Following the Threads at the 2012 Annual Meeting: The Places You Will Go

It was a meeting of two threads—medicine and physical science—running through the fabric of cell biology at the 52nd ASCB Annual Meeting, December 15–19, 2012, in San Francisco. Symposia on Sunday launched directly and impressively into how cell biologists are influencing medicine, specifically to study brain disorders. Jürgen Knoblich of the Institute of Molecular Biotechnology in Vienna wowed the audience in the darkened ballroom with images of his group's three-dimensional cultures of human mini-brains (to be highlighted in a future issue of the Newsletter), and Susan Lindquist explained how the basic cellular problem of proper protein folding lies at the heart of most neurodegenerative disorders.

San Francisco, continued on page 5

Annual Meeting Threads Draw In Quants, Clinicians, and Public

For the first time, the ASCB invited the general public to the opening session of an Annual Meeting to hear the Keynote addresses, see a molecular art show, and mingle with research scientists at a reception. The ASCB offered the opportunity to hear two speakers, U.S. Secretary of Energy and Nobel laureate Stephen Chu and the Chair of Genentech and Apple Arthur D. Levinson, who are normally not easily accessible to the public. Both speakers promised to present broad, fascinating perspectives on the future of science, which ASCB correctly thought would interest a larger crowd, beyond the usual suspects.

Keynote, continued on page 10
In cell biology, linking cellular light microscopy information to ultrastructural electron microscopy detail can be challenging. New advancements from FEI remove these challenges and enable quick and easy correlation of light and EM information. **Achieve results in minutes—not days.**

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Great Things Are Ahead for ASCB

The excitement of the 2012 Annual Meeting in San Francisco was still echoing as ASCB President Ron Vale passed the gavel and I became the 52nd President of ASCB on January 1. In the more than 30 years that I have been an ASCB member I have always regarded ASCB as the overachiever of scientific societies. It’s a great honor to have been given the opportunity to lead the Society this year, along with Past President Vale, President-Elect Jennifer Lippincott-Schwartz, Treasurer Thoru Pederson, Secretary Kathy Green, and the Council.

One early advantage comes with the presidential perspective: You sit closer and you see better. You see how the ASCB is changing as our science and our world change. As incoming President, you also get to the podium first to introduce people like Susan Lindquist as the 2012 winner of the ASCB’s highest scientific award, the E.B. Wilson Medal. Standing there while I highlighted Susan’s pioneering work on prions and on heat shock proteins as drivers of phenotypic variation, I recalled the first time I ever encountered her and how I knew immediately that she was very special. Here’s what happened.

Despite immediate research success as a young assistant professor, Susan’s first renewal application, the overachiever of scientific societies. It’s a great honor to have been given the opportunity to lead the Society this year, along with Past President Vale, President-Elect Jennifer Lippincott-Schwartz, Treasurer Thoru Pederson, Secretary Kathy Green, and the Council.
ASCB NEWSLETTER JANUARY/FEBRUARY 2013

2013: A Year of Change
As you will soon discover, Stefano is a great believer in science education and communications. He believes that new technologies and the ASCB's inherent strong scientific backbone will let us "cover" cell biology in a new way. He believes in reporting, collecting, and analyzing the latest scientific news, along with new developments in science policy, science education, scientific training, federal and local science funding, diversity, global science, and emerging issues.

Stefano’s goal for a restructured ASCB website is simple. He wants it to be so good that you will find the need to bookmark the ASCB homepage on your browser. He wants the ASCB bookmark to the left of Gawker or ESPN scores, but ideally right next to PubMed. He wants ASCB to be part of your year-round scientific life, useful for services and information as well as our exciting Annual Meeting. Look for many changes coming in 2013.

Centerpieces of Cell Biology
The 2012 Annual Meeting in San Francisco followed two threads, “Cell Biology and the Physical Sciences” and “Cell Biology and Medicine.” The threads were woven throughout the meeting, starting with a pair of stunning Keynote talks. The first thread was unwound by Stephen Chu, Nobel laureate in physics and U.S. Secretary of Energy. Chu sketched out the impetus that physicists gave to cell biology with the development of high-resolution light microscopy and optical trapping methods that opened the era of single molecule biology. If you missed his talk, Chu’s lecture is online on the ASCB website (www.ascb.org/2012AM/Chu2012.html). One other thing learned by the new ASCB President is that cabinet secretaries come with a Secret Service security detail, so a one-on-one meeting with Chu is also attended by three athletic guys in suits and ties who don’t smile a lot and all have those signature earpieces.

Art Levinson, Chair of the Board at both Genentech and Apple, gave—in my view—an equally stunning start to the Cell Biology and Medicine thread. Levinson traced the evolution of antibody therapy in cancer, noting how early therapy with mouse monoclonal antibodies failed in ways that could (and should) have been predicted. Disregarding what was then the accepted wisdom that monoclonal antibodies were a dead-end for clinical applications, Genentech humanized monoclonal antibodies (e.g., Herceptin for breast cancer). With Levinson’s leadership, Genentech evolved from a company selling no cancer drugs in the mid-1990s to become the pharmaceutical leader in sales by 2005. On a more personal note, Art and I were in the same entering graduate class at Princeton, and then were postdocs contemporaneously at the University of California, San Francisco. For my first academic job, I went to Johns Hopkins, while Art departed for Genentech. Always inquisitive, Art provided an outstanding example of a career path for PhDs outside of the bench and academia. And he showed that it is possible for successful CEOs to understand science at a sophisticated level, all the while engendering an atmosphere of discovery in corporate life.

Let me close with a note about our Annual Meeting plans in 2013. ASCB will be meeting in New Orleans, and we will continue the threads started in San Francisco. We intend to add a third: Professional Training. We hope to expand on the various opportunities that were offered in San Francisco, which included workshops on college teaching and careers away from the bench; presentations on how to get a postdoc position, a faculty position, or a job at a primarily undergraduate institution; sessions on how to publish your important work, grant-writing, and funding and research opportunities in the United States, Brazil, China, and India; and the popular one-on-one CV reviews and mentoring advice in the Career Center. To these—which we will continue—we will add sessions every day devoted to career opportunities for PhDs in the 21st century.

ASCB recognizes that academics, including some ASCB Presidents, haven’t always been good at providing their students and postdocs with optimal advice on scientific careers in public service, policy making, and the corporate sector. ASCB intends to address that gap. Stay tuned.

[In her grant reapplication, Susan Lindquist wrote] that she felt she “had proposed the right next experiments…. Therefore... “in revising the application, I have not changed one word”!
Lindquist, who was also this year’s E.B. Wilson Medal winner, noted, “Proteins have to get into just exactly the right shapes in a ridiculous environment.” She showed an image from illustrator David Goodsell depicting an overcrowded cell with an average protein concentration of 300 mg/mL. (Goodsell’s work and amazing cell biology art by others was on display during the meeting at “ASCB2;” see p. 11.) The Lindquist lab studies the heat shock response pathway, which keeps proteins in proper fold, but fails in protein accumulation disorders including Alzheimer’s disease and Parkinson’s disease (PD). “There is not a single current treatment aimed at correcting the underlying cellular pathology,” noted Lindquist.

Enter protein folding. Using yeast as “living test tubes,” the Lindquist group set up a screening system to see how protein misfolding might be fixed. By overexpressing a misfolder implicated in PD, α-synuclein, which is toxic to yeast, the researchers can search for genes that rescue the toxicity or make it worse. So far, they have found that genes that promote endoplasmic reticulum-to-Golgi traffic suppress the α-synuclein toxicity, while genes that block this traffic enhance it.

Using this system, they have screened 150,000 compounds for those that reverse misfolding and restore growth. A small number of strong hits have rescued yeast, nematode, and rat neuron models of PD. Lindquist concluded, “We, with a very broad community of collaborators, have the potential for a new platform for personalized medicine,” based on protein folding. “Understanding that biology is going to be vital to solving and finding other therapeutic opportunities.”

In the Cell Mechanics and Intermediate Filaments Minisymposium, Jessica Tytell of Harvard Medical School laid out intriguing data about vimentin dynamics during mesenchymal migration—one of the many talks this year focused on the forces behind cell movements that are key to cancer metastasis. Tytell posed the hypothesis that the amount of vimentin in cells, a common biomarker for metastatic cancer, might correspond to invasiveness.

Tytell described how she knocked down or boosted vimentin levels in fibroblasts and then clocked the fibroblasts’ migration speeds. Cells with more vimentin on board were speedier. Her time-lapse movies showed vimentin moving into and colonizing the leading edge of migrating cells. With an elegant method for quantifying vimentin networks, she mapped the orientation and angles of vimentin filaments, which jutted perpendicularly into cell protrusions.

Afterward, Tytell explained, “Our group’s major contribution and innovations are discovering the dynamics of the filaments, how they orient during migration, that they extend into protrusions, and designing novel image analysis techniques. These will be critical for elucidating the mechanisms by which vimentin contributes to migration and metastasis.”

In a similar talk later in the meeting, Alexander Fuhrmann of University of California, San Diego, described a new method for measuring metastatic cancer cell adhesion strength. By placing extracellular matrix protein–coated coverslips at the end of a spinning rod in buffer, the lab calculated the shear needed to peel the cells off the surface. Metastatic cells completely disassembled their focal adhesions and had weak adhesion strength when cations were reduced to resemble the stroma adjacent to the tumor. In the same stroma-like conditions, nonmalignant cells needed additional force to detach them.

On Monday morning, two tiny, but exotic organisms took the spotlight in the New Model Systems Symposium. Nicole King of the University of California, Berkeley, argued that the little-known choanoflagellates make an excellent model for studying the origins of
multicellularity. These peculiar cells have a long apical flagellum that whips around to usher bacteria into a high, rigid collar for eating. Under the right conditions, “choanos” transition from single cells into multicelled rosettes or chains.

King’s group sequenced the genomes and transcriptomes of more than 20 species of choanoflagellates “to try to reconstruct the genome of the first metazoans, to ask which components are more ancient.” Surprisingly, they found that genes such as those for cadherin, integrin, collagen, and even oncogenes myc and p53 predated metazoan origins. The team also tracked down the signal that triggered rosette formation in one choano species to a novel type of bacterial molecule, a sulfonolipid called RIF-1.

Similarly, Alejandro Sánchez Alvarado of the Stowers Institute for Medical Research in Kansas City tried to persuade the audience that the planarian flatworm makes an exciting model for regeneration because it can reform its whole body—including rudimentary nervous and gastric systems—from a tiny slice of the whole. The remarkable stem cells behind this feat, neoblasts, make up nearly a quarter of the worm’s cells. His group is now tracking the cellular processes during development that produce these “truly totipotent” cells that seamlessly integrate pre-existing structures with newly formed tissue. Understanding that phenomenon, Sánchez Alvarado said, is absolutely essential for developing regenerative medicine therapies.

**Think Like a Physicist**

Monday also featured the physical sciences thread, with physicists and engineers bringing their expertise to bear on problems in cell biology. As part of a new Frontier Symposium, William Bialek of Princeton University set the scene for the ballroom of biologists. He contrasted the difference in philosophies between quantitative biology, which attempts to create mathematical models of biological processes (usually requiring multiple parameters), and physics, which pursues a universal description of a phenomenon that is largely parameter-free. As examples, Bialek pointed to the ideal gas law, the Navier-Stokes equations for fluids, and the behavior of systems near phase transitions; in all these cases there is a universal mathematical description for a wide range of phenomena that makes no reference to molecular details. “We should be searching for similar unifying approaches to biological systems,” he contended.

He suggested ways to eliminate parameters from biological models: Assume that parameters don’t matter because evolution has selected systems that are maximally robust to parameter variation, or that parameters have been selected to optimize certain functions that are essential for survival. Examples of these ideas can be found in a wide range of systems, from embryonic development to the neural code.

On Monday afternoon, several Minisymposium talks highlighted Physical and Computational Tools for Cell Biology. Josef Lazar of the Institute of Nanobiology and Structural Biology of the Academy of Sciences of the Czech Republic gave an ingenious explanation of an underappreciated property of fluorescent proteins (FPs) that allows researchers to track protein–protein interactions or conformation changes using a single fluorescent label. “FP molecules behave like antennas: Whether or not they absorb light depends on their orientation,” Lazar said. Using a technique called two-photon polarization microscopy, Lazar demonstrated how researchers could use their favorite FP-labeled constructs to track protein interactions in new ways.

Elizabeth Villa of the Max Planck Institute of Biochemistry in Martinsreid, Germany, described how she co-opted a focused ion-beam microscope commonly used in materials science to “micromachine” yeast cells. The technique “mills” away enough layers of cell sector to give a thin-yet-robust and artifact-free section for cryo-EM tomography—allowing her to visualize in
Sense and Reproducibility

It was lunch-to-go for a panel discussion on the problem of reproducing preclinical data, and the aroma of soups and sandwiches greeted Ira Mellman, Vice President of Research Oncology at Genentech and former Editor of the *Journal of Cell Biology* (*JCB*), as he took the podium to introduce the problem. Mellman said that *JCB*, which began screening for image manipulation in all accepted manuscripts in 2002, found that 10% of papers had one example of unacceptable manipulation and 1% were ultimately rejected on those grounds. In the last decade the numbers have held steady, said Mellman. The concern, however, about false data in science has only risen.

This is a major problem for those in industry who rely on academic discoveries to launch their development of new medicines or devices, said C. Glenn Begley, medical oncologist and former Vice President of Global Oncology at Amgen. “We’ve realized that we cannot even always believe the headline of a paper.”

Begley described how Lee Ellis and other scientists at Amgen over the course of a decade attempted to reproduce 53 “seminal research studies,” working with the original authors, sometimes even traveling to their labs to do the work. They successfully reproduced the results of just six studies.

“This is something systemic, not just one or two labs,” Begley noted. He counted more than 100 clinical studies based on these irreproducible findings at clinicaltrials.gov. He urged the audience to ponder the incredible wasted efforts, time, and money of scientists in both academic labs and companies.

Begley acknowledged that there are many challenges to reproducibility that are simply inherent in biological models. However, the Amgen analysis revealed six common pitfalls that can be addressed: studies were not blinded, papers did not show all results, experiments were not independently repeated, positive and negative controls were not shown, reagents were not validated, and statistical tests were not appropriate.

Begley blamed the problem largely on sloppiness, rather than outright fraud or misconduct. The panel viewed the problem as driven by current publishing incentives in which top-tier journal publications bring grants, fame, and promotions. Ultimately, responsibility rests with investigators, but the “greatest change will have to come from journals and granting agencies” by raising standards and not tolerating poor science, Begley said. “They should reward reproducible, not racy, results.”

Elizabeth Iorns, CEO at Science Exchange, is trying to put those reproducibility rewards in place—although it’s an uphill battle. Iorns argued that validation done by independent, nonacademic scientists would identify the research most likely to lead to therapeutic advances.

That’s the model behind the Reproducibility Initiative, she explained. Investigators submit studies for validation by independent commercial labs that run the experiments again in a completely blinded manner. So far, 685 authors of already published work have agreed to participate in the program. Finding funding is another matter, she reported. As an incentive, participants are guaranteed a second publication of the work in the PLoS ONE Reproducibility Collection and receive a certificate of reproducibility, which can aid in commercializing research findings.

Iorns hopes to “create a reproducibility culture,” but admitted that it was difficult to secure funding to validate already published results. But Begley reminded the audience, “Patients are at the center of all we’re trying to do. It’s easy to forget that what we do has an impact in the lives of people.”

Learn more about the Reproducibility Initiative at www.scienceexchange.com/reproducibility.

—Kendall Powell

Re-engineering Bugs That Hurt or Help

Two talks on Tuesday morning made the case for studying prokaryote communities, both for insights into cell mechanisms and new therapies to fight infections. Bonnie Bassler of Princeton University outlined how quorum-sensing signals switch bacteria from acting as single cells to “groupthink.” By identifying the molecules that control that switch in *Vibrio cholerae*, the Bassler lab has discovered new drug targets for the cholera pathogen as well as its food-poisoning cousins. The autoinducers that trigger quorum-sensing are novel molecules, “new places to think about manipulating bacteria,” to boost good activities or shut down pathogenicity, Bassler declared.

In the same session, Lora Hooper of the University of Texas Southwestern Medical Center described her group’s discovery of how our guts keep gram-positive bacteria from invading. Our intestinal epithelia secrete a protein antibiotic called Reg IIIα, a C-type lectin that binds to the peptidoglycan coat of bacteria. It then forms a hexamer pore in the bacterial membrane, causing it to burst. By secreting Reg-IIIα, intestinal cells create a 50-micron-thick microbe-free zone in the mucus lining. “We’re calling it the demilitarized three dimensions the native “monster” nuclear pore complex in situ.
zone. You can see a few rogue [bacteria] making a run for the border, but most are segregated away from the surface of the intestine,” said Hooper.

Later Tuesday morning, Wendell Lim of the University of California, San Francisco, and Jay Keasling of the University of California, Berkeley, gave the ballroom a crash course in the state of synthetic biology, which uses engineering to reconstruct complex biological behaviors or to modify cells to do something novel. Lim explained why synthesis complements the classical top-down approach of deconstructing cells into their molecular parts: “Synthesis can help bring out the logic and rules of constructing biological functions. What are the fundamental rules important to achieving that function?”

Keasling’s group has been successful in genetically engineering cells to yield practical novel products. He walked his listeners through three remarkable examples of reconfiguring microbes to synthesize pharmaceuticals, fuels, and commodity chemicals. By modifying the ergosterol production pathway in yeast cells, his group was able to produce artemisinic acid, a precursor to the antimalarial drug artemisinin. By combining synthetic biology with intellectual property innovation, the team believes that it has created a stable and low-price supply of the drug for the patients in the developing world who need it most.

Keasling’s group has also engineered bacteria and yeast to produce bisabolane, a renewable fuel that has properties similar to those of the diesel fuel currently available at gas stations. He proposed that nearly any chemical made from petroleum—including those in the ceiling tiles, chair upholstery, and paint of the seminar room—could be made by microbe factories. “What if we could get all of those from a renewable basis, namely sugar grown in the U.S.?” Keasling asked. Simple sugars could be used to feed the biosynthetic chemical–producing bugs.

Lim urged the audience to consider synthetic biology as exemplifying science’s loftiest goals. Lim said that cell biologists need to think of themselves as engineers, noting that “unnatural” cell systems such as induced pluripotent stem cells have been incredibly useful in understanding cell biology and solving medical problems. “Cells are a remarkably successful platform for solving problems,” he noted. “There’s a growing role for biological solutions to societal problems” in the realms of health, environment, energy, and agriculture.

That makes the cell the thread that binds them.

—Kendall Powell

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**Did You Know...?**

- April 1 is the deadline for nominations for eight ASCB awards—all of which will be presented at the 2013 ASCB Annual Meeting in New Orleans, LA, December 14–18.

- For eligibility and nomination requirements, see the Call for Nominations on page 18, or go to www.ascb.org and click on “Membership.”

- Please take the time to nominate a deserving colleague, postdoc, mentor, or student.

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—Thea Clarke
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CONTENTS
1. An Overview of Cells and Cell Research
2. The Composition of Cells
3. Cell Metabolism
4. Fundamentals of Molecular Biology
5. The Organization and Sequences of Cellular Genomes
6. Replication, Maintenance, and Rearrangements of Genomic DNA
7. RNA Synthesis and Processing
8. Protein Synthesis, Processing, and Regulation
9. The Nucleus
10. Protein Sorting and Transport: The Endoplasmic Reticulum, Golgi Apparatus, and Lysosomes
11. Bioenergetics and Metabolism: Mitochondria, Chloroplasts, and Peroxisomes
12. The Cytoskeleton and Cell Movement
13. The Plasma Membrane
14. Cell Walls, the Extracellular Matrix, and Cell Interactions
15. Cell Signaling
16. The Cell Cycle
17. Cell Death and Cell Renewal
18. Cancer

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ASCB President and University of California, San Francisco (UCSF) faculty member Ron Vale had put out the invitation through the local news media and research grapevine to “my neighbors from the Bay Area.” Picked up by a Marin County high school principal and relayed by science teachers and some nonprofit organizations, the offer brought 700 ticket requests.

An Evening for All Sciences

It was startling to see, sprinkled through the regular ASCB crowd of badge-wearing grad students, postdocs, and investigators, so many teenage and younger listeners in the 4,500-seat Esplanade Ballroom. Among them was Seth Vigneron, a ninth-grader from Redwood High School and his dad, Dan. Seth was intrigued by the premise of the Levinson talk about cell science and medicine. Was he planning on a career as a physician? “No,” said the ninth grader, “I want to be a real scientist.”

It turned out to be an evening for all sciences, “real” and virtual, experimental and clinical, “hard” melding into soft. The program for the 2012 Annual Meeting, organized by Tony Hyman of the Max Planck Institute in Dresden, Germany, along with Ron Vale, was centered around the two threads of “The Intersection of Cell Biology and the Physical Sciences” and “Cell Biology and Medicine.” Each theme was woven through four days of linked talks, Symposia, and targeted Working Groups, tracing the new sciences, technologies, and economic realities that are remixing cell biology.

Intertwining the Physical Sciences and Cell Biology

In his Keynote address, Secretary Chu used his own career to illustrate the intertwining of the physical sciences and cell biology, starting from his early Nobel-winning work at the Bell Labs on optical trapping of single atoms by laser cooling them to near absolute zero. Laser trapping of atoms led Chu to work out his Bell colleague Art Ashkin’s idea for optical tweezers able to manipulate single organic molecules. Moving to Stanford University, Chu collaborated with cell biologists Jim Spudich and Robert Simmons in 1993, using laser trapping to precisely measure the stroke step of single myosin motor proteins moving on actin filaments. It was a vivid demonstration of what has now become the hot experimental field of single cell biology.

Even his elevation to Secretary of Energy in 2009 has not slowed Chu’s research into sharpened high-resolution microscopy and the formation of biofilms, although he added, “Let me assure the taxpayers here that the first 75 hours of my week go to [the Department of] Energy.” He outlined other projects for biofuels that involve harnessing “directed evolution” in plants to crank up lignin-dissolving enzyme production as well as genetically engineering plants to arrest development at a juvenile stage so growth is channeled into soft low-carbon tissue instead of hard woody structures.

Still, new technologies and new results can ruffle feathers, Chu warned. His early single biomolecule experiments hinted at “molecular individualism,” a heresy at the time when supposedly identical structures should not exhibit singular behavior. Critical reception follows a pattern, Chu told the younger members of his audience. “The first reaction is, ‘It’s wrong.’ Then after they understand it, ‘It’s trivial.’ Then they very quickly remind you that you were not the first to discover it. You know you’re onto something big if you get those reactions.”

Cancer: A Case Study in Cell Biology and Medicine

Speaking to the second Thread, Cell Biology and Medicine, Levinson looked at cancer’s massive disease burden. Currently, about 1.6 million Americans receive a cancer diagnosis and 600,000 die of cancer every year, he said. With heart disease declining, cancer is fast becoming the leading cause of death in the United States. Forty percent of Americans born in 2012 will develop cancer in their lifetimes. “So are we making progress?” Levinson asked. “Yes and no. I want to talk about the good news but I want to make sure no one gets too euphoric.” Levinson’s good news comes in part from improved breast cancer therapeutics derived from basic research into the HER family of mutated genes. Levinson traced the 30-year path of development for Genentech’s Herceptin (trastuzumab), a monoclonal antibody that interferes with the HER2/neu receptor, interrupting the signaling of an epidermal growth factor–like receptor that drives uncontrolled tumor cell division in about 25% of women with breast cancer. The identification and isolation of the receptor gene was facilitated by its relationship to a viral gene that causes cancer in chickens.

Levinson and other Genentech scientists cloned the human HER2 gene soon after he joined Genentech in 1980. Monoclonal antibodies derived from mice were the rising
stars for clinical targeting in the 1980s, but by the end of the decade most had flamed out in trial after trial. Reviewing these results, Genentech scientists came up with the daring hypothesis that it was the source of the monoclonal antibodies—mice—that caused the failure. Quietly buying up the discredited monoclonal antibody drug patents, Genentech undertook the development of a humanized monoclonal antibody that would block HER2. Administered as an adjuvant with the mitotic inhibitor paclitaxel in early-stage breast cancer, Herceptin has significantly lengthened the overall survival rate in HER2-positive breast cancer patients, according to Levinson. At the 2012 CTRC-AACR San Antonio Breast Cancer Symposium, Levinson presented a new follow-up study of women treated under this protocol showing an approximate 36% reduction in the death rate for all causes an average of 8.4 years after treatment.

The sobering news came from his description of attempts to extend Genentech’s experience with monoclonal antibodies to treating melanoma, which Levinson reminded the crowd was now among the most common fatal cancers for young American adults. While Genentech has had some success with the drug Zelboraf (vermurafenib) in blocking metastatic melanoma in patients with certain mutations in the BRAF gene, melanoma remains a difficult therapeutic target. Levinson graphically illustrated the frustration in drug development with three case study slides of a man with advanced melanoma treated with vemurafenib. In the first, his chest is covered by large metastatic nodules. In the second there is almost miraculous shrinkage after treatment with the trial drug. The third, taken 15 weeks later, showed an aggressive and unstoppable relapse.

In the ballroom, you could hear the audience of scientists and citizens go still. While vemurafenib is FDA approved for use in patients with metastatic melanoma who harbor a certain type of altered BRAF gene, the drug’s effectiveness can be limited over the long term, Levinson believes, because melanoma is a disease of cumulative and ongoing mutations, built by lifetime exposure to ultraviolet rays and other mutagens. But the research, driven by our increasing knowledge of mechanism, goes on.

“I expect that this will fall on deaf ears,” Levinson added. “But stop smoking and stay out of the sun and you will do yourself a real favor.”

—John Fleischman

**Cell Biology Art Wows Scientists and Public**

Annual Meeting attendees and members of the public who attended the Keynote Symposium had a chance to view a virtuosic art exhibit featuring 65 pieces curated by scientist–artists Graham Johnson and Janet Iwasa. The show—ASCB²—explored the revolution in scientific visualization created by the melding of basic biology, mathematical modeling, and Hollywood special effects. The works remained on display throughout the Annual Meeting, and all prints were available for purchase by meeting participants in a silent auction.

Some of the cell biology art on display at ASCB².

Graham Johnson’s illustration of dynein motor proteins attached to microtubules was among the works exhibited at ASCB². ©2011. The work was created by Johnson for Ron Vale, University of California, San Francisco, and used on the March 4, 2011, cover of Science.

Highly branched actin networks at the leading edges of motile cells are shown in this illustration by Janet Iwasa. The work was created in collaboration with the Dyche Mullins lab at the University of California, San Francisco, and used on the March 6, 2007, cover of Current Biology.
In E.B. Wilson Lecture, Lindquist Describes Evolutionary Implications of Cell Stress Responses

The 19th century naturalist Jean-Baptiste Lamarck has been vilified for his view that acquired characteristics can be inherited. But Susan Lindquist thinks Lamarck may have been on to something, and in the E.B. Wilson lecture at the 2012 Annual Meeting she described how the heat shock protein Hsp90 provides one plausible mechanism—likely one of many—for inheritance of environmentally acquired traits.

Proper protein folding is essential for life, and it must take place under difficult conditions, in the crowded, bustling interior of cells. Hsp90 helps proteins fold properly, and it is present in much higher concentrations than are normally required. Thus it is available as a buffer under circumstances when protein folding is even more challenging than usual. It can help normal proteins to fold properly under stressful conditions such as high temperature. Or, importantly, it can help mutant proteins that are prone to misfolding to achieve a properly folded state. One medically significant example of this is oncogenic kinases. Unlike their normal cellular counterparts, many oncogenic kinases are dependent on high levels of Hsp90 to fold properly. This makes cancer cells dependent on high Hsp90 levels while normal cells are not, and Hsp90 has become a sought-after target for cancer treatment.

But Hsp90 is much more than a mechanism for cells to cope with environmental stress. Its role as a protein folding buffer, together with the fact that many of its “clients” are metastable proteins that are major regulators of development, leaves Hsp90 poised to act as both a potentiator and a capacitor for genetic variation.

Hsp90 acts as a potentiator for genetic variation by allowing mutations to display a new phenotype that is initially dependent on—the Hsp90 buffer. Then, under continuing selective pressure, those phenotypic traits can be assimilated and become independent of Hsp90. As an example, Lindquist described how fungal pathogens are able to quickly develop drug resistance. Resistance evolves under the protection of the Hsp90 buffer, but when infecting a host pathogens are subject to continuing stress, such as fevers. This then selects for additional mutations that make resistance independent of the Hsp90 buffer.

As a capacitor for genetic variation, Hsp90 buffering of protein folding may help explain one of the major problems in evolution: How can complex traits evolve? Many of the multiple small genetic variants that go into creating a complex trait might make an organism unfit if they were exposed individually. But simply by allowing key mutant proteins to fold properly, Hsp90 permits such small mutations to accumulate without exposing them to selection, allowing an organism to arrive at a complex trait much more quickly than it otherwise could. Subsequent environmental changes can then expose these complex traits to selective pressures that allow reassortment and enrichment of the variation responsible for the new trait. In this scenario, Hsp90 provides a way to simultaneously sample multiple genetic variants across the genome.

Indeed, Hsp90 seems to have left an imprint on genomes that exist today. In yeast, the mapping of genotypes onto phenotypes is not nearly as robust as one might expect. But when Hsp90 is inhibited or the cells are exposed to high temperatures, there is a much more precise alignment of genotype with phenotype. It is as though the absence of the Hsp90 buffer exposes the “true” phenotype of the cell that selection has been acting on in nature. That is, in the wild much of the genetic variation that seems neutral in the lab is in fact contributing to selection.

Lindquist began studying the heat shock response because of her interest in how genes are turned on and off. But her curiosity about what heat shock proteins do in the cell has led her on a scientific adventure involving life forms from yeast to plants to humans, and on an exploration of biology at all levels, from the molecular details of how proteins fold to the evolution of genomes.

See Lindquist’s complete lecture, along with several other talks from the 2012 ASCB Annual Meeting, at www.ascb.org/2012AMVideos.html.

—W. Mark Leader
View Videos and TV Spots from the 2012 Annual Meeting

To view videos, go to www.ascb.org/2012AMVideos.html.

Keynote Symposium
How the Physical Sciences Are Changing Cell Biology and Biomedical Sciences,
Steven Chu
Keith R. Porter Lecture
Cell Biology of Virus Entry, Ari Helenius
E.E. Just Lecture
Decoding the Biology of Human Genome Polymorphisms in African Americans,
Georgia Dunston
E.B. Wilson Lecture
Hsp90 Chaperone Sculpting and Evolutionary Change: A Quantitative Genetic
and Proteomic View, Susan L. Lindquist

To view clips from WebsEdge TV, go to www.ascb.org/ascbtv.html.
See clips from the Annual Meeting on the art in science exhibit, emerging big themes,
planning a Minisymposium, and poster sessions, plus interviews with Susan Lindquist,
Ron Vale, Stefano Bertuzzi, Keith Yamamoto, Bruce Alberts, Sandra Masur, and Jonas
Dorn. ■
Having Success with NSF: A Practical Guide

Ping Li, Karen Marrongelle

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Communications was the general theme for the December Council meeting, but it came with specific attention to how to better serve Society members—young scientists in particular—and how to effectively position ASCB in the current scientific, political, and financial environment. Significantly, a vote of Council transformed a subcommittee of the Education Committee, the Subcommittee on Professional Training, into a full ASCB committee. The goal is to increase the visibility and the voice of graduate students and postdoctoral trainees within the Society and beyond.

What should we expect from this new Committee? First of all, Council is looking forward to having a sounding board for the many initiatives that are geared toward new and young members. The goal is to have these initiatives conceptualized and developed with their target audience and not for it. Second, it will be very valuable for the leadership of the Society and also for the national office, to have a network of “embedded” young scientists who can provide content and help steer the many new communications products that ASCB plans to develop in 2013.

A Stronger Bond
ASCB can be seen as the glue that helps hold together the field of cell biology, and indeed everyone recognizes ASCB as the scientific home for cell biologists with its strong scientific base and its effective advocacy and educational activities. However, Council felt that ASCB could improve the communication of the effects of these activities, which should also help articulate the value of membership. ASCB faces the challenge of engaging new members in its activities. We often think of bringing people to the Society—at the Annual Meeting in particular—but instead, effective use of electronic communications platforms can help bring the Society wherever its members happen to be. This is especially clear when one considers the power of accessing information via mobile devices, which in 2013 are expected to outnumber desktop computers and laptops.

To achieve more effective communication within the Society and with the outside world, ASCB will roll out a whole new website, with particular emphasis on providing timely news on scientific and science policy issues and educational and professional development activities. An important component of the new site will be various Web 2.0 tools to help create a dialogue within our community and allow members to offer feedback to the Society. The new website will serve as a vehicle for extending the various activities that ASCB is developing. For example, 2012 President Ron Vale noted that at the Annual Meeting in San Francisco, ASCB introduced threads to explore the interfaces of cell biology with the physical sciences and medicine. These were designed to attract physicists, engineers, and biotech scientists with the goal of defining these scientific fields and identifying opportunities for collaboration. Ideally, with effective communications platforms we will be able to continue these conversations beyond the
Annual Meeting and weave these threads into a theme that continues throughout the year. Don Cleveland, 2013 ASCB President, is interested in introducing a third thread that will cover the many professional development activities the Society is continuing and expanding.

In another example of an effort that can be enhanced by effective communications, a group led by Larry Goldstein and Elaine Fuchs is developing a white paper on the status of stem cell research and its untapped opportunities. The idea is to give the top experts in the community, and the whole Society, a voice to express where they see the field going and most of all how gaps can be filled to accelerate scientific discoveries. Effective communication of this effort will encourage a scientific dialogue within the Society, and publication of such a white paper can be a defining moment for the whole field, with an impact on funding agencies and on other groups.

**The Centrality of Enhanced Communications**

This was my first ASCB Council meeting, which I attended only six weeks after becoming the new ASCB Executive Director. It was an electrifying discussion, with input by many distinguished Council members, committee chairs, and journal editors. In my presentation, I illustrated the opportunities that I see for ASCB and the centrality of enhanced communications for keeping the Society relevant in today’s landscape and for articulating the value of ASCB membership.

I have made the revamping of ASCB’s electronic communications the number one priority for my first year in the job. By the end of February you will start noticing some changes, with a completely new homepage on the ASCB website and a new blog, in which I will tackle issues in the news and of relevance for our community. I am looking forward to your comments and input. My hope is to create a discussion forum that will help move our field forward and expand the conversation. Over the course of 2013 the whole website will be renewed and become similar in content and style to what you will soon see on the homepage.

**A Healthy Society: Committee Activities, Membership, and Finances**

Council members heard reports from the chairs of the ASCB committees (see box). Chairs were instructed to focus on prospective activities in order to receive input from Council at the early stages of their initiatives. We think this is the correct model for operating, and under the leadership of Don Cleveland, this model will be carried over and strengthened.

Among those reporting were Membership Committee Chair Kathy Green and Membership Manager Katherine Hempel, who stated that as of November 30, 2012, membership stood at 8,651, an increase of 0.71% from 2011.

Finance & Audit Committee Chair and ASCB Treasurer Thoru Pederson and Senior
Director for Finance and Administration Cynthia Godes reported that financially 2012 was a very good year for the Society, with revenues surpassing budget projections. They predicted a strong positive close for the year. Budget projections for 2013 indicate a significant deficit of $274,000. Godes pointed to three main drivers for the projected deficit: addition of a new PhD staff position in the national office, reduction of indirect expense offsets and salary support from grants, and some modest increases to program expenses for career development webinars, IT infrastructure improvements, and Council travel. The Council approved the 2013 budget.

Another Avenue for Communication: The ASCB Journals

In addition, we heard about some interesting developments from the Editors-in-Chief of the Society’s journals. *Molecular Biology of the Cell (MBoC)* Editor-in-Chief David Drubin described his editorial efforts to align the journal with the Society’s mission and raise its profile. In particular he pointed to the success of the features articles, the introduction of the ASCB Award Essays, and the modernization of the layout. Drubin expressed concern over the widespread misuse of the journal impact factor as a metric for evaluating scientists, a practice that damages both journals and the profession of science. He mentioned a meeting with other concerned editors and publishers to be held during the Annual Meeting (see p. 34). A declaration from this group will be released in 2013. Council was very supportive of this initiative and encouraged further activities to address the problem.

*CBE—Life Science Education (LSE)* Editor-in-Chief Erin Dolan described how the journal is changing the education research model by bringing together teachers and those who study teaching and focusing on what makes biology special to teach and to learn. In particular, Dolan pointed to the new collaboration with the Genetics Society of America, which decided to discontinue its education forum and to become an editorial partner of *LSE*. The model was greatly appreciated by Council, which encouraged the development of other such partnerships and saw them as a good model for effective leadership in the niche of science education research.

In conclusion, the Council meeting provided a glimpse into what a healthy, vibrant, and engaging organization ASCB continues to be. Its effectiveness will surely be enhanced by making it easier for its members to communicate with each other and by improving our efforts to show the world what we do.

—Stefano Bertuzzi
The ASCB 2013 Call for Nominations

Bruce Alberts Award for Excellence in Science Education

Who is Eligible: An individual who has demonstrated innovative and sustained contributions to science education, with particular emphasis on the broad local, regional, and/or national impact of the nominee’s activities. Nominators must be ASCB members, but the candidate and support letter authors need not be.

How to Apply: Provide a letter of nomination, a maximum of three letters of support, and a CV.

Awards: The winner is presented a plaque and will give remarks at the Annual Meeting. Expenses to attend the Annual Meeting are paid.

Deadline: April 1 (electronic submission preferred to Thea Clarke at tclarke@ascb.org)

Public Service Award

Who is Eligible: An individual who has demonstrated outstanding national leadership in support of biomedical research. Nominators must be ASCB members. The award winner may, but need not, be a scientist.

How to Apply: Provide a letter of nomination with a description of the nominee’s advocacy for, and promotion of, scientific research.

Awards: The winner gives the Public Service Award Lecture at the ASCB Annual Meeting and receives a certificate. Expenses to attend the Annual Meeting are paid.

Deadline: April 1 (electronic submission preferred to Kevin Wilson at kwilson@ascb.org)

Early Career Life Scientist Award

Who is Eligible: An outstanding scientist who has served as an independent investigator for no more than seven years as of April 1.

How to Apply: Provide a nomination package that includes a CV, brief research statement, nominating letter, and no more than three letters of support (at least one of which must come from outside the nominee’s institution). Nominators must be ASCB members.

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

Deadline: April 1 (electronic submission preferred to Cheryl Lehr at clehr@ascb.org)

E.E. Just Lectureship

Who is Eligible: A minority scientist who has demonstrated outstanding scientific achievement. Nominators must be ASCB members, but the candidate need not be.

How to Apply: Provide a nomination package that includes a CV and a letter describing the nominee’s scientific achievement and mentoring support of underrepresented minority students and scientists.

Awards: The winner gives the E.E. Just Lecture at the Annual Meeting and receives a plaque and a medal. Expenses to attend the Annual Meeting are paid.

Deadline: April 1 (electronic submission preferred to Deborah McCall at dmccall@ascb.org)

WICB Career Recognition Awards

Junior Award for Excellence in Research

Who is Eligible: A woman in an early stage of her career (within six years of appointment to an independent position at the time of nomination) who is making exceptional scientific contributions to cell biology, developing a strong independent research program, and exhibits the potential for continuing at a high level of scientific endeavor and leadership.

How to Apply: Provide a letter of nomination, a CV, and up to three letters of support, including at least one from outside the nominee’s institution.

Sustained Excellence in Research Award

Who is Eligible: A woman at the mid-career level (~7–15 years in an independent position) who has demonstrated a track record of exceptional scientific contributions to cell biology and/or has effectively translated cell biology across disciplines, and who exemplifies a high level of scientific endeavor and leadership.

How to Apply: Provide a letter of nomination, a CV, and up to three letters of support, including at least one from outside the nominee’s institution.

Lifetime Achievement Award

Who is Eligible: A woman or man at a later career stage (generally full professor or equivalent) whose outstanding scientific achievements are coupled with a long-standing record of active support for, and outstanding mentorship of, both men and women in scientific careers.

How to Apply: Provide a letter of nomination highlighting scientific achievements and mentoring activities, a CV, and up to five letters of support. At least one letter must come from outside the nominee’s institution, and two must be from current or former members of the nominee, describing specific of the nominee’s mentoring history.

Awards: Each winner is presented an honorary plaque and a plaque at the Annual Meeting. Expenses to attend the Annual Meeting are paid.

Deadline: April 1 (Send electronic submissions only to Cheryl Lehr at clehr@ascb.org)

Merton 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 and will give remarks at the Annual Meeting. Expenses to attend the Annual Meeting are paid.

Deadline: April 1 (electronic submission preferred to Cheryl Lehr at clehr@ascb.org)

E.B. Wilson Medal

Who is Eligible: An individual who has demonstrated significant and far-reaching contributions to cell biology over a lifetime in science. Nominators must be ASCB members, but the candidate need not be.

How to Apply: Provide a letter of nomination, the candidate’s CV, and no fewer than three, and no more than five, letters of support.

Awards: The winner of the ASCB’s highest honor for science gives the E.B. Wilson Lecture at the Annual Meeting and receives the E.B. Wilson Medal. Expenses to attend the Annual Meeting are paid.

Deadline: April 1 (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 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. 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 student 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 (electronic submission preferred to Cheryl Lehr at clehr@ascb.org)

Public Service Award

Who is Eligible: An individual who has demonstrated outstanding national leadership in support of biomedical research. Nominators must be ASCB members. The award winner may, but need not, be a scientist.

How to Apply: Provide a letter of nomination with a description of the nominee’s advocacy for, and promotion of, scientific research.

Awards: The winner gives the Public Service Award Lecture at the ASCB Annual Meeting and receives a certificate. Expenses to attend the Annual Meeting are paid.

Deadline: April 1 (electronic submission preferred to Kevin Wilson at kwilson@ascb.org)

Public Service Award

Who is Eligible: An individual who has demonstrated outstanding national leadership in support of biomedical research. Nominators must be ASCB members. The award winner may, but need not, be a scientist.

How to Apply: Provide a letter of nomination with a description of the nominee’s advocacy for, and promotion of, scientific research.

Awards: The winner gives the Public Service Award Lecture at the ASCB Annual Meeting and receives a certificate. Expenses to attend the Annual Meeting are paid.

Deadline: April 1 (electronic submission preferred to Kevin Wilson at kwilson@ascb.org)

Send mail to:
The American Society for Cell Biology
8120 Woodmont Avenue, Suite 750
Bethesda, MD 20814-2762, USA

For names of prior awardees or more information, visit www.ascb.org and click on “Membership” or contact the ASCB at 301-347-9300 or ascbinfo@ascb.org.
Do you want to Organize a One-Day Local Meeting?

ASCB Financial Support Available

Take advantage of this career advancement opportunity from ASCB. Such meetings will typically involve two or more local research institutions or colleges (within or outside of the USA). Topics can range from basic science to career development, as long as there is clear relevance to the broadly defined field of cell biology.

For more information go to www.ascb.org and click on “Meetings”, then “Local Meetings” or email tclarke@ascb.org.

Next Deadline for Applications: April 1, 2013

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ANNUAL MEETING Highlights

Education and Training

K–12 Science Education Workshop Focuses on Sickle Cell Disease

The genetics of inheritance of sickle cell disease offers numerous teachable activities in cell biology, genetics, molecular biology, and evolution. Karen Kalumuck, from ‘The Exploratorium, led the hands-on teachers’ workshop entitled “Blood, Genes, and Proteins: The Saga of Sickle Cell Disease.”

Kalumuck demonstrated a number of activities that are aligned with the National Research Council’s new Framework for K–12 Science Education and are suitable for use with students in middle school, high school, and beyond. Weaving strands of science, technology, health, and ethics, the activities included genetic testing and determining the inheritance pattern of the disease. Participants explored how a change in single DNA base leads to a dramatic change in the three-dimensional structure of the hemoglobin molecule, which in turns leads to the sickling effect, and how the concept of “heterozygote advantage” explains the persistence of sickle cell disease in the population. Teachers and curious graduate students and faculty at different tables worked to determine whether the results indicated they had the mutation, and then compared results with teachers at other tables. For some attendees, this was their first experiences with “hands-on” learning activities and they were enthusiastic about the process.

—Thea Clarke and Karen Kalumuck for the Education Committee

Education Committee Celebrates Success of CV Review Initiative

Members of the Education Committee discussed feedback and outcomes relating to online CV review offered in 2012. This initiative proved very popular with ASCB’s young scientists, and about 65 grad students and postdocs availed themselves of this opportunity last year. Many ASCB members have signed up to review CVs. The Committee was pleased that many ASCB members in industry have offered to help. This effort will continue in 2013. (One-on-one CV review is available online throughout the year. ASCB members can visit www.ascb.org to complete a short form; we will put them in touch with a reviewer).

One-on-one CV review at the Career Center at the 2012 Annual Meeting was oversubscribed. Many more young scientists would have signed up had there been enough slots open. Many of those who did get a half-hour slot with one of a dozen volunteers used the opportunity to get career advice as well. The Committee acknowledged its gratitude to the volunteers. This effort will be expanded in the coming years.

The Committee also discussed outreach to community college faculty and students, offering more online webinars, and working with other ASCB committees in planning for the 2013 Annual Meeting in New Orleans.

—Thea Clarke

2012 Education Committee
Susan M. Wick,* Chair
Alison E.M. Adams
Thea Clarke,* Staff Liaison
Martha S. Cyert
Shubhik K. DebBurman
Erin L. Dolan,* ex officio
Joel M. Goodman*
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Cheston A. Saunders*
Kathy T. Schmeidler*
Sarah Szarowicz,* ad hoc
Kimberly D. Tanner
William Wallace
Michael J. Wolyniak

Education Committee Associates
Lena Diaw*
Melissa J. Marcucci
Diana L. Speelman

*In attendance at December meeting

Tyrone Hayes riveted the high school audience with his talk on atrazine in drinking water.
Workshop Prepares Young Scientists for College Teaching Careers

Recognizing the wide variety of careers that involve college teaching, the workshop on “Packaging Yourself for College Teaching in Your Career” opened with a panel discussion featuring representatives from a research university, liberal arts college, and community college as well as participants from teaching postdoctoral fellowship programs and graduate student/postdoctoral teacher training programs. The professional diversity on the panel led to an engaging discussion with workshop participants on the best strategies to prepare for a variety of teaching-oriented college careers.

The second half of the workshop consisted of breakout sessions led by professionals from a wide array of academic institutions on crafting the specific components of a successful application for a college teaching position. Session topics included developing a successful course that integrates teaching and research, writing a perfect cover letter, preparing a teaching portfolio, designing an undergraduate-friendly research statement, writing a teaching philosophy, and reviewing CVs/resumes. These sessions allowed one-on-one and small group mentorship opportunities for workshop participants that focused on both broad strategies for success on the college teaching job market and specific improvement of materials brought to the workshop by participants.

The ASCB Education and Women in Cell Biology Committees, which co-sponsored the workshop, are committed to the professional development of ASCB members interested in teaching and education. Both committees look forward to future collaborations to facilitate this goal both at the Annual Meeting and with online mentorship throughout the year.

—Michael J. Wolyniak for the Education Committee

Education Initiative Forum: Interdisciplinary Collaborative Instruction in Biology and Computer Science

While interest in promoting interdisciplinary training for students in biology and other fields continues to grow, these efforts are often confounded by conceptual and jargon-laden boundaries between disciplines. At California Polytechnic State University, Anya L. Goodman and Alex Dekhtyar have adapted their courses in biology (Bioinformatics Applications) and computer science (Bioinformatics Algorithms), respectively, to tackle these boundaries head-on. They discussed these in an Education Initiative Forum entitled “Teaching In Concert: A Novel Approach to Interdisciplinary Collaborative Project-Based Instruction.”

Students in both courses collaborate on laboratory research projects developed by the Genomics Education Partnership (http://gep.wustl.edu) and focused on analysis of large amounts of *Drosophila* DNA sequence data to address fundamental questions about chromosome structure and regulation of gene expression. Student roles in the collaborative process are clearly defined and structured around software development. Biology students presented with a biological question decide how to convert it into a computable problem, write formal program requirements, and communicate these to the computer science (CS) partners. CS students write software, and everyone on the team engages in testing and validation.

The instructors liken their approach to teaching “in concert,” developing collaborative and interdependent relationships between distinct instruments in an orchestra. This approach seeks to teach future biologists computational thinking without teaching them to program. Implementation of this approach requires coordinated scheduling and adequate computer classroom space but does not require any modification of departmental curricula.

Two learning outcomes added to the biology
course are: 1) Students will be able to convert a biological question into a computational problem: specify input, output, processing requirements and means of testing; and 2) Students will effectively communicate and cooperate with colleagues in biology and CS. These outcomes are accompanied by assessment instruments for student self-confidence, attitude toward interdisciplinary research, and skill sets in their respective disciplines. For additional information, please contact the course developers at agoodman@calpoly.edu and dekhtyar@calpoly.edu.

—George Plopper for the Education Committee

Education Initiative Forum: If You Build It …It Doesn’t Mean They Will Come

Many of us grapple with how to attract and foster diverse students in the biology research pipeline. Cynthia Damer of Central Michigan University spoke on “Early Engagement of Diverse Students in Undergraduate Research: Lessons from Central Michigan University’s BUMP Program” in an Education Initiative Forum.

BUMP, the Biology Undergraduate Mentoring Program, is a highly structured two-year program that targets first- and second-year students who are considering graduate school and provides them with mentored research experiences and a stipend over two academic years and summers. Valuable, very practical lessons from the project included the following:

■ If you build it, it doesn’t mean they will come. Many students from underrepresented minority groups enter as pre-med students; those that are willing to entertain other options often lack the confidence to apply for a program like this.

■ Early engagement for students means you need to provide lots of mentoring and counseling.

■ In view of the importance of mentoring, you need to choose faculty research mentors carefully, because this is a large commitment. It is useful to have each mentor sign a contract with the student and take mentoring and diversity workshops in preparation for the job.

■ Make friends with your dean and other administrators. If the majority of program funding goes to the students, there is little money from the grant to use for program administration, and administrative assistance from your institution will be welcome.

■ Students don’t need a social activities director; what they do need are mentors and role models and the opportunity to be role models for younger students, such as those in junior high.

—Sue Wick for the Education Committee

De La Cruz Engages Undergraduate Audience

Enrique De La Cruz designed his Undergraduate Program presentation to allow the audience to learn both from his path to a career in science and from his research program. His talk, entitled “Being Interested in What You Don’t Know Ensures That You Will Always Have a Goal,” led students from his time as a high school student to his current position as a professor of biophysics at Yale by highlighting key nuggets of information that aided him throughout his career.

De La Cruz mentioned that it was late in his undergraduate education when his interests changed from becoming a physician to becoming a research scientist. As a result, he had to take a year after graduation to prepare for the GRE and apply to graduate programs. One student in attendance, Elizabeth Schinski, a junior majoring in biology at University of Richmond, had not fully considered that a career may take a path that was not originally intended. She found it “comforting to know that changing directions so dramatically can still lead to a fruitful career.” It was evident to the audience that De La Cruz enjoys his work.

——Anonymous quote from evaluation form
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and wants to share his experience with future scientists. He emphasized the importance of growth and change driven by motivation, planning, and a strong work ethic. Through this approach De La Cruz was able to remain engaged and focused on the research projects that interested him the most, even when it required retraining himself with the appropriate skills to tackle new questions.

Jaimee Perlmutter, a junior at Dickinson College majoring in biology, was attending the ASCB Annual Meeting for the first time and presenting her work with her advisor, Tiffany Frey, in both the undergraduate poster session and main poster session. Perlmutter commented that “[De La Cruz’s] inspirational talk really opened a new door for me, I think because he used his own life experiences to show his audience that there are many opportunities in the field of science. He had a goal that incorporated the subject he loves to teach (science) into a learning experience instead of an exact destination.”

De La Cruz challenged his audience to purposefully interact with poster presenters who weren’t already engaged in conversation. To that challenge, Perlmutter responded: “I think it changed how I asked questions at other people’s posters because I didn’t just ask facts, but what their future research was going to consist of. It also taught me to approach the posters that might not have interested me at first, but ended up being quite interesting once I gave them a chance.” After the program De La Cruz spoke with members of the audience who stayed to ask him questions.

—Omar Quintero for the Education Committee

ASCB Salutes Undergraduate Poster Competition Winners

What happened when the ASCB Education Committee and Minorities Affairs Committee (MAC) combined their poster sessions on Saturday afternoon at the 2012 Annual Meeting? A highly successful (and well-organized) event.

Each committee awarded prizes at the poster competition. Congratulations to Hitesh Dube, Butler University (first place, $500); Eva Szymanski, College of William and Mary (second place, $300); and Bahar Bahrani, University of Saskatchewan (third place, $100), who won prizes awarded by the Education Committee. Please see p. 38 for winners of the MAC prizes.

Thanks to all the many judges who participated. Your efforts were really appreciated!

—Thea Clarke

High School Program: Hayes Captivates with His Tale of Frogs and Men

This year’s High School Program was presented by Tyrone B. Hayes, professor of integrative biology at the University of California, Berkeley. Hayes is internationally renowned for his research showing that exposure to the herbicide atrazine, at levels deemed safe by the Environmental Protection Agency, causes male frogs to exhibit female characteristics. Following his grandmother’s advice to “always tell a good story,” Hayes interwove the telling of his personal journey as a scientist and his group’s scientific discoveries. He punctuated his talk with real-life examples of what it is like to be a scientist, including showing slides of his undergraduate work, which involved actual cutting and pasting of photos. Even the audiovisual technician was engaged!

Hayes’s approach was an ideal fit with
this year’s efforts to engage the public in the Annual Meeting. He used nontechnical explanations to make scientific language understandable; engaged the audience by asking for suggestions of experiments that could be done to understand the biology behind his observations; demonstrated how knowledge generated by his own group and scientists around the world could be integrated to formulate a model for global loss of amphibians; and posed interesting questions about the potential for multigenerational effects in vertebrates, including humans. On top of the science, Hayes layered a message for scientists: It is our responsibility to communicate with the public. He argued that only through communication will we be able to address issues of environmental racism and environmental justice. He noted how proud he was of his Nature and PNAS papers, but that his most important publication was a children’s book called *The Frog Scientist*. Hayes ended by calling for action—quoting Albert Einstein, “Those who have the privilege to know have the duty to act.”

—Erin Dolan for the Education Committee

**ASCB Toasts Bruce Alberts Award Winner**

An enthusiastic international crowd of colleagues, family, and other well-wishers was on hand to congratulate Luiz-Claudio Cameron of the Federal University of the State of Rio Janeiro (UNIRIO) as he received the Bruce Alberts Award for Excellence in Science Education at the 2012 Annual Meeting.

The award was presented to honor Cameron’s efforts to organize international cell biology courses coupled to symposia in Brazil and other parts of Latin America over the past two decades. Hundreds of students from the Americas and Europe have participated and have presented their work in a symposium sandwiched between two weeks of coursework. The courses emphasize the importance of thinking creatively, communicating effectively, networking, collaborating, and considering the ethics of what we do as scientists.

In his acceptance talk, Cameron humorously pointed out various challenges of his work, including how to introduce state-of-the-art laboratory research to students when reagents and equipment parts can take months to arrive after they are ordered, and the uncertainties of finding funds to support the courses. Hats off to Cameron for a job very well done!

—Sue Wick for the Education Committee

**Subcommittee on Professional Training Gets Upgraded Status, Offers Career Session**

This year the co-chairs of the Subcommittee on Professional Training (SCOPT) had the pleasure of being invited for the first time to attend the ASCB Council meeting prior to the official start of the Annual Meeting. During the meeting we were able to bring up the ideas, thoughts, and comments many young scientists relayed to us over the past year. Subsequently, the Council decided to remove SCOPT from the auspices of the Education Committee and make it an independent committee with better visibility and increased opportunities to serve young scientists.
Perspective on:
Automated analysis of proliferation in the liver

Articles include:
Epigenetic study of mammalian oogenesis
Protein expression in relation to different neurological diseases

Edited by John R. Couchman
Available online late December http://jhc.sagepub.com/

The Histochemical Society
Immunohistochemistry and Microscopy
A Hands-on Course
March 9 - 13, 2013

Course Content
Antigen Retrieval
Automated Immunohistochemistry
Chromogenic Detection Controls
Double Labeling and Co-Localization Fixation
Fluorescence Detection Microscopy and Imaging Troubleshooting

About the Course
Four days of in-depth theory of and extensive hands-on experience with immunohistochemistry (IHC) techniques as well as theory and hands-on experience with a broad range of microscopic imaging techniques. Registration includes accommodations and meal package.
Later at the Annual Meeting, the SCOPT Open Forum was used to solicit ideas on how to organize the new committee. The forum was a perfect platform for ideas about organization, potential new names for the committee, and activities that could be conducted throughout the year to better serve the young scientists of ASCB. A forthcoming email to postdocs and students will discuss what the new committee will do and what it will offer young scientists and solicit their involvement on the committee or in leadership positions.

SCOPT also offered its sixth annual panel on nonacademic career advice. After describing their positions and the path that led to their respective careers, speakers at “Getting Out of the Box: Transitioning to a Career Away from the Bench” provided one-on-one advice to graduate students and postdocs with an interest in pursuing similar careers. One theme that constantly rose to the surface of discussions was the critical importance of networking and how to use social networking tools, such as LinkedIn, to your advantage on the job market.

The panelists who offered advice and mentoring to a crowd of over 100 included Sheryl Denker, Burril & Company; Rachel Henderson, Program Coordinator, Biology Scholars Program, University of California, Berkeley; Ellen Kats, Office of Innovation, Technology & Alliances, University of California, San Francisco; Dharia McGrew, California Science & Technology Fellow; and Shannon Weiman, a freelance science writer.

Panelists also encouraged students to examine the professional skills fostered by the completion of a PhD. For example, research collaboration can be “sold” to potential employers as teamwork, while juggling multiple projects can be “spun” as project management. The take-home message: Earning a PhD provides you with much more than scientific knowledge; the key is conveying those additional skills to employers. The relationships forged through this event were not limited to the meeting—several panelists have cited continued interaction with and mentoring of interested graduate students even after the meeting.

—Cheston Saunders and Sarah Szarowicz for the Subcommittee on Professional Training
New Books from Cold Spring Harbor Laboratory Press

**Genome Science**  
*A Practical and Conceptual Introduction to Molecular Genetic Analysis in Eukaryotes*  
By David Micklos, *Cold Spring Harbor Laboratory*, Bruce Nash, *Cold Spring Harbor Laboratory*, and Uwe Hilgert, *University of Arizona*  
*Genome Science* is a textbook and laboratory manual for advanced secondary and post-secondary education. It combines approachable narrative with extensively tested lab exercises that illustrate key concepts of genome biology in humans, invertebrates, and plants. Eighteen labs, organized into four chapters, engage students with both bioinformatics exercises and in vitro experiments. The book is complete with advice for instructors, laboratory planning guidelines, recipes for solutions, and answers to student questions.  
2013, 704 pp., illus (3 4C, 606 B&W), index  

**Next-Generation DNA Sequencing Informatics**  
Edited by Stuart M. Brown, *New York University School of Medicine*  
This is the first book of its kind to address the informatics needs of scientists who wish to take advantage of the explosion of research opportunities offered by new DNA sequencing technologies. It provides a thorough introduction to the necessary informatics methods and tools for operating NGS instruments and analyzing NGS data, and also provides extensive reference to best-practice bioinformatic methods for the most commonly used NGS technologies and applications. Also included is reference to, and guidance on, the setup and use of essential software for NGS data analysis.  
2013, 241 pp., illus. (48 4C & 15 B&W), index  
Hardcover $59 ISBN 978-1-936113-87-3

**The Endoplasmic Reticulum**  
This book covers all aspects of ER morphology and function, as well as its interactions with the nucleus, Golgi, and mitochondria. Contributors examine how proteins translocate across the ER membrane, the processes that occur inside the ER lumen, and how the proteins are packaged into vesicles and transported to the Golgi. This volume covers not only the biochemistry and cell biology of the ER, but also ER stress, metabolism, and the role of the ER in viral replication.  
2013, 400 pp. (approx.), illus (60 4C, 10 B&W), index  
Hardcover $135 ISBN 978-1-936113-82-8

**Introduction to Protein-DNA Interactions**  
*Structure, Thermodynamics, and Bioinformatics*  
By Gary D. Stormo, *Washington University Medical School*  
The interactions of proteins with DNA control many aspects of gene expression. Since the mid-20th century, we have learned an enormous amount about the interactions of proteins with DNA and their control of fundamental processes in the cell. This book describes what we know about protein–DNA interactions from the complementary perspectives of molecular and structural biology and bioinformatics. It shows how insights from experimental work can be translated into specific computational approaches to create a unified view of the field and a fuller understanding of protein–DNA interactions.  
2013, 208 pp., illus. (78 4C, 5 B&W), index  

**MOLECULAR CLONING 4**  
By Michael R. Green, *Howard Hughes Medical Institute, University of Massachusetts Medical School* and Joseph Sambrook, *Peter MacCallum Cancer Institute, Melbourne, Australia*  
*MOLECULAR CLONING: A Laboratory Manual* has always been the one indispensable molecular biology laboratory manual for protocols and techniques. The 4th edition of this classic manual preserves the detail and clarity of previous editions as well as the theoretical and historical underpinnings of the techniques presented. Ten original core chapters reflect developments and innovation in standard techniques and introduce new cutting-edge protocols. Twelve entirely new chapters are devoted to the most exciting current research strategies, including epigenetic analysis, RNA interference, genome sequencing, and bioinformatics. This manual is essential for both the inexperienced and the advanced user.  
2012, 2,028 pp., illus., appendices, index  

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ANNUAL MEETING Highlights

International Affairs

ANNUAL MEETING Highlights

International Affairs

International Affairs Committee Welcomes International Associates

In 2012 the International Affairs Committee (IAC) was able to expand its initiatives in targeted countries by recruiting and engaging IAC Associates to assist committee members. Six of those Associates attended the December IAC meeting in San Francisco, and another 18 Associates have participated in IAC conference calls, email discussions, and workshops held around the world.

In a discussion led by Chair Jim Spudich at the December meeting, IAC members reviewed accomplishments of the Committee:

- Cell biology workshops were held in Ghana, Mali, and Turkey.
- Plans are underway for a workshop in Singapore.
- A joint meeting with ASCB and the International Federation for Cell Biology (IFCB) was confirmed for 2014.
- There was record participation in and enthusiasm for the IAC Roundtable, the Research & Training Exchange Fair, and the ASCB India Young Investigator Meeting (YIM) held at the Annual Meeting.
- Two new IAC events were held at the 2012 Annual Meeting: Cell Biology in China and Opportunities in Brazil.
- Incoming IAC Chair Judith Kimble presented her objectives for the future of IAC:
  - Redesigning the ASCB website to better address international members' needs
  - Exploring new avenues for international scientific exchange
  - Supporting IAC's current educational missions and seeking new ones
  - Partnering with other scientific societies, both in the United States and around the world

- Addressing visa issues that hinder international students
- Pursuing funding opportunities for workshops

Kimble highlighted two other ASCB initiatives that are of great value to the international community: iBioSeminars—freely available talks by outstanding scientists that are designed to be accessible to nonspecialists and students—and iBioMagazine—10- to 15-minute videos focused on behind-the-scenes issues of science. These will soon be combined in an enhanced site called iBiology.

—Cheryl Lehr, IAC Staff Liaison

International Research & Training Exchange Fair

ASCB is a great venue to exhibit science in an increasingly international and global community. For several years the ASCB International Affairs Committee (IAC) has organized an International Research & Training Exchange Fair to disseminate information on scientific activities in various countries to Annual Meeting attendees. The Fair was held for the third time this year during the Opening Reception that immediately followed the Keynote Symposium.

This year nine countries sent representatives, who spoke with people interested in learning more about doctoral, postdoctoral, visiting scientist, and permanent academic positions in their countries. Reports from these countries included the current status of scientific communities and websites for accessing information on funding and travel-related opportunities. All of this year's reports will be available on the ASCB website, www.ascb.org.

—Cynthia Jensen for the International Affairs Committee

2012 International Affairs Committee
James A. Spudich,* Chair
Kirk W. Deitsch
Karen D. Dell*
Nina Dudnik
Cynthia G. Jensen*
Judith Kimble*
Cheryl Lehr,* Staff Liaison
Vivek Malhotra
Satyajit (Jitu) Mayor*
J. Richard McIntosh*
John Mercer*
Mahasin A. Osman
David A. Shifrin, Jr.*
Tim Stearns*
Shubha Tole
Yixian Zheng*

IAC Associates
Ranan Gulhan Aktas*
Abel Alcazar-Roman
L.C. Cameron*
Maria Cimpean
Seth Corey
Lina Dagnino*
Phil Dash
Rachael Farah-Abraham
Celia Regina da Silva Garcia*
Eric Hwang
Hideko Kaji
Sophie Leлевre
Boatemaa Ofori-Frimpong
Guangshuo Ou
Noreen Reist
Rania Rizk
David Roos*
Victoria Schulman
Marisa Segal
Arpita Sen
Swetha Suresh*
George Swaneck
Sara Szuchet
Justin Taraska

*In attendance at December meeting
IAC Roundtable Forges International Connections

The International Affairs Committee (IAC) Roundtable was held Saturday, December 15, 2012, at the ASCB Annual Meeting in magnificent San Francisco. Nearly 200 people came to the event despite competing attractions such as Fisherman’s Wharf and the Golden Gate Bridge. Attendees included graduate students and postdocs from around the globe, traveling from the United Kingdom, Brazil, Australia, China, Sweden, Italy, Qatar, Hong Kong, South Korea, India, Taiwan, Russia, Poland, Portugal, Mexico, The Netherlands, Denmark, Singapore, Uganda, Germany, Finland, and Switzerland. U.S. participants with international interests were also there.

To kick off the event, Roundtable co-chairs Judith Kimble and David Shifrin welcomed all and gave a few minutes’ introduction to IAC activities. Then participants ate box lunches and discussed key issues. For example, how can we better encourage international collaborations and foster a sense of global community? And how can ASCB better serve its international members? ASCB leaders serving as table moderators included past, present, and future Society presidents as well as Council members and committee chairs. The hall was humming with energy. The Roundtable’s informal atmosphere generated many creative ideas, which were collated for the ASCB leadership to consider during the coming year. But perhaps most important were the many connections made between strangers from distant lands, crossing language and cultural barriers to learn about each other and make friends.

—Judith Kimble for the International Affairs Committee

India Young Investigator Meeting

The India Young Investigator Meeting, hosted by IndiaBioscience, a nonprofit science outreach initiative, with the support of the International Affairs Committee, showcased research, training, and other opportunities for scientists in India. Scientists from different types of institutions, who have experience obtaining national and international funding, shared their perspectives either as a part of the Indian science community or as a member of the international community who has engaged with India. Jitu Mayor (National Centre for Biological Sciences), Mohan Balasubramanian (National University of Singapore), Swetha Suresh (IndiaBioscience), Ron Vale (University of California, San Francisco; ASCB President), Sandhya Kaushika (Tata Institute of Fundamental Research [TIFR]), Roop Mallik (TIFR), Dulal Panda (Indian Institute of Technology, Bombay), John Mercer (Institute for Stem Cell Biology and Regenerative Medicine [inStem]), and Colleen Mercer Silan (inStem) participated in the session.

Statistics presented at the meeting revealed the Indian government’s commitment to science and technology through scaled-up funding for basic research. Other topics discussed included looking for opportunities, breaking into Indian science, doing science in India, and informational resources available through www.indiabioscience.org.

An enthusiastic group of 75–100 people consisting of doctoral students (60%), postdocs (30%), and independent research professionals (10%) participated to understand the present job and scientific landscape in India. Of the respondents surveyed, 77% reported being moderately or extremely satisfied with the session. One participant said, “I… feel encouraged to consider India as a future scientific home.”

With many participants staying on to network after the session was over, the event was an informational hit. This reflects the importance of this forum facilitated by IAC to provide international scientific opportunities for ASCB members.

—Satyajit Mayor and Swetha Suresh for the International Affairs Committee
LSE Board Welcomes GSA as Editorial Partner

The Genetics Society of America (GSA) will join CBE—Life Sciences Education (LSE) as an editorial partner in 2013, Editor-in-Chief Erin Dolan announced at the December meeting of the journal’s Editorial Board. This new partnership will give GSA four seats on the Editorial Board. Similar partnerships with other life sciences professional societies are being sought. Dolan also announced ASCB’s establishment of an endowment to ensure the long-term viability of the journal, which is presently funded by ASCB and a grant from the Howard Hughes Medical Institute (HHMI). The ASCB seeded the endowment with $100,000.

Dolan noted that Robert DeHaan, Jeffrey Hardin, Daniel Klionsky, and Robin Wright have stepped off the Board. Eric Chudler, Clarissa Dirks, Karen Kalumuck, Mary Lee Ledbetter, Diane O’Dowd, Elisa Stone, Marshall Sundberg, Debra Tomanek, and Mary Pat Wenderoth have agreed to new three-year terms. Three new Board members will start three-year terms in 2013: Janet Batzli, University of Wisconsin–Madison; Jennifer Momsen, North Dakota State University; and Jeff Schinske, De Anza College. The members of the Editorial Board are listed at www.lifescied.org/site/misc/edboard.xhtml.

—Thea Clarke

MBoC Editorial Board Surveys Publishing Landscape

“We can’t stay still as a journal, because the landscape is changing,” said Molecular Biology of the Cell (MBoC) Editor-in-Chief David Drubin at the December meeting of the journal’s Editorial Board. Drubin commended the Board for putting out a good product and acknowledged MBoC’s many strengths even as he challenged Board members to confront emerging issues.

Among the journal’s strengths, Drubin noted that the Features section helps make MBoC a place for essays that are important and relevant to the cell biology community. And he said that authors benefit from an international Editorial Board that is committed to rapid turnaround of manuscripts and is willing to consider reviews from another journal if a manuscript was previously submitted elsewhere. In addition,
ANNUAL MEETING Highlights

authors gain visibility for their work because MBoC emails each table of contents to more than 10,000 scientists.

Another virtue of MBoC and ASCB is their strong tradition of service to the scientific community, said ASCB Executive Director Stefano Bertuzzi, noting the ASCB’s early embrace of National Institutes of Health policies on access to scientific literature.

But Drubin warned of some challenges ahead. Submissions fell in 2012, as did the journal’s impact factor. The widespread misuse of the impact factor is a concern, he said, as he described a meeting of journal editors to develop strategies to promote better metrics and better practices for evaluating scientists. (See story below). Some Board members were incensed to learn that there are major U.S. universities where the impact factor of the journals in which they publish is used to evaluate candidates for promotion, a practice one participant called “totally irresponsible.” ASCB President Ron Vale said that scientists need to take ownership of the process by which they evaluate people throughout their careers.

The members of the MBoC Editorial Board are listed at www.molbiolcell.org/site/misc/edboard.xhtml.

—W. Mark Leader

Editors Decry Misuse of Journal Impact Factors

The widespread misuse of journal impact factors to evaluate the work of individual scientists is detrimental to both journals and scientists. At the ASCB Annual Meeting in San Francisco, a group of journal editors held an ad hoc meeting to develop a strategy for addressing the problem. The meeting was called by Molecular Biology of the Cell Editor-in-Chief David Drubin and Traffic co-Editor Michael Marks and was attended by editors from 10 highly regarded journals.

The group noted that the Thomson Reuters impact factor was originally developed as a tool for use by librarians to evaluate their journal collections. But problems arise when individual scientists are evaluated for academic advancement by the impact factors of the journals in which they publish. This causes junior scientists to fear that their careers will be hindered if they do not publish in high-impact journals and creates a culture in which the quality of a scientist’s work is perceived as less important than where he or she publishes it.

In such an atmosphere, submissions to an otherwise highly regarded journal may decrease if its impact factor drops. Indeed, many of the journals upon which ASCB members rely heavily have seen their impact factors decline recently. Several of the editors at the meeting felt that this is due in part to the limitations imposed by some publishers on the number of citations an article can make in a year to any material published in that journal in the previous two years, divided by the number of “citable articles” published in that same two-year period. What constitutes a citable article is at the discretion of Thomson Reuters, but most primary research papers and classical reviews are included and commentaries, news, and editorials typically are not. Oddly, citations to articles not counted in the denominator may contribute to the numerator.

Even for its original purpose, the impact factor is a flawed metric. For example, because the impact factor is calculated as a mean rather than a median, it can be skewed by a small number of highly cited papers. Moreover, the raw data used to calculate impact factors are not publicly available, and some publishers have found Thomson Reuters to be uncooperative when questions arise about how a particular impact factor has been calculated. Thus, the group of editors felt that better and varied
ANNUAL MEETING Highlights

Metrics of a journal’s value are also needed. Among the group’s goals are:

- Engage the scientific community (scientists, university administrators, journal publishers) to embrace appropriate methods of evaluating individual scientists and their work and to discourage misuse of the impact factor for that purpose.
- Encourage citation of the primary literature rather than reviews, and remove policies that limit the number of citations in articles.
- Replace the impact factor with a more carefully designed, relevant, and transparent metric of journal value.

To toward those ends, the group will develop a statement to be jointly published by the journals, reach out to organizations that can educate scientists about the issue, and identify avenues for the development of alternative metrics. Other strategies are under consideration, and the participating editors plan to hold regular conference calls as they pursue their goals.

—W. Mark Leader

References


Minorities Affairs Committee Notes

Successes, Seeks Funding

Minorities Affairs Committee (MAC) programs and activities at ASCB Annual Meetings have succeeded and have continued to grow, noted Chair Renato Aguilera at the 2012 MAC meeting in San Francisco. New ASCB Executive Director Stefano Bertuzzi shared his plans to work with the MAC in the coming year, and ASCB President Ron Vale commended the MAC for a successful year.

Funding of MAC programs was a major topic of discussion at the meeting. The MAC will submit a renewal for its Minority Access to Research Careers (MARC) grant from the National Institute of General Medical Sciences. MARC Grant PI David Burgess will lead the renewal process and will work with MAC programmatic subcommittees. The MAC will also submit a grant proposal to the National Science Foundation (NSF) in 2013. MAC member Mike Leibowitz will lead this effort and will work with members Latanya Hammonds-Odie and Franklin Carrero-Martínez. The Committee discussed its ongoing programs. It was particularly excited about its first Visiting Professor Lecture Series with Teresa Shakespeare as the lecturer. The MAC plans to have more lectures in this series.

Guests at the meeting included MAC program evaluator Joy Quill, Quill and Associates; iBioSeminars Associate Director Laurence Clement; and Greg Warr, program director, NSF.

—Deborah McCall, Senior Manager, Minorities Affairs

ANNUAL MEETING

Highlights

2012 ASCB Minorities Affairs Committee

Renato J. Aguilera,* Chair
David J. Asai*
David R. Burgess,* MARC Grant PI
Andrew G. Campbell*
Franklin A. Carrero-Martínez*
Wilfred F. Denetclaw Jr,* Latanya Hammonds-Odie*
Deborah Harmon Hines* Tama W. Hasson* Michael J. Leibowitz* Michelle Juarez,* Postdoctoral Fellow
Deborah McCall,* Staff Liaison
Sandra A. Murray* Winston E. Thompson* Graciela A. Unguez* Maria Elena B. Zavala*

*In attendance at December meeting

Stirring MAC Mentoring Program Keynote

The Minorities Affairs Committee’s (MAC’s) Mentoring Keynote was inspirational. Speaker Winston Anderson, professor at Howard University, brought the past and present together. Anderson, who launched the MAC at ASCB, encouraged attendees to strive for excellence as scientists but to always remember those who came before them.

—Deborah McCall, Senior Manager, Minorities Affairs

Grant Writing Seminar

On Saturday, December 15, 2012, ASCB hosted a Grant Writers’ Seminar to help kick off the Annual Meeting. Stephen W. Russell, cofounder and manager of Grant Writers’ Seminars and Workshops LLC, addressed 125 junior faculty and postdoctoral investigators on how to write winning National Institutes of Health (NIH) grant proposals. Attendees received a copy of The Grant Writer’s Workbook.

Although aspects of the program focused specifically on NIH grant proposals, Russell shared advice useful for all granting agencies. His talk emphasized methods to prepare for proposal writing and how to refine the proposal before submission. After making attendees aware of considerations given to early-stage investigators, Russell addressed the following main topics:

Assess the competition. Internet resources, such as HighWire, RePorter, and enGrant, are useful for searching for previously submitted
Poster presenters and judges at the 2012 ASCB Poster Competition

Undergraduate/Graduate Student Session
The Minorities Affairs Committee sponsored a panel session for undergraduate and graduate students titled “New Challenges and Old Obstacles 101.” This interactive session aimed to guide students by highlighting the experiences of graduate students at different academic phases. A diverse and dynamic group of scientists (postdoc, assistant professor, full professor, and industry scientist) discussed why and how they pursued scientific careers and the struggles and successes they have experienced.

Michelle Juarez, assistant project scientist at the University of California, San Diego, initiated the panel discussion—emphasizing how she turned her scientific interests to biomedical sciences. This enthusiastic young scientist had the advantage of being exposed to a research environment at the undergraduate level, reinforced by a year as a laboratory technician. Both experiences helped her to get into graduate school and ultimately obtain an institutional research and academic career development award sponsored by the National Institutes of Health.

Like González, Shanta D. Hinton, assistant professor at the College of William and Mary, was a first-generation college student. Hinton’s determination and success are impressive. Even though her family only expected her to obtain grants in one’s research field. Although a research idea may be wonderful, Russell said, someone else may already have proposed it. Many grant writers make the mistake of not searching their research field for competitors’ proposals. Knowing what someone else has already proposed can enable one to write a unique project proposal, enhancing the chance of acceptance.

Determine fundability by a specific agency/institute. Maximize the programmatic relevance of a proposal by first researching high-priority funding areas for various agencies. Russell recommended contacting program officers to ask about priority updates and request a review of a proposal synopsis. Their advice may enable applicants to adjust aims to make them relevant to priority funding. He reminded the audience of different categories or mechanisms that might be available to early-stage investigators.

Write specifically for your reviewers. Seek a presubmission review by a colleague not expertly involved in your research area. A grant application should be finished at least one month ahead of the due date. To determine reviewer guidelines, consult the NIH Center for Scientific Review website. Proposals most relevant to the program’s goals would most likely get attention, Russell advised. Recommending and justifying a particular study section in the cover letter is permissible, as is stating the names of direct competitors, so that someone representing your area of expertise is present and competitors are not included as reviewers.

The workshop ended with tips on writing each main section of an NIH grant proposal. Russell’s presentation offered helpful behind-the-scenes tips to improve one’s success in grant funding.

—Brenda Schoffstall, MAC Linkage Fellow, Barry University
a bachelor’s degree, Hinton always strived for more and did not stop until she obtained her PhD.

Finally, Anthony DePass, assistant vice president for research and professor of biology, University of Long Island, reminded attendees about the importance of networking. He advised attendees to think about what they want to be as scientists and look for individuals who are doing what they want to do. In addition, young scientists need to keep in mind that effective communication is very important.

Overall, the panelists agreed that finding informal mentors helps students feel more confident with asking questions in an open and friendly environment without the pressure of interacting with their formal mentors, who evaluate their everyday work and grade them. The panel’s advice on getting results and continually focusing on one’s goal as a key to success was very motivating.

—Elinette M. Albino Rodriguez, Ponce School of Medicine & Health Sciences, MAC Travel Awardee

MAC and Education Committee Combined Poster Competition a Success

With more than 140 posters at the new combined Minorities Affairs Committee (MAC) and Education Committee Poster Session Competition—called the ASCB Poster Competition—presenters, judges, MAC and Education Committee members, MAC visiting professors, Linkage Fellows, and others enjoyed extensive interaction and networking. The new combined competition had lots of energy.

MAC poster winners were notified of their winning status during the annual MAC Awards Luncheon. Winners will receive a cash awards and a certificate.

2012 MAC Poster Award Winners

Undergraduates
First Place: Jose Rapanan, Midwestern University
Second Place: Jovans Lorquet, Barry University
Third Place: Jordan Harper, Fort Valley State University

Graduate Students
First Place: Corinne Fairchild, University of Minnesota, Twin Cities
Second Place: Natasha Gutierrez, Rutgers University
Third Place: Lilian Kabeche, Geisel School of Medicine at Dartmouth

Postdoctoral Fellows
First Place: Damaris Lorenzo, Duke University
Second Place: Tarsha Ward, Morehouse School of Medicine
Third Place: Armando Varela, University of Texas at El Paso

—Deborah McCall, Senior Manager, Minorities Affairs
ANNUAL MEETING Highlights

MAC Awards Luncheon
The MAC hosted its annual MAC Awards Luncheon, where poster winners were announced, the previous year’s MAC activities were reviewed, and members of the MAC community and others networked and shared experiences.

This year, luncheon attendees were seated by career interest, allowing for even more networking and sharing. More than 140 attended this annual event, supported by the Burroughs Wellcome Fund.

—Deborah McCall, Senior Manager, Minorities Affairs

Educational Resources/MAC Booth and MAC Welcome Suite
Again in 2012, the Educational Resources/Minorities Affairs Committee (MAC) Booth—always busy with networking, presentations, and information dissemination—served as “official hangout” for the MAC Community. All MAC travel awardees must be at the booth for at least one hour during the Annual Meeting. Many stay much longer and come back day after day.

This year, Table Talks—informal sessions for different audiences—were held at the booth. The sessions proved popular, with one session for postdocs drawing more than 65 attendees. Planners hope to move this session to a room at the 2013 Annual Meeting.

The MAC Welcome Suite was also popular. This event, supported by the Burroughs Wellcome Fund and held for two days during the Annual Meeting, has become a “favorite” of the MAC community. In its fifth year and hosted by MAC Chair Renato Aguilera, the MAC Welcome Suite caters to an overflowing crowd that each evening doesn’t want the networking to end.

—Deborah McCall, Senior Manager, Minorities Affairs

E.E. Just Lecture
This year’s E.E. Just Lecture, “Decoding the Biology of Human Genome Polymorphisms in African Americans,” was presented by Georgia Dunston, of the National Human Genome Center (NHGC) at Howard University College of Medicine.

Dunston’s research on human genome variation in disease susceptibility and health disparities has been the vanguard of efforts at Howard 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.

—Deborah McCall, Senior Manager, Minorities Affairs

Participants in the Grantwriting Seminar
Attendees at “New Challenges and Old Obstacles 101”
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Contact Carl Zeiss or visit our website to request more information, including how you can collect data for your next grant.
Public Information Committee Anticipates New Communication Resources

With a new Executive Director and a new mandate to overhaul ASCB communications, the Public Information Committee (PIC) will gain new platforms, new support, and new leverage in spreading the word about the miracles and problems of cell science research. That was the message from Stefano Bertuzzi, the newly installed ASCB Executive Director, at the PIC’s winter meeting in San Francisco during the 2012 Annual Meeting.

The ASCB website will be reimagined as well as redesigned to provide members with the latest intelligence on grants, jobs, fellowships, and international opportunities, Bertuzzi said. The new site will feature the latest bioscience and science policy news while stoking the general public’s interest in cell science and its impact on health. It will also be a great platform for PIC’s ongoing projects, including the annual press book for journalists covering the Annual Meeting and the Celldance cell biology film contest. Bertuzzi told the PIC that his metric for the new site is simple: “To get every ASCB member to bookmark the ASCB home page.”

PIC chair Simon Atkinson welcomed the new communication resources that will allow PIC to concentrate on using its scientific savvy to spot and explain breaking science discoveries. In the coming year PIC will also focus on:

- Finding a wider audience for the press book among biology teachers, students, and the public
- Cooperating with other ASCB committees to deliver a strong local message on the centrality of evolution to modern biology at the 2013 Annual Meeting in New Orleans
- Re-examining Celldance, which even in its eighth year is still not attracting enough entries

“I enjoyed learning about where the field stands with determining 3D structures of complexes inside cells. Not only is the resolution of cryo-electron microscopy beginning to rival that of X-ray crystallography, but the EM field is evolving techniques to determine structures of complexes inside cells.”

—Reginald McNulty, Postdoc, The Scripps Research Institute
POSITION SUMMARY AND RESPONSIBILITIES
We are looking for an early-career scientist with a solid grounding in experimental biology, a passion for communicating the importance of basic research, a talent for writing well, accurately, and vividly. The candidate should have a strong interest in liaising with young scientists, creatively thinking of initiatives for engaging these important constituents in ASCB’s activities.

The ideal candidate is an experienced bench scientist who holds a Ph.D. or equivalent degree in cell biology or a related field, and knows the joys and sorrows of experimental lab work. He or she understands basic biological processes and already follows many current topics, techniques, and controversies in research. These include stem cells; the translational imperative; impacts on public health; and the growing interdependence of biophysics, computational biology; and bioengineering on fundamental research. We are looking for someone with incurable curiosity about the specifics and the business of scientific discovery and the willingness to foster and implement sound research policies which will help the field grow. The position will require working in an array of media and formats. The key task is translating complex scientific concepts and nuanced data for both lay audiences and specialized scientists.

As a writer, the successful candidate is already a stickler for accuracy, consistency, and basic grammar. As an editor, he or she will learn to follow ASCB publication style while editing and copyediting contributions from staff, ASCB members, and others. This new position will be an integral part of our new communications team. Along with generating news content, the science writer will help manage and improve content on the ASCB website and social media.

As a program coordinator, the ideal candidate will work to build a network of volunteer contributors, largely ASCB members, for ASCB communications channels by soliciting, guiding, and reworking their submissions. Under the guidance of the Communications and Education Director, the successful candidate will develop and coordinate training activities for young investigators, liaising with the newly established Committee of Graduate Students and Postdoctoral Fellows.

KEY RELATIONSHIPS
The position will report to the Communications and Education Director and the successful candidate will work very closely with the Senior Science Writer, who will be a mentor and a guide. The science writer will collaborate closely with ASCB’s graphic designer, Web developers, and IT Director.

DELIVERABLES
• Research and write science news stories and other items relevant to the membership to be published online or and in print
• Assist senior staff and leadership of the Society in writing and editing for publication
• Solicit and edit contributions from freelance/ASCB member writers
• Coordinate content for the website and social media channels
• Evaluate existing content for accuracy and currency
• Manage the overall mix of content on the website
• Together with the Communication Director and the Senior Science Writer, develop formats and channels that will engage the interests of ASCB members who are the real site owners; work with members, society leadership, and staff to define content and key themes and messages, recommending new topics and identifying gaps in content; specify new information architectures for the website
• Coordinate new activities related to professional training and young investigators’ professional development

QUALIFICATIONS
• Ph.D. or equivalent degree
• Strong track record in biological research
• Strong science writing skills
• Familiarity with social media and new media platforms
• A degree or certification in science writing, or professional science journalism experience is a plus
• Strong communications skills
• Excellent analytical, organizational, and time management skills
• Team player
• Customer service orientation and the ability to adapt quickly

The ASCB is located at 8120 Woodmont Ave., Suite 750, Bethesda, Maryland. ASCB is an equal opportunity employer.

BENEFITS AND SALARY
Excellent benefit package including health and dental insurance, generous holiday schedule, parking. Competitive salary, depending on candidate experience.

TO APPLY
To apply for this position, please send to jobs@ascb.org the following:
• A cover letter clearly stating qualifications and reasons for interest in the position
• A curriculum vitae, indicating scientific and writing accomplishments
• A writing sampler including three published or posted articles about science for a general audience, published peer-reviewed papers, or essays on aspects of cellular and molecular biology that put the data in a wider context for readers outside the immediate field or subject area.
ANNUAL MEETING Highlights

Assessing the effort required versus the impact of the Elevator Speech Contest, the PIC’s latest initiative and pioneering co-production with the ASCB Public Policy Committee.

Bertuzzi suggested changing the Elevator Speech Contest into a training opportunity for the ASCB membership by bringing in professional “media coaches” to work with would-be elevator speakers before the contest. Then PIC could turn the newly empowered speakers loose on the Annual Meeting and the wider world. PIC members liked the sound of that.

—John Fleischman

Celldance 2012 Rolls Out the Tiny Red Carpet for Winners of the “Cell Oscars”

A time-lapse film of a fruit fly’s embryonic development, a microscopic-scale Star Wars epic featuring cells brandishing light sabers, and a video capturing the dance-like movement of cancer cells in lab cultures were recognized with the top three Celldance awards at the ASCB’s Annual Meeting in San Francisco. The special Public Outreach award went to Invisible, a live action film about a boy’s awakening to the wonders of the universe. “Cell biology is the most visual of the sciences, and our Celldance awards have become the ‘Cell Oscars,’” said Simon Atkinson, chair of the ASCB’s Public Information Committee (PIC), which organizes the competition. Atkinson is at the School of Science at Indiana University-Purdue University Indianapolis. Serving as PIC’s chief judge for the eighth edition of Celldance was Duane Compton, who is at Dartmouth Medical School.

The top cash prize of $500 for first place went to Stephanie Nowotarski, a self-described microscopy enthusiast and a graduate student at the University of North Carolina, Chapel Hill. Her winning time-lapse video, Drosophila Dorsal Closure, telescopes the cell-by-cell embryonic development of the fruit fly Drosophila melanogaster. Cells of two tissue types work together to close the dorsal midline of the embryonic fly.

The second place prize winner was Lynne Cassimeris, professor of cell biology at Lehigh University, Bethlehem, PA, for her film Cell Wars. Cassimeris said the idea of a Star Wars parody emerged when her lab captured images of a cell waving a structure that resembled a light saber. When the cell divides, only one of the daughter cells has the same structure. Because of repeated cell divisions, over time the lab culture contains numerous saber-waving cells.

Tsutomu Tomita, University of Tsukuba and Timelapse Vision, Inc., Japan, received the third place award for the video Cancer Dance Movement, which shows the movement of cancer cells in a laboratory culture of normal rat gastric cells.

The winning entry in Public Outreach, Invisible, was a cooperative project between...

“I enjoyed the Science Discussion Tables the most. During these discussions prominent scientists—in an intimate setting—were able to share not only their groundbreaking research work but also their wisdom and life experiences in the field of science. They gave advice on many matters crucial for advancing a life sciences career.”

—Vaibhav Pai, Postdoc, Tufts University of Medicine & Health Sciences
Emmanuel Reynaud, a cell biology researcher at University College, Dublin, and the National Film School at the Dun Laoghaire Institute of Art, Design & Technology. The film, which features professional actors and location shooting around Dublin, was supported in part by the Science Foundation Ireland.

Two videographers were recognized with honorable mentions: Charlotte King-Smith, St. Joseph's University, Philadelphia, for her film *Organelle Motility in Retinal Pigment Epithelial Cell* and Vincent Gache, INSERM, Paris, France, for his film *Muscle Nuclei Positioning*.

The complete winners’ reel from Celldance 2012 is posted online at www.ascb.org/celldancecompilation/celldance2012

Celldance, ASCB’s annual cell biology film contest, recognizes visually engaging and scientifically relevant videos. Most were created during research experiments into the cellular mechanisms that underlie an organism’s development, health, and disease. That these processes are sometimes aesthetically beautiful is one of the joys of scientific discovery, said Atkinson.

—John Fleischman

**Going Up? Science Hits the Right Buttons in Elevator Speech Contest**

Stan Cohn took it literally. A pair of ASCB committees, Public Policy and Public Information, held an all-video Elevator Speech Contest in which contestants at the 2012 Annual Meeting in San Francisco could enter either a 60- or 120-second science pitch. The contest premise was simple: “The elevator door closes and you’ve got a trapped audience—a U.S. Senator, your dean, or your grandmother. Now is your chance to sell your science before the door opens!”

So the irrepressible Cohn, who teaches at DePaul University in Chicago, filmed his video in a real elevator. Wearing a plastic large-scale replica of a diatom, a type of phytoplankton, Cohn corners a luckless elevator passenger with a full-throated, lapel-grabbing diatribe on the natural wonders and myriad laboratory uses of diatoms. The contest judges (and the Exhibit Hall audience that watched afterward) were convulsed by Cohn’s real elevator speech, which earned an Honorable Mention. But the judges awarded the laurels and an iPad Mini each to Navneeta Pathak from the University of California, San Diego, and Kiani Gardner from Duke University for their more sober but equally engaging videos.

Three other Honorable Mentions were awarded to Karen Colbert from Stanford University, Jayme Dyer from Duke University, and Monica Clifford from the University of Toronto. Simon Atkinson, chair of the Public Information Committee, who presented the winning entries on a big screen at the ASCB booth, told the crowd that there was a serious purpose behind the Elevator Speech Contest. Whether your captive audience is your grandmother or a U.S. Senator, Atkinson said that all researchers need to be ready with a quick and compelling explanation of their science.

See the winning and Honorable Mentions videos from the 2012 ASCB Elevator Speech Contest at www.ascb.org/2012ElevatorSpeech.html.

—John Fleischman

“What I enjoyed most about the 2012 ASCB Meeting was meeting people who share my passion for science. Discussing my research has motivated and inspired me to strive further. It was the perfect start for my upcoming PhD studies!”

—Freia von Raußendorf, Max F. Perutz Laboratories
Public Policy Committee Assesses We Are Research Campaign

The ASCB Public Policy Committee (PPC) should expand its portfolio to embrace the role of a “science policy think tank,” said ASCB Executive Director Stefano Bertuzzi at the Committee’s meeting in December. Bertuzzi applauded the PPC for its We Are Research advocacy week activities and encouraged the Committee to continue to focus its attention on improving ASCB member involvement in science advocacy.

PPC members reviewed the success of the first We Are Research advocacy week. ASCB Public Policy Director Kevin Wilson told the members that the lab photos and videos disseminated during the campaign showed the rich diversity of the life science research community. PPC Chair Doug Koshland informed the Committee that Wilson had already used the lab photos in educational efforts on Capitol Hill. The photos were sent to 200 Congressional offices to put a face on what sequestration cuts to the federal science programs would mean. Koshland told the Committee that one member of Congress was handing out the photos in all his meetings about sequestration.

The PPC reviewed its programs and decided to focus on a smaller number of opportunities in the future. The Committee also discussed setting higher goals for the number of participants in its advocacy efforts.

As the Committee met, the U.S. federal government was headed toward the edge of a “fiscal cliff.” Falling off the cliff threatened to put the U.S. economy into another recession and decimate the American biological research community. The Committee reviewed the potential results of the fiscal cliff negotiations between the White House and Congressional leaders that were taking place at the time of the ASCB Annual Meeting. Wilson cautioned that changes to the budgets of federal science agencies would likely come as a result of decisions made regarding taxes and entitlements, not as a result of what was good for science.

—Kevin M. Wilson

Advocacy Toolbox

More than 60 meeting attendees met with experienced science policy advocates and learned how to improve their most important advocacy tool—the two-minute speech describing their science. Attendees learned how to explain their science during an elevator ride or while waiting in a supermarket line and to a Senator or a neighbor. Two attendees later won the Public Information Committee’s Elevator Speech contest at the meeting.
Women in Cell Biology Committee Plans Speaker Referral List Distribution, Career Advice Columns, New Award

Discussions at the December Women in Cell Biology (WICB) Committee meeting in San Francisco focused on the WICB events at the 2012 ASCB Annual Meeting, including a Joint Workshop with the Education Committee (“Packaging Yourself for College Teaching in Your Career”); the Mentoring Theater (“Mentoring: Things You Weren’t Taught In Grad School”); the WICB Junior and Senior Awards Presentation; the WICB Network Reception, which featured a mentoring presentation by the WICB Senior Award recipient Marianne Bronner; and the Childcare Awards that made it possible for 18 recipients to attend the ASCB meeting and cover their childcare costs.

WICB members were delighted that the ASCB Council has recommended that all ASCB members be sent the WICB Speaker Referral List with the names of outstanding women cell biologists and their areas of expertise. This follows publication in *Molecular Biology of the Cell* of a Perspective by Sandra K. Masur, WICB Chair, that highlights all WICB activities and could provide other societies with a model for how to support young women (and men) scientists.¹

Also discussed were potential topics for WICB columns in the *ASCB Newsletter*, including how to assemble an ideal research team, self-assessment and individual development plans, how to attend conferences when you have a family, pregnancy in the lab, and how to organize a regional meeting. In addition, in 2013 WICB will launch its new Award for Sustained Excellence in Research (see www.ascb.org/wicbawards.html) to recognize excellence in the awkward career stage between eligibility for the Junior and Senior Awards.

—Cheryl Lehr, WICB Staff Liaison, and Sandra K. Masur, WICB Chair

Reference

ANNUAL MEETING Highlights

WICB’s Career Discussion and Mentoring Roundtables
WICB’s Career Discussion session continues to be a highlight for women and men at the ASCB Annual Meeting. This year there were 736 participants, reflecting the undiminished enthusiasm of both attendees and table leaders.

Table leaders included outstanding ASCB scientists as well as generous representatives from the biotech industry, intellectual property offices, and the scientific writing/editing profession, heading a total of 60 roundtables. Colleagues in the San Francisco area were very helpful in participating as table leaders, particularly in the Biotech and Pharmaceutical area, which continues to be our most popular table topic. Other favorites were Obtaining an Appropriate Postdoc Position, Job Application Strategies for Academic Positions, Teaching and Research in Primarily Undergraduate Institutions, and Developing Your Career. Discussions were lively, interactive, and highly informative. Email addresses were exchanged for continued networking and mentoring.

Both table leaders and participants gave us feedback that we will consider for next year. Suggestions included the merging of some topics and division of others. Overall everyone felt that this was a wonderful event for them at the Annual Meeting. So next year, when you register for the meeting, sign up to be mentored or consider volunteering to be a table leader to mentor in a topic in which you have expertise.

A special thank you to Julie Brill, my co-organizer.
—Alexandra Ainsztein for the Women in Cell Biology Committee

WICB Network Reception: Standing Room Only
The Women in Cell Biology (WICB) Committee hosted its annual and growing reception in San Francisco. Approximately 100 attendees included undergrads and grad students, postdocs, support scientists, professors, and department chairs whose concerns dovetail with the many missions of WICB. The 2012 WICB Senior Award recipient, Marianne Bronner, California Institute of Technology, shared with all lessons from her experiences as both a mentee and a mentor. WICB Chair Sandra Masur and Committee members
summarized WICB activities and initiatives and invited ideas and involvement by attendees, especially as part of the electronically connected WICB Network throughout the year. For the next hour, everyone enjoyed the opportunity to network productively, until people hurried off to hear more cell biology.

To join the WICB Network and get periodic updates on issues of interest, go to www.ascb.org/wicbnetwork.html. A recent article from Molecular Biology of the Cell highlights WICB’s activities.1

— Sandra Masur for the Women in Cell Biology Committee

Reference


WICB Awards and Mentoring Theater Highlights

At the Annual Meeting the 2012 WICB Awards were presented to two inspiring and richly deserving scientists. Sophie Martin received the Junior WICB Award from her postdoc mentor, Fred Chang. Marianne Bronner received the Senior WICB Award from her former postdoc Carole LaBonne.

This year’s Mentoring Theater, titled “Mentoring: Things You Weren’t Taught in Grad School,” illustrated pitfalls and lessons in three short skits. Brave and emotive thespians (Randy Schekman, Sandy Schmid, Avital Rodal, Betty Mbom, and Victor Schuster) acted out the roles of mentors and mentees. In the first skit, “Tell Me What to Do!,” a passive mentee learned the benefits of seeking advice from a caring and effective mentor. In “Comparing Notes,” two junior faculty members experiencing different levels of career success discussed their strategies. The main lessons: Peer mentoring can be extremely useful, and mentees should seek advice when things are not going well, a time when reaching out for help can be most difficult. Finally, in “The Helicopter Mentor,” an enthusiastic faculty member was so excited by her student’s fresh data that she didn’t give her student a chance to interpret them and plan next steps. The student asked for a little more guided independence, modeling an effective strategy to deal with this situation. The skits stimulated a spirited discussion among attendees and thespians, provoking valuable self-reflection in all. Mentors and mentees can all use some help now and then!

— Beverly Wendland for the Women in Cell Biology Committee

"[T]he ASCB Annual Meeting was very enriching and remains, overall, a great source of scientific motivation."

— Vincent Gache, Postdoc, INSERM
The ASCB Gratefully Acknowledges the Following 2012 Annual Meeting Supporters

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Office of Research on Women's Health, OD, NIH
- WICB/EdComm Joint Workshop and Panel and WICB Career Discussion and Mentoring Roundtables

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- Subgroup N: Muscle Cytoskeletal Protein Assembly in Normal and Diseased Muscles

The Rockefeller University Press
- Norton B. Gilula Memorial Award

Thorlabs
- Hanging Banner Aisle Sign

Worthington Biochemical Corporation
- Graduate Student Travel Awards

The ASCB wishes to express deep appreciation to all the exhibitors who attended the 2012 Annual Meeting and helped ensure its success.
In December I had the opportunity to attend the ASCB Annual Meeting for the second time. The program, organized by Tony Hyman and Ron Vale, explored science at the interfaces of cell biology with physics and medicine. The Keynote speakers exemplified such interdisciplinary approaches.

U.S. Secretary of Energy Steven Chu spoke about applying single-molecule techniques from physics to the cell biology of cancer and its signaling pathways. Great science aside, the talk was impressive because Chu is a Nobel laureate and biophysical researcher. It was inspiring to see someone so dedicated and passionate about his work, and his is a great example of a diverse career path.

Arthur Levinson, Chair of Genentech and Apple, spoke on drug discovery and cancer therapy targets, projecting an optimistic view of forthcoming cancer treatment. His career path is also inspiring; with a PhD in biochemistry, he went on to oversee a large biotechnology business and recently replaced Steve Jobs as Chair of Apple.

Talks and posters encompassed many topics, including mitosis and the mitotic spindle (my doctoral research focus). Two talks that I found of particular interest were about temporal regulation of cellular structures during the cell cycle. Iain Cheeseman (Massachusetts Institute of Technology; no relation as far as we know), one of this year's ASCB Early Career Life Scientist Award recipients, showed the importance of assembling and disassembling kinetochores at the right time during the cell cycle to ensure accurate chromosome segregation. Susana Godinho (Harvard Medical School) showed the link between centrosome amplification and cancer cell invasiveness, illustrating the need for accurate control of centrosomal replication both in time and in number. These talks highlighted the need to understand not only the functions of proteins and protein complexes but also how their functions vary over time and how the cell achieves this temporal control.

I am grateful to the ASCB and the British Society for Cell Biology (BSCB) for the opportunity to take part in this conference, and I hope to attend again.

—Liam Cheeseman, University of Liverpool

Note
As the BSCB Young Cell Biologist of the Year, Cheeseman received travel funds from the BSCB and free meeting registration from the ASCB.

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**ASCB Member Benefit: Publicize Your Book**

Are you publishing a book? If so, let ASCB know! Send the title, publisher, ISBN information, and 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.

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**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.*
Young French Cell Biologist Finds Annual Meeting “the Perfect Place for a Young Scientist”

The 2012 ASCB Annual Meeting was my first time in the United States, and it was a great and fantastic experience. The Annual Meeting is the perfect place for a young scientist. It offers both an overview of cell biology and information on your particular research area. And you can meet with speakers after their presentations for further exploration. In the end, this meeting is both really exiting and a bit frustrating for the same reason: too many interesting topics to see!

I was really interested in the Endocytosis and Signal Transduction Special Interest Subgroup. It began with an overview of the endocytosis and signaling of the “classic” EGF receptor (EGFr), one of the most studied receptors. In that first talk, Alexander Sorkin gave a perfect introduction for the beginners in the field, but his talk was also full of interesting and precise details for the experienced endocytosis people.

The second talk in the session continued the EGFr story with chapter 2: EGFr signaling from endosomes. This amazing talk by Brian Ceresa showed that this well-studied receptor still had some hidden behaviors. Ceresa pointed out that the EGFr has at least two different effects on the cell, depending on its localization at the cell surface or in the endosome. Using EGF beads, he showed that signaling from the EGF gives one order to the cell, and the degradation of the receptor gives another one.

Among the greatest moments I had in this meeting was attending the scientific and career discussion roundtables. The scientific discussions were ideal for exploring a topic with interested people and with guidance from a specialist. We also brainstormed on a special project.

The career roundtables were also useful. For young scientists, it’s always good to have in mind what we can do with our backgrounds. The roundtables offer the opportunity to investigate careers by speaking with professionals from those fields.

This meeting was intense, full of science and interested people from all over the world. I’ll definitely try to go the 2013 ASCB Annual Meeting.

—François Vromman, Unité de Biologie des Interactions Cellulaires, Pasteur Institute

Note
Vromman was one of two young French scientists who were awarded travel funds by the French Society for Cell Biology and received free meeting registration from the ASCB.
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The Art of the Buy-In: Obtaining Incidental Support from Your Institution for Unexpected Needs and Opportunities

Scientists entering careers in academia may well recognize that negotiating for resources is a critical element of accepting a job. There’s a lot to bargain for: salary, equipment, workspace, trainee support, teaching load . . . the list goes on. As that job progresses, though, circumstances requiring additional, unanticipated resources often arise—such as travel to a conference or workshop, purchase of an item of research equipment that will provide critical data, maintenance and repair of laboratory instrumentation, equipment to support teaching innovation or an unfunded research initiative, page charges for publication, or support for a graduate student.

Knowing how to seek funds within your institution to support these needs can contribute significantly to the continuity and progress of an academic career. Doing so entails two main elements: knowing where the requisite resources might lie and knowing how to ask for them.

Our perspective here comes from experience in a midsize, public, research-oriented university. Although your institution may have more or less research focus than ours, our comments are general enough that they should apply to your circumstances too.

Where to Look

Your department is the first place to look for resources. Departments have varying access to discretionary funds, depending on the institution’s financial model. Sources of departmental funds might include direct budgeting, return of indirect funds from grants, laboratory fees, tuition dollars that flow to the department, or gifts and donations. Some of these are likely to be restricted in their use, whereas others are truly discretionary. To the extent that you contribute to accruing these funds—for example, by generating grant indirects or by teaching courses that generate tuition revenue—you can build support for requests to use them when the need arises.

Potential pockets of funding probably exist elsewhere in the institution, too. Possibilities include the dean’s office, provost’s office, faculty development office, graduate school, international center, technology transfer office with biotech industry connections, and the office that supports teaching and learning. As a faculty member, you may not be fully aware of who is most likely to support your particular needs. Talk to your colleagues. Have they had similar needs, and how were those needs met?

How to Ask

Which brings us to the second major element: asking for resources. The first part of that process might seem obvious but is critical: Know what you need and why. You may want to prepare a written request, but at least be prepared to document your need, define the cost, and justify your request. What will this support give you and your department? That justification may or may not include a financial payback—for example, that acquiring critical preliminary data will enhance the likelihood of future grant funding. But administrators tend to like cost sharing. If you can contribute some of the funding, securing the balance from your administration will be easier.
In many cases—the majority, we suggest—the correct first place to ask for this “incidental” support is from the department chair. The chair is likely to have experience addressing various needs and so may know where best to seek the desired funds. Moreover, resources are always limited. Your chair may well wish to balance requests over time to different offices or for different needs. The chair may also be aware of others with related needs and thereby build on your justification. For example, if a piece of instrumentation will support your research but might also be used in a teaching laboratory, that could open up new avenues of support. Your chair may then pass your request along to others or may ask you to do so. Regardless, your chair’s support will be essential if you need to go outside your department within your institution.

**Time Is a Resource Too**

Time can be even more precious than money in positions with significant teaching loads, and you may wish to ask for the opportunity to restructure your time commitments. Again, the chair can help you. Creative approaches to teaching assignments can free weeks of time, allowing faculty to focus on efforts crucial to keeping research programs competitive. These arrangements can benefit everyone involved; you don’t need to feel like you’re asking for special consideration.

As an example: One of us (Paula) wished to teach an intensive upper-division laboratory course in cell biology, but doing so was difficult within the constraints of the normal academic year course schedule. Paula’s chair (David) agreed with her that allowing Paula to teach a compressed, intensive course in the summer—rather than a typical course during the academic year—would benefit the students (they would obtain a research-like laboratory experience with great pedagogical value in a format that they generally prefer). It would also benefit the department (students would receive training that would be excellent background for joining research programs), and it would benefit the faculty member (Paula could focus on teaching for a few weeks but then focus on research for the longer duration of the academic year). Paula also acquired internal institutional funds to equip a teaching lab with a cell culture hood and incubator, an inverted phase-contrast microscope equipped for observing green fluorescent protein, and electrophoresis equipment for protein studies. Having a cell culture facility in the teaching lab prompted faculty to design additional cell biology lab courses that further enhanced our undergraduate curriculum.

**Support for Trainees**

Seeking institutional support can also pay off in funding for your trainees. Stipend support might be available for trainees who teach or contribute to teaching, such as by grading or prepping for a lab course. Students gain valuable experience from taking on this type of responsibility, providing advantageous credentials when the trainee seeks a faculty position with a significant teaching component.

Also be sure that your students ask graduate program coordinators, department chairs, or college deans for cost-share provisions to attend professional conferences. Usually, support will require that students present a talk or a poster, so they should approach these requests prepared with an abstract and all meeting details in hand. At our institution, a cost-sharing model among the department, the college, and the graduate program can support most costs of student travel to professional conferences.

So, should you ask for these small pots of money? Absolutely. Your department’s success depends on your success. Just remember: When you decide to go for it, be prepared. Appreciate that the administration receives many requests for funds, and they must prioritize those requests. Having a well-written half-page plan describing how a fulfilled request will leverage funding or some other form of scholarly advancement shows that you have put some thought into outcomes.

—Paula A. Bubulya and David L. Goldstein, Wright State University
Congress, White House Listen to Their Constituents on Spending Cuts

After months of hearing from their constituents about the impact 8.2% across-the-board spending cuts would have on the services Americans receive from the federal government, Congress and the White House agreed to delay cuts to federal programs until March 2013.

Along with delaying the implementation of the spending cuts, the deal reached to avert the fiscal cliff includes tax increases, revenue from which will reduce the size of the cuts required by the 2011 deal to avert the debt limit crisis. It was originally estimated that cuts to the U.S. National Institutes of Health (NIH) and the National Science Foundation (NSF) would be about 8.2%. New estimates are that cuts will be around 5.1%. In addition, it is now unlikely that the cuts will be across-the-board.

ASCB members and others in the biological research community called and wrote to their members of Congress explaining the impact indiscriminate cuts would have on their research and the economic impact on the American research enterprise. In the days just before the deal was reached, the ASCB wrote to President Obama, Speaker Boehner, and Senate Majority Leader Reid, reminding them of the importance of medical research.

To read the ASCB’s letters, go to www.ascb.org/ScienceFederalFunding.html.

—Kevin M. Wilson

There Is Still More Work to Do!

Even though the United States averted a fall off the fiscal cliff at the start of 2013, there are still severe economic and budget issues facing us. In the first three months of 2013 alone, as many as three other budgetary “cliffs” lie ahead of us, each with implications for federally funded basic research.

Sequestration was one portion of the fiscal cliff drama that was not resolved at the end of 2012. Congress and the White House must still find additional savings from current spending as part of the solution to the August 2011 U.S. debt limit crisis. It is unlikely that future budget cuts will be as indiscriminate as originally predicted, but cuts in spending could be as high as 5.1%.

Also, the need to increase the federal debt limit is approaching fast. Partisans in Washington, DC, are already taking positions in advance of another fight similar to the one in August 2011.

Finally, Congress still needs to pass a federal budget for FY2013. Currently, federal programs are being funded through March under a Continuing Resolution.

Any of these issues, together or individually, could turn into the next fiscal cliff.

—Kevin M. Wilson

Volunteer to Review CVs

We are looking for more volunteers to help review cover letters, CVs, and resumes online for young ASCB scientists. If you can help, please contact Thea Clarke at tclarke@ascb.org.
Congressional Gridlock CAN Be Good

As the world waited to see if the United States would fall off the fiscal cliff, news junkies noticed that the 112th Congress had been awarded the dubious title of “least productive Congress ever” by professional Congress watchers. Together, the House and Senate enacted the fewest laws, considered the fewest bills, and held the lowest number of formal negotiations between them of any Congress in history.

Two of the bills that died with the 112th Congress are bills that would have legislatively enshrined serious restrictions on the ability of federal scientists to attend scientific conferences. After news broke that a regional meeting of the U.S. Government Services Administration took place in Las Vegas and included federally funded extravagances, Congress and the Obama administration competed to see who could propose the toughest restrictions on federal support of conferences and federal employee travel to conferences.

The Obama administration issued orders to federal agencies to cut their travel budgets for FY13 by 30% and cap spending on government-sponsored conferences at $500,000. These new restrictions apply only to government travel and conference spending.

At the same time, bills were introduced in both the House and the Senate to legislatively restrict federal employee attendance at conferences. Each house passed its own restrictions but, thanks to congressional inaction, no proposal made it through both the House and Senate to the White House for signature into law.

A new year brings new issues to attract congressional attention. However, the ASCB will continue to work with other organizations to make sure Congress understands the horrendous implications travel bans would have on the scientific process.

—Kevin M. Wilson

New Faces Control NIH and NSF Purse Strings

The 113th Congress brings new names to decisions about the budgets of the U.S. National Institutes of Health (NIH) and the National Science Foundation (NSF).

In the Senate, the Committee on Appropriations will have new leadership. After the death of Senator Daniel Inouye (D-HI), longtime Senator Barbara Mikulski (D-MD) assumed the chair. Longtime NIH supporter Richard Shelby (R-AL) will serve as the top Republican on the committee.

Mikulski has a sizable NIH presence in her state, but her support of the NIH has left some advocates wanting more. Shelby is a strong supporter of research and has been very vocal recently about the need for increased funding, especially for the NIH. In 2012, Shelby was particularly critical of President Obama’s FY13 budget request for the NIH. (To read Shelby’s comments, see the May 2012 ASCB Newsletter; www.ascb.org/files/1205PubPol.pdf.)

Mikulski and Senator Tom Harkin (D-IA) are expected to retain their posts as chairs of the subcommittees that focus on the NSF and NIH, respectively.

In the House, Representative Harold Rogers (R-KY) will remain chair of the House Appropriations Committee, but Representative Nita Lowey (D-NY) will become the senior Democrat on the Committee. Lowey is a longtime supporter of federally funded science.

Representative Frank Wolf (R-VA) will remain chair of the subcommittee that funds the NSF. The freshest face will be Representative Jack Kingston (R-GA), the new chair of the Subcommittee on Labor, Health and Human Services, and Education. Kingston may not be fully aware of the importance of the NIH. Despite a sizable number of grants awarded to investigators in Georgia, only one investigator in his district has received an NIH grant since Kingston has been in Congress.

—Kevin M. Wilson
iBioMagazine 9: Special Issue on Diversity in Science

The proportion of African Americans, Hispanics, and Native Americans in the biomedical science workforce remains considerably below their representation in the overall U.S. population. This issue offers reports of teachers and administrators striving to remedy this imbalance as well as stories of successful minority scientists and educators. View these videos at http://ibiomagazine.org.

Lydia Villa-Komaroff, CytonomeST
Why You Should Study Science
Scientists retain the joy of discovery and play found in all children.

George Langford, Syracuse University
Remembering E. E. Just
As a successful biologist early in the last century, E. E. Just pioneered a path for the African American scientists who followed.

David Burgess, Boston College
Mentoring Students of Color
Advice for senior scientists on mentoring underrepresented minority students.

Freeman Hrabowski and Michael Summers, University of Maryland, Baltimore County
Increasing Underrepresented Minorities in Science Research
The Meyerhoff Scholars Program at the University of Maryland, Baltimore County, attracts, supports, and graduates talented minority students in the sciences.

Other Talks:

Lawrence Tabak, National Institutes of Health
Diversity in Biomedical Research
The National Institutes of Health is developing a comprehensive strategy to address the lack of diversity in the scientific workforce.

Consuelo Alvarez, Longwood University
Todd Eckdahl, Missouri Western State University
Edison R. Fowlks, Hampton University
Choosing a Career in Science Education
The speakers tell their stories of becoming professors at primarily undergraduate institutions.

Alfredo Quiñones-Hinojosa, Johns Hopkins University
How I Became a Scientist
Quiñones-Hinojosa chronicles his journey from poor, illegal immigrant to physician–scientist and brain surgeon. This talk was first released in iBioMagazine Issue 5.

Erich Jarvis, Duke University and the Howard Hughes Medical Institute
Song and Dance
Jarvis describes his path from aspiring dancer to inspiring neuroscientist. This talk was first released in iBioMagazine Issue 7.

Participants in the Marine Biological Laboratory Summer Program in Neuroscience, Ethics, and Survival
Why I Do Science
Find out what inspires these students and postdocs to do science. A version of this talk was first released in iBioMagazine Issue 6.

Robert Ramirez, San Francisco State University
How I Became a Scientist
Dedication and determination allowed Ramirez to beat the odds and become a scientist. This talk was first released in iBioMagazine Issue 2.
Cancer Therapy, Career Successes Among Highlights at The Southern Science Symposium

With 96 attendees from 10 colleges and universities spanning Puerto Rico, the inaugural Southern Science Symposium: Cell Biology and Careers took place Saturday, November 17, 2012, at the Ponce School of Medicine and Health Sciences. The agenda was twofold: Focus on science and promote research careers.

The science aspect began with short student talks on HIV pathogenesis, neuro-AIDS, fear extinction, and breast cancer. Joaquin M. Espinosa, University of Colorado Boulder and Early Career Scientist at the Howard Hughes Medical Institute, delivered the scientific plenary address. In “The Long Road to Personalized Cancer Therapies: It’s Back to Basics,” Espinosa discussed molecular diagnostics and biologically targeted therapies. He also shared findings from his lab on the p53 tumor-suppressor gene network. The ultimate goal of his work is to be able to selectively eliminate cancer cells. A poster session displayed more than 20 projects spanning immunology, pharmacology, neuroscience, and physiology. Judges awarded prizes to the top three.

To begin the career segment, Johana Vallejo-Elias, Midwestern University in Arizona, shared her journey from humble beginnings to a productive, rewarding position in academia. In an interactive panel session, scientists and graduate students shared their struggles and successes in pursuing research careers.

In addition to the award from ASCB, the symposium received support from scientific vendors VWR, Eppendorf, and AVP Caribe. Ponce School of Medicine and Health Sciences provided in-kind support through the Graduate Studies Office, the Research Initiative for Scientific Enhancement and Research Centers in Minority Institution Programs, the Audiovisual and Information Systems departments, and the participation of our dean of research and president, who gave the opening and closing remarks, respectively.

Two-thirds of participants completed evaluations. Many comments indicated enthusiasm for future symposia. Moreover, 91% of attendees “strongly agreed” that the

ASCB Support for Local Meetings

ASCB is pleased to provide funds for young scientists (graduate students and postdocs) to organize one-day local meetings. Such meetings involve two or more institutions (within the United States or international), and topics can range from basic science to career development as long as there is clear relevance to the broadly defined field of cell biology. Two recently held meetings are described here.

The next deadline to apply for funds is April 1, 2013. Applicants must be or become members of the ASCB. For more information visit www.ascb.org and click on “Meetings.”
symposium enriched their training, studies, and professional development; 88% felt inspired and energized afterward. Attendees appreciated the opportunity to interact with the keynote speakers throughout the meeting. This meeting fulfilled a need for undergraduates in Puerto Rico interested in research. One participant remarked, “The opportunity for undergraduate students to present our research and be exposed to a scientific meeting was the best part of the symposium.”

—Elinette M. Albino Rodriguez, Abigail Ruiz-Rivera, Maricelly Santiago-Ortiz, Viviana Vazquez-Rivera, Ponce School of Medicine and Health Sciences

Regenerative Medicine and Drug Development in the Caribbean

Held at the University of the West Indies on November 9, 2012, and the first of its kind in Jamaica, the conference Regenerative Medicine and Drug Development in the Caribbean explored the feasibility of stem cell research in developing Caribbean countries. Generously supported by ASCB, the conference proved timely in light of the emergence of “stem cell clinics” in Jamaica and Trinidad.

The conference featured several distinguished researchers. Mahendra Rao, head of the National Institutes of Health Center for Regenerative Medicine, offered a historical perspective and described current use of embryonic and induced pluripotent stem cells. Stephen Dalton and Jean-Pierre Louboutin discussed stem cell therapeutics and gene therapy for cardiovascular disease and degenerative conditions.

The event highlighted drug-delivery methods and products borne of Jamaica’s rich biodiversity, emphasizing indigenous plant medicinals to treat cancer, diabetes, and menopause.

A lively panel-style minisymposium was stimulated by a diverse audience including international presenters, faculty from the three premier Jamaican universities, postdoctoral researchers, students, and healthcare practitioners. Participants expressed a desire to establish multi-institutional regional collaborations and described difficulties in obtaining funding. The panel emphasized the need for regulatory oversight for stem cells and indigenous plant-derived medicinals.

Stem cells are potential treatment options for cardiovascular disease and diabetes, which cause significant morbidity in the Caribbean, including Jamaica, and may be amenable to cellular replacement therapies. Stem cells may also be used to test toxic and adverse developmental effects from nutraceuticals, now being marketed for general well-being and as cancer treatments.

Wishing to contribute to the scientific advancement of developing Caribbean countries, we founded the Society for Scientific Advancement, which hosted the meeting. We intend to continue organizing conferences, workshops, and outreach activities, and we thank ASCB for facilitating our inaugural conference.

—Kerriyn Smith, University of North Carolina at Chapel Hill, and Kameka Johnson, Cornell University
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 for images in The Cell include the following:


- An article in *The Scientist* used a classic Hans Ris image for illustration. “Architecture reveals genome’s secrets,” by Sabrina Richards, was published on November 25, 2012. It discusses how three-dimensional genome maps improve understanding of the relationship between the genome’s form and function. You can find the article at www.the-scientist.com/?articles.view/articleNo/33366/title/Architecture-Reveals-Genome-s-Secrets.


- BitesizeBio published in its Microscopy & Imaging channel “The Cell: An Image Library-CCDB—tutorial part 2.” This second article in the series explains how to find images using the interactive cell illustration, the browse buttons, and the basic search. It also includes tips and tricks for finding precisely what you need. You can find the article at http://microscopy.bitesizebio.com/articles/the-cell-an-image-library-ccdb-tutorial-part-2.

- A woman who runs a biotech incubator plans to use images from The Cell in the lobby of her building. She will display a plaque explaining the images and that they came from The Cell. You can share images right from the detailed image page by using the buttons just below the licensing information. These buttons allow you to share images on Facebook, LinkedIn, StumbleUpon, and other social networks. Help promote The Cell by selecting and sharing just one image.

The Cell’s Facebook page now has more than 10,000 “likes.” Want to join us? Simply go to www.facebook.com/cellImageLibrary and click “Like.”

Join our more than 1,600 members 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 or in an article? Are you interested in submitting images or collaborating with The Cell-CCDB? Please let us know by sending an email to David Orloff at dorloff@ncmir.ucsd.edu. All documented usage helps support our efforts to obtain continued funding.

—David Orloff

*The Cell was developed by ASCB under a Grand Opportunities grant from the National Institute of General Medical Sciences. Now The Cell has moved to the National Center for Microscopy and Imaging Research Cell Centered Database (CCDB) for its day-to-day management. ASCB maintains a role in advertising the Library, soliciting images, serving as an advocate for the resource, and creating a community committed to The Cell-CCDB.*
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Myosin Vs organize actin cables in fission yeast
L. Lo Presti, F. Chang, and S. G. Martin

In fission yeast, myosin Vs contribute to actin cable extension through the cell and promote retrograde flow. Chimeric motor proteins are used to show that Myo52 organizes actin cables by both delivering cargoes to cell tips and exerting physical force pulling on the cables. This suggests that cable tracks are shaped by cargo transport.

Mol. Biol. Cell 23 (23), 4579–4591

The kinesin-14 Klp2 is negatively regulated by the SIN for proper spindle elongation and telophase nuclear positioning

The SIN signaling pathway promotes cytokinesis and other late mitotic events. The terminal SIN kinase, Sid2, phosphorylates the kinesin-14 protein Klp2 to remove it from microtubules, which is important for efficient anaphase spindle elongation and telophase nuclear positioning.

Mol. Biol. Cell 23 (23), 4592–4600

LPIAT1 regulates arachidonic acid content in phosphatidylinositol and is required for cortical lamination in mice

Arachidonic acid (AA) is remarkably enriched in phosphatidylinositol (PI). Studies using knockout mice of lyso-phosphatidylinositol acyltransferase 1, which selectively incorporates AA into PI, reveal that AA-containing PI plays a crucial role in cortical lamination and neuronal migration during brain development.

Mol. Biol. Cell 23 (24), 4689–4700

Radil controls neutrophil adhesion and motility through β2-integrin activation

Various agonists trigger β2-integrin activation in neutrophils, yet the mechanisms that regulate β2-integrin inside-out signaling remain obscure. Radil, a novel Rap downstream effector, is an important adapter in the pathway that links G protein–coupled chemooattractant receptors to adhesion complexes during neutrophil chemotaxis.

Mol. Biol. Cell 23 (24), 4751–4765

HIGHLIGHTS from MBoC

In Aplysia bag cell neurons, there is a strong spatial and temporal correlation between increases in intracellular Ca²⁺ (top row) and increased rates of retrograde actin filament flow (middle row) in the lamellipodium or P domain of the growth cone. Increased rates of neurite outgrowth and changes in retrograde flow depend on Ca²⁺ activation of the protein phosphatase calcineurin and subsequent increased apCofilin activity; the latter is reflected in decreased levels of P-apCofilin in the P domain (bottom row). See Mol. Biol. Cell 23, 4833–4848. (Image: Xiao-Feng Zhang, Callen Hyland, and David Van Goor, Yale University, New Haven, CT)
Calcineurin-dependent cofilin activation and increased retrograde actin flow drive 5-HT–dependent neurite outgrowth in Aplysia bag cell neurons
Xiao-Feng Zhang, C. Hyland, D. Van Goor, and P. Forscher

5-HT promotes neurite growth via IP3-dependent Ca\(^{2+}\) release in neuronal growth cones. Outgrowth depends on increased rates of actin array treadmilling mediated by Ca\(^{2+}\)-calcineurin–dependent cofilin activation. This mode of growth contrasts with substrate-dependent responses, for which retrograde actin flow and advance rates have been inversely correlated.

*Mol. Biol. Cell* 23 (24), 4833–4848

Endoplasmic spreading requires coalescence of vimentin intermediate filaments at force-bearing adhesions

Interaction of vimentin filaments (vIFs) and force-bearing adhesions is essential for endoplasm spreading. For adhesions to be connected to a contractile network involved in endoplasm spreading, vIFs are needed. Thus endoplasm spreading and microtubule stabilization in the periphery require a multicomponent actin network anchored at adhesions.


Srv2/cyclase-associated protein forms hexameric shurikens that directly catalyze actin filament severing by cofilin
F. Chaudhry, D. Breitsprecher, K. Little, G. Sharov, O. Sokolova, and B. L. Goode

Dual-color total internal reflection fluorescence microscopy revealed that the N-terminal half of Srv2 (N-Srv2) directly catalyzes severing of cofilin-decorated actin filaments. N-Srv2 formed novel six-bladed structures resembling ninja throwing stars (shurikens), and N-Srv2 activities were critical for actin organization in vivo and were lethal in combination with Aip1.


Small heat shock proteins target mutant cystic fibrosis transmembrane conductance regulator for degradation via a small ubiquitin-like modifier–dependent pathway

Selective degradation of the mutant protein responsible for most cystic fibrosis, F508del cystic fibrosis transmembrane conductance regulator (CFTR), is initiated by Hsp27, which associates with the small ubiquitin-like modifier (SUMO) E2, Ubc9. They modify F508del with SUMO-2/3, directing F508del to a SUMO-targeted ubiquitin ligase, RNF4. This work implicates SUMO and RNF4 in quality control of a cytosolic transmembrane protein.

*Mol. Biol. Cell* 24 (2), 74–84

Cartoon depicting six-bladed oligomers of Srv2/CAP (cyclase-associated protein) severing cofilin-decorated actin filaments. The amino-terminal half of Srv2/CAP hexamerizes into structures with six symmetrical protrusions, resembling ninja throwing stars, or shurikens. These structures interact with actin filament–bound cofilin (green spheres) to catalyze the severing and disassembly of filaments. The writing on the right is Japanese (readable in Chinese) and means “severing” or “cutting off.” See Mol. Biol. Cell 24, 31–41. (Image: Dennis Breitsprecher, Brandeis University, Waltham, MA)
A list of current grant and other opportunities can be found at www.ascb.org/GandO.html. The following items were added since the last issue of the Newsletter:

**Advances in Biological Informatics.** The National Science Foundation Advances in Biological Informatics (ABI) program seeks to encourage new approaches to the analysis and dissemination of biological knowledge for the benefit of both the scientific community and the broader public. The ABI program accepts three major types of proposals: 1) innovation awards that seek to pioneer new approaches to the application of informatics to biological problems; 2) development awards that seek to provide robust cyberinfrastructure that will enable transformative biological research; and 3) sustaining awards that seek to support ongoing operations and maintenance of existing cyberinfrastructure that is critical for continued advancement of priority biological research. Applications due: August 13, 2013. www.nsf.gov/funding/pgm_summ.jsp?pims_id=5444&org=NSF&sel_org=BIO&from=fund.

**Collaborative Activities to Promote Metabolomics Research (Admin Supp).** This National Institutes of Health (NIH) Administrative Supplement funding opportunity provides supplemental funds to current NIH-funded research projects for new interactive collaborations between basic or clinical researchers and metabolomics experts to pursue biomedical studies requiring a metabolomics approach and increase metabolomics expertise in the biomedical research community. Application deadline: March 15, 2013. http://grants.nih.gov/grants/guide/pa-files/PA-13-041.html.

**Functional Epigenomics: Developing Tools and Technologies for Cell-type, Temporal, or Locus-specific Manipulation of the Epigenome (R01).** This National Institutes of Health funding opportunity is designed to stimulate innovative research to develop novel tools and technologies that enable at least one of the following: 1) tissue or cell-specific manipulation of epigenetic modifications or their effector molecules, 2) temporal manipulation of the epigenome, 3) locus-specific manipulation of the epigenome, or 4) novel approaches that enable any combination of these three things. Application deadline: March 27, 2013. http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-12-026.html.

**Initiative for Maximizing Student Development (R25).** This National Institutes of Health program provides institutional grants to research-intensive institutions that propose well-integrated developmental activities designed to increase students’ academic preparation and skills that are critical to the completion of the PhD degree in biomedical and behavioral sciences. Application deadline: March 14, 2013. http://grants.nih.gov/grants/guide/pa-files/PAR-13-082.html.

**National Institutes of Health Director's Workforce Innovation Award (DP7).** A funding opportunity announcement is anticipated in February 2013 for awards to doctoral degree-granting institutions that propose bold and innovative programs to significantly enhance traditional research-oriented doctoral and postdoctoral training and broaden the training of graduate students and postdoctoral scientists desiring careers in all venues. Letters of Intent are encouraged and are due March 30, 2013. Application deadline: April 30, 2013. http://grants.nih.gov/grants/guide/notice-files/NOT-RM-13-005.html.

**Postbaccalaureate Research Education Program (PREP) (R25).** The National Institute of General Medical Sciences PREP encourages applications from institutions that propose to develop recent baccalaureate science graduates from diverse backgrounds underrepresented in biomedical and behavioral sciences so that they have the necessary knowledge and skills to pursue PhD or MD-PhD degrees in these fields. Application deadline: March 14, 2013. http://grants.nih.gov/grants/guide/pa-files/PAR-13-085.html.

**Revisions for Macromolecular Interactions in Cells (R01).** The National Institute of General Medical Sciences (NIGMS) solicits revisions (formerly called “competing supplements”) of currently funded NIGMS grants specializing in the analysis of molecular systems and mechanisms in live organelles, cells, tissues, or organisms. Applicants may increase their budgets to extend the scientific scope of their projects or to add new approaches that enhance their capabilities for research on macromolecular interactions in cells. Application deadline: September 19, 2013. http://grants.nih.gov/grants/guide/rfa-files/RFA-GM-14-003.html.

**Support of Competitive Research (SCORE) Research Advancement Awards.** The National Institutes of Health (NIH) SCORE Program is a development program designed to increase the research competitiveness of faculty at minority-serving institutions and institutions with a historical mission of training students from backgrounds underrepresented in biomedical research. Three funding opportunities are offered for individual investigator-initiated research awards according to their developmental level: Research Advancement Award (SC1), Pilot Project Award (SC2), and Research Continuation Award (SC3). The SC1 award provides research support to faculty who are at the most advanced formative stages of their research career and are seeking to transition to non-SCORE support: http://grants.nih.gov/grants/guide/pa-files/PAR-13-069.html. The SC2 award allows investigators in the earlier stages of development to test a new idea or gather preliminary data to establish a new line of research: http://grants.nih.gov/grants/guide/pa-files/PAR-13-070.html. The SC3 mechanism allows investigators who are at intermediate stages of development to continue to engage in meritorious research projects of limited scope in a given biomedical/behavioral area within the NIH mission: http://grants.nih.gov/grants/guide/pa-files/PAR-13-071.html. Application deadlines: March 4, 2013; May 25, 2013; and September 25, 2013.

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Member since 1992

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Vanderbilt University Medical Center  
Member since 1994

Marco Colombini  
University of Maryland  
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Lynn Cooley  
Yale University  
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Member since 1997

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University of California, San Diego  
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University of Texas MD Anderson Cancer Center  
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Member since 1980

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University of California, Irvine  
Member since 2003

Jeff Scott Schorey  
University of Notre Dame  
First joined in 1994

Keiko Torii  
University of Washington  
Member since 2010

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Duke University Medical Center  
Member since 2000

Geoffrey Wasteneys  
University of British Columbia  
First joined in 2007

George B. Witman  
University of Massachusetts Medical School  
Member since 1970

Robin Lynn Wright  
University of Minnesota  
Member since 1982

Hongtao Yu  
University of Texas Southwest Medical Center  
Member since 2000

Xiaowei Zhuang  
Harvard University  
First joined in 2003

A. Malcolm Campbell, of Davidson College, an ASCB member since 1992, received the Genetics Society of America’s Elizabeth W. Jones Award for Excellence in Education.
MEETINGS Calendar
A complete list of upcoming meetings can be found at http://ascb.org/othermeetings.php. The following meetings were added since the last issue of the Newsletter:

April 17–20, 2013. Boston, MA
International Society for Extracellular Vesicles 2013 Conference.
www.isevmeeting.org.

May 6–7, 2013. Bethesda, MD

May 26–30, 2013. Maitencillo, Chile
Emerging Concepts on Neural Cytoskeleton.
http://cenedyn.org/emerging_concepts.

June 27–30, 2013. Elazig, Turkey
Fifth International Congress of Molecular Medicine.

July 3–6, 2013. Valencia, Spain
Society for Experimental Biology 2013 Annual Meeting.
www.sebiology.org/meetings/vallencia/vallencia.html.

ASCB Annual Meetings
December 14–18, 2013. New Orleans
December 6–10, 2014. Philadelphia
December 12–16, 2015. San Diego
December 3–7, 2016. San Francisco

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ASCB Member Comments
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- Sarah DeGregori
- Susan DiBartolomeis
- Thelma Dixon
- Miriam Domowicz
- Robert Douglas
- Meghan Drummond
- Benjamin Eaton
- Ann Erickson
- Danya Espadas
- Emmanuel Farber
- Donna Fernandez
- Isabelle Filaretault
- Kathy Foltz
- Noriko Funato
- Tiera Garcia
- Susan Gerbi
- Farzad Ghamsari
- Richard Giles
- Dorothea Godt
- Leslie Gold
- Mary Goldring
- Bob Goldstein
- Lawrence Goldstein
- Gary Gorbsky
- Todd Green
- Guido Guidotti
- Peter Gunning
- Rosine Haguenauser-Tsapis
- Gary Harris
- Kristztina Hegyi
- Henry Higgs
- Walter Hiteleman
- Mary Horne
- Viktor Holoubek
- Jean Hugon
- Eung-Gook Kim
- Stanley Kimani
- Stefan Kirchanski
- Alexander Kirov
- Yohko Kohno
- Gordon Laurie
- William Leach
- Donghoon Lee
- James Lee
- Laura Lewis-Tuffin
- Yun-Cai Liu
- Harvard Lyman
- Ian Macara
- Anthony Mahowald
- Mark Mak
- Gigi Makky
- Oana Marcu
- J. Richard McIntosh
- Wilfredo Mellado
- Lisa Minor
- David Mitchell
- Veronica Morandi Da Silva
- Anthony Moss
- Heber Nielsen
- Lucy O'Brien
- Yukio Okano
- H. Pankratz
- Linda Parysek
- Nikolay Pestov
- David Piston
- Elizabeth Raff
- Evelyn Raiston
- Radhakumar Rangasamy
- Emmanuel Reinaud
- Jonathan Rothblatt
- Norka Ruiz Bravo
- Edward Salmon
- Wendy Salmon
- David Samols
- Linda Sandblad
- Rozanne Sandri-Goldin
- Jean Sanger
- Joseph Sanger
- Hengameh Shams
- Caroline Shamu
- Sze Wan Shan
- Samuel Silverstein
- Clifford Steer
- Donna Stolz
- Brian Storrie
- Daniel Strongin
- Gerald Sufrin
- Joel Swanson
- Kelly Tatchell
- Catherine Thaler
- Barbara Vertel
- Jim Vigoreaux
- Dickow Villar
- Barbara Wakiwoto
- Jean Wang
- Roberto Weigert
- Allan Weissman
- Thea Wilkins
- Roy Williams
- Maureen Wirsching
- Jason Wolfe
- Lindsey Wolfe
- William Wood
- Michael Yaffe
- Keith Yamamoto
- Alexander Yamamoto
- Sadaki Yokota
- Qing Zhong

**Silver ($500 to $999)**
- Henry Brown
- Kathleen Green and Rex Chisholm
- Daniel Lew
- James Sabry
- Tim Schedl
- Rebecca Boston
- Richard Blanton
- Ronald Field
- Morris Karnovsky
- Jonathan Scholey
- Virginia Zakian

**Bronze ($250 to $499)**
- Sarah DeGregori
- Susan DiBartolomeis
- Thelma Dixon
- Miriam Domowicz
- Robert Douglas
- Meghan Drummond
- Benjamin Eaton
- Ann Erickson
- Danya Espadas
- Emmanuel Farber
- Donna Fernandez
- Isabelle Filaretault
- Kathy Foltz
- Noriko Funato
- Tiera Garcia
- Susan Gerbi
- Farzad Ghamsari
- Richard Giles
- Dorothea Godt
- Leslie Gold
- Mary Goldring
- Bob Goldstein
- Lawrence Goldstein
- Gary Gorbsky
- Todd Green
- Guido Guidotti
- Peter Gunning
- Rosine Haguenauser-Tsapis
- Gary Harris
- Kristztina Hegyi
- Henry Higgs
- Walter Hiteleman
- Mary Horne
- Viktor Holoubek
- Jean Hugon
- Eung-Gook Kim
- Stanley Kimani
- Stefan Kirchanski
- Alexander Kirov
- Yohko Kohno
- Gordon Laurie
- William Leach
- Donghoon Lee
- James Lee
- Laura Lewis-Tuffin
- Yun-Cai Liu
- Harvard Lyman
- Ian Macara
- Anthony Mahowald
- Mark Mak
- Gigi Makky
- Oana Marcu
- J. Richard McIntosh
- Wilfredo Mellado
- Lisa Minor
- David Mitchell
- Veronica Morandi Da Silva
- Anthony Moss
- Heber Nielsen
- Lucy O’Brien
- Yukio Okano
- H. Pankratz
- Linda Parysek
- Nikolay Pestov
- David Piston
- Elizabeth Raff
- Evelyn Raiston
- Radhakumar Rangasamy
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- Jonathan Rothblatt
- Norka Ruiz Bravo
- Edward Salmon
- Wendy Salmon
- David Samols
- Linda Sandblad
- Rozanne Sandri-Goldin
- Jean Sanger
- Joseph Sanger
- Hengameh Shams
- Caroline Shamu
- Sze Wan Shan
- Samuel Silverstein
- Clifford Steer
- Donna Stolz
- Brian Storrie
- Daniel Strongin
- Gerald Sufrin
- Joel Swanson
- Kelly Tatchell
- Catherine Thaler
- Barbara Vertel
- Jim Vigoreaux
- Dickow Villar
- Barbara Wakiwoto
- Jean Wang
- Roberto Weigert
- Allan Weissman
- Thea Wilkins
- Roy Williams
- Maureen Wirsching
- Jason Wolfe
- Lindsey Wolfe
- William Wood
- Michael Yaffe
- Keith Yamamoto
- Alexander Yamamoto
- Sadaki Yokota
- Qing Zhong

**Sustainer (up to $249)**
- Sarah DeGregori
- Susan DiBartolomeis
- Thelma Dixon
- Miriam Domowicz
- Robert Douglas
- Meghan Drummond
- Benjamin Eaton
- Ann Erickson
- Danya Espadas
- Emmanuel Farber
- Donna Fernandez
- Isabelle Filaretault
- Kathy Foltz
- Noriko Funato
- Tiera Garcia
- Susan Gerbi
- Farzad Ghamsari
- Richard Giles
- Dorothea Godt
- Leslie Gold
- Mary Goldring
- Bob Goldstein
- Lawrence Goldstein
- Gary Gorbsky
- Todd Green
- Guido Guidotti
- Peter Gunning
- Rosine Haguenauser-Tsapis
- Gary Harris
- Kristztina Hegyi
- Henry Higgs
- Walter Hiteleman
- Mary Horne
- Viktor Holoubek
- Jean Hugon
- Eung-Gook Kim
- Stanley Kimani
- Stefan Kirchanski
- Alexander Kirov
- Yohko Kohno
- Gordon Laurie
- William Leach
- Donghoon Lee
- James Lee
- Laura Lewis-Tuffin
- Yun-Cai Liu
- Harvard Lyman
- Ian Macara
- Anthony Mahowald
- Mark Mak
- Gigi Makky
- Oana Marcu
- J. Richard McIntosh
- Wilfredo Mellado
- Lisa Minor
- David Mitchell
- Veronica Morandi Da Silva
- Anthony Moss
- Heber Nielsen
- Lucy O’Brien
- Yukio Okano
- H. Pankratz
- Linda Parysek
- Nikolay Pestov
- David Piston
- Elizabeth Raff
- Evelyn Raiston
- Radhakumar Rangasamy
- Emmanuel Reinaud
- Jonathan Rothblatt
- Norka Ruiz Bravo
- Edward Salmon
- Wendy Salmon
- David Samols
- Linda Sandblad
- Rozanne Sandri-Goldin
- Jean Sanger
- Joseph Sