Cell 23 (9), 1715–1727

Identification of a novel ADAMTS9/GON-1 function for protein transport from the ER to the Golgi


ADAMTS9 is required for protein transport from the ER to the Golgi, which is dependent on the C-terminal GON domain but not on protease activity. This novel function of the GON domain is conserved in both C. elegans (GON-1) and mammalian cells (ADAMTS9). The GON domain acts inside the ER but not outside the cells.

Mol. Biol. Cell 23 (9), 1728–1741

The apoptotic engulfment protein Ced-6 participates in clathrin-mediated yolk uptake in Drosophila egg chambers


During oogenesis in Drosophila, the phagocytic engulfment protein Ced-6 recognizes the atypical endocytic sorting signal within the vitellogenin receptor Yolkless. Because Ced-6 displays all of the features of an authentic clathrin adaptor, an unrecognized clathrin dependence for Ced-6/Gulp operation during phagocytosis is possible.

Mol. Biol. Cell 23 (9), 1742–1764

A VE-cadherin–PAR3–α-catenin complex regulates the Golgi localization and activity of cytosolic phospholipase A2α in endothelial cells

A. F. Odell, M. Hollstein, S. Ponnambalam, and J. H. Walker

The rapid regulation of phospholipase A2 activity is essential for vascular function. Evidence is found for a VE-cadherin–PAR3–α-catenin complex regulating the reversible association of cPLA2α with the Golgi apparatus in confluent endothelial cells. This regulation is important for controlling both cPLA2α activity and angiogenesis.

Mol. Biol. Cell 23 (9), 1783–1796
Spindle pole body components are reorganized during fission yeast meiosis
M. Ohta, M. Sato, and M. Yamamoto

We show that spindle pole body (SPB) remodeling during meiosis in fission yeast is essential for meiosis. Many SPB components disappear during meiotic prophase and return to the SPBs at meiosis I onset. We found novel functions for Polo kinase/Plo1 and centrin/Cdc31 in the meiotic reorganization of SPB components.

Mol. Biol. Cell 23 (10), 1799–1811

Stretch-induced actin remodeling requires targeting of zyxin to stress fibers and recruitment of actin regulators
L. M. Hoffman, C. C. Jensen, A. Chaturvedi, M. Yoshigi, and M. C. Beckerle

Mechanical stimulation induces zyxin-dependent actin cytoskeletal reinforcement. Stretch induces MAPK activation, zyxin phosphorylation, and recruitment to actin stress fibers, independent of p130Cas. Zyxin’s C-terminal LIM domains are required for stretch-induced targeting to stress fibers, and zyxin’s N-terminus is necessary for actin remodeling.

Mol. Biol. Cell 23 (10), 1846–1859

Endosomal maturation by Rab conversion in Aspergillus nidulans is coupled to dynein-mediated basipetal movement
J. F. Abenza, A. Galindo, M. Pinar, A. Pantazopoulou, V. de los Ríos, and M. A. Peñalva

Highly motile fungal early endosomes can be easily distinguished from more static late endosomes and vacuoles, a feature that is exploited to study endosomal maturation. RabA/RabB early endosomes mature into RabS7 late endosomes as they move away from the tip where endocytosis predominates, augmenting their size, with concomitant loss of motility.

Mol. Biol. Cell 23 (10), 1889–1901

Vesicular trafficking through cortical actin during exocytosis is regulated by the Rab27a effector JFC1/Slp1 and the RhoA-GTPase–activating protein Gem-interacting protein
J. L. Johnson, J. Monfregola, G. Napolitano, W. B. Kiösses, and S. D. Catz

The mechanism of cytoskeleton remodeling during exocytosis is not well defined. A combination of vesicular dynamics and functional studies shows that the Rab27a effector JFC1 and the RhoA-GTPase–activating protein Gem-interacting protein are necessary for RhoA regulation, actin depolymerization, and vesicular transport through the actin cortex during exocytosis.

Mol. Biol. Cell 23 (10), 1902–1916

Mechanistic mathematical model of polarity in yeast
N. S. Savage, A. T. Layton, and D. J. Lew

We use a novel mathematical modeling framework to dissect the contributions of diffusive transport and directed vesicular transport in polarity establishment. The findings call into question the role of vesicle-mediated Cdc42 traffic in polarity maintenance.

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Across the United States, approximately 75–80 programs award some form of certificate in university teaching.1 As future university faculty, it is imperative for current graduate students to recognize the importance of participating in these types of professional development programs. We work tirelessly to learn the elusive craft known as scientific research, but sometimes doctoral students view teaching and research as distinct entities. However, the two are not mutually exclusive.

In Scientific Teaching, Handelsman, Miller, and Pfund challenge “all scientists to bring to teaching the critical thinking, rigor, creativity, and spirit of experimentation that defines research.”2 As biology graduate students we must be prepared to accept this challenge, and it is through appropriate professional development that we will succeed. The traditional direct instruction, or “sage on the stage,” model of postsecondary education is quickly becoming antiquated as students demand more individualized instruction and university officials recognize the importance of teaching and discipline-based education research. With this renewed emphasis on education, it is important that each graduate student ensures his or her professional development as an educator by earning a graduate certificate in university teaching.

There are two distinct models for these certificates, a noncredit workshop model and a formal course-credit model. Although the two models differ in overall structure, they both aim to train students to meet similar objectives: to foster a working knowledge of the education literature (the “science of learning”); to create an awareness and understanding of diversity in higher education; and to apply the principles of active learning, instructional technology, and course design to university teaching. Perhaps one of the most useful skills fostered by programs such as these is the art of scientific teaching, the practice of employing the same research skills used daily in your laboratory to inform your teaching. After you have been teaching for several semesters, you may be inspired to create research projects based on student learning in your classroom. (One perfect venue for the publication of such research is the ASCB’s very own education journal, CBE—Life Sciences Education.) Additionally, many of these certificate programs require students to develop “capstone portfolios” to display their record of teaching, service, and scholarship, a culminating product that often proves useful to a student once he or she reaches the job market.

One final aspect of professional development that is fostered by participation in these certificate programs is the identification of a “teaching mentor,” or someone other than your research advisor who critiques your pedagogy while facilitating your development as a science educator. Not only do teaching mentors further your progression as an educator, they also aid in job searches by serving as critical reviewers of teaching statements and portfolios. By working closely with your research and teaching mentors, you can ensure that you achieve your maximum potential as a scientific educator.

As scientists, we like to have data to support our claims, and the claim that graduate certificates in university teaching are valuable is no exception. Some evidence is offered by Ginns, Kitay, and Prosser, who demonstrated that participation in such certificate programs promotes student-centered teaching and the scholarship of teaching.3 Because the full potential of graduate professional development programs is not yet known, additional research needs to be completed; however, their benefit to personal and professional growth is nearly certain.

If your particular institution does not yet have a graduate certificate in university teaching...
but you are interested in growing as an educator, consider attending one of the many events sponsored by the ASCB Education Committee at this year’s Annual Meeting. While providing opportunities to learn valuable skills, they will also afford you the opportunity to network with accomplished discipline-based education researchers. You may also wish to check out the Society of College Science Teachers (www.scst.org), a professional organization that meets annually with the National Science Teachers’ Association. 

—Cheston Saunders, Co-chair, Subcommittee on Professional Training

References


In celebration of the first 20 years of Molecular Biology of the Cell (MBoC), members of the Editorial Board, members of the ASCB Council, and others comment on their favorite MBoC papers from the past two decades.

Here Richard Fehon, Department of Molecular Genetics and Cell Biology, University of Chicago, comments on:


The ezrin, radixin, and moesin (ERM) proteins have emerged as important regulators of the cortical actin cytoskeleton, particularly in the apical domain of polarized epithelial cells. In this 1995 paper by Gary and Bretscher, which has been cited more than 250 times since publication, the authors showed that head-to-tail binding regulates interactions with actin and other binding partners at the cell cortex. Intramolecular head-to-tail binding has subsequently been shown to be critical for regulation of ERM proteins, as well as for the closely related protein Merlin, a component of the Hippo growth control pathway. ERM folding has also served as a model for autoinhibition of a number of other cortical cytoskeletal proteins. Interestingly, although the authors’ data suggested the existence of both intramolecular and intermolecular interactions, little is known about the importance of the latter in living cells, suggesting that the full importance of this work remains to be discovered.

This and other MBoC 20th Anniversary Favorites will appear in the journal throughout 2012.
ASCN 2012 Call for Nominations

Morton Bernfield Memorial Award

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. Nominators must be ASCB members.

Awards: The winner is presented a plaque, is given financial support, and will speak at a Minisymposium at the Annual Meeting. Expenses to attend the Annual Meeting are paid.

Deadline: July 16 (electronic submission preferred to Cheryl Lehr at clehr@ascb.org)

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 first-year postdocs 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. Nominators must be ASCB members.

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

Deadline: July 16 (electronic submission preferred to Cheryl Lehr at clehr@ascb.org)

Are You Getting ASCB Pathways?

You should now be regularly receiving our monthly email update, ASCB Pathways—alerting you to the latest ASCB happenings and Annual Meeting updates. If you aren’t seeing the e-newsletter in your inbox, please check your spam filter, and/or contact your system administrator to whitelist *ascb.org.

Interesting Uses of The Cell: An Image Library-CCDB

The Cell: An Image Library-CCDB (www.cellimagelibrary.org) continues to evolve. Some interesting new or anticipated uses of images in The Cell include:

- The developers of Immune Defense, the sequel to Immune Attack, a biology exploration video game, are going to incorporate real images obtained from The Cell into its gameplay. More information can be found at http://prelaunch.sciencegamecenter.org.

Join us on LinkedIn for more conversation on everything microscopy related at www.linkedin.com/groups?about=&gid=3733425.

Please help us spread the word and share with your colleagues what a great resource The Cell: An Image Library-CCDB is.

Have you used The Cell in interesting ways? Please let us know by sending an email to David Orloff at dorloff@ascb.org. All documented usage helps support our efforts to obtain continued funding.

—David Orloff, Director, Image Library
GRANTS & OPPORTUNITIES

A list of current grant and other opportunities can be found at www.ascb.org/GandO.html. The following item was added since the last issue of the Newsletter:

**Fulbright Scholar Awards in Europe.** Applications for the 2013–2014 academic year are currently being accepted for many awards in the biological sciences, including, but not limited to:


Applicants must be U.S. citizens and hold a PhD or appropriate professional/terminal degree at the time of application. Application deadline: August 1, 2012. Many All Discipline awards are also available: [www.cies.org/us_scholars/us_awards](http://www.cies.org/us_scholars/us_awards).


Members in the News

Six members of the ASCB were among the 203 scientists elected as American Academy of Arts and Sciences Fellows.

**Elizabeth Blackburn,** of the University of California, San Francisco, an ASCB member since 1978 and ASCB President in 1997–1998, received the 2012 American Institute of Chemists Gold Medal.

**David Botstein,** of Princeton University, an ASCB member since 1985, was one of three recipients of the 2012 Dan David Prize for Genome Research.

**Linda Hicke,** of Northwestern University, an ASCB member since 1989, was named dean of the College of Natural Sciences at The University of Texas at Austin.

**Brian Jay Druker**, Oregon Health and Science University, Member since 2003

**Mark Johnston**, University of Colorado, Denver, Member since 1998

**Sarah C.R. Elgin**, Washington University, St. Louis, Member since 1974

**Liqun Luo**, Stanford University, Member since 2001

**Susan Ferro-Novick**, University of California, San Diego, Member since 1993

**Danny Reinberg**, New York University School of Medicine, Member since 2003
MEETINGS Calendar

A complete list of upcoming meetings can be found at http://ascb.org/othermeetings.php. The following meeting was added since the last issue of the Newsletter:

September 13–14, 2012. London, UK

ASCB Annual Meetings

December 15–19, 2012. San Francisco
December 14–18, 2013. New Orleans
December 6–10, 2014. Philadelphia
December 12–16, 2015. San Diego
December 3–7, 2016. San Francisco

MEMBER Gifts

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

Nathan Collie
Alison Crowe
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Elizabeth Raff
Wendy Salmon
Samuel Silverstein
Gerald Sufrin
Catherine Thaler

*As of May 29, 2012

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Barbara Vartel

*As of May 11, 2012

BOOKS by Members


Are you planning to publish a book in 2012? If so, let ASCB know! Send the title, publisher, and ISBN information, and, if you wish, a thumbnail (300 dpi) of the cover. We'll include it in the ASCB Newsletter. This publicity is available only to ASCB members. Please send submissions to Thea Clarke at tclarke@ascb.org.
Dear Labby,

I am a fourth-year graduate student looking forward to completing my degree. I recently did a combined microarray analysis for both microRNAs and messenger RNAs that go up or down (or don’t change) in my experimental system when I give the cells phorbol ester (this is a cancer project). My lab head loves the results, and they will be part of my thesis and a paper I am starting to write. But last week at my penultimate thesis committee meeting a member stopped me short with a question: Will I repeat this analysis? My lab is underfunded and the first microarrays cost a lot. I know experiments should be repeated, but does this apply to very expensive ones?

— N = 1

Dear N = 1,

This is an issue that has arisen widely in biomedical research as certain very costly methods have come upon the scene. Projects involving microarray analysis or the construction of a gene knock-out mouse are expensive, and concerns about costs have been aggravated by the decline in National Institutes of Health funding. It is a genuine dilemma (that word coming from the Greek for “two premises”).

The “pure” answer is that your microarray analysis must be repeated. And (are you ready for this?) more than once, at least in principle. Biostatisticians have often commented that N = 2 is the most dangerous number. First, it encourages the investigator to believe (falsely) that the observation has been sufficiently replicated. (But try flipping a coin several times and often you will get a run of four or five heads or tails.) Moreover, these statistical gurus remind us that when N = 2 the ability to apply standard or advanced tests for the analysis of variance is severely compromised. This is about “precision,” a term often misunderstood or misused that means reproducibility (not “accuracy,” “robustness,” or anything else).

However, there may be situations where common sense forces a compromise. To posit an extreme case, just to make the point, let us say a lab decided to determine the genome sequence of a certain spirochete, one that has been postulated to have contributed flagella to eukaryotic cells by an endosymbiotic step in evolution. The lab spends $50,000 to do so and then its National Science Foundation funding runs out. Meanwhile, the genome sequence (done once) tells, or at least very plausibly presents, the evolutionary story. The lab goes forward with a new hypothesis, and the community of eukaryotic evolution is thus enriched. Is there anything wrong with this story? In this case an “experiment” with N = 1 would be enabling, especially if the solitary genome analysis itself has multiple reads of contigs in the library.

Your case is obviously less straightforward. The first question is whether there was anything in your RNA isolation that might have been worrisome. Second, was there anything in either the microRNA or mRNA profiles that struck you as suspicious or implausible based on the known biology of your system? Such anomalous results can be huge clues that there are experimental errors (or that previous hypotheses were ill-founded), and if you see such problems you might want to prevail on your cash-strapped PI to run a repeat. Absent a repeat, you of course need to be above board and convey in your publication that the analysis was done only once. The guild will accept that as appropriate and properly weigh it in their assessment of your work. If you are not making an extreme claim, e.g., that Oswald Avery was wrong and that the gene is actually a carbohydrate, your thesis research publication(s) will not be tarnished by an experiment done only once, if that fact is fully revealed.

—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.
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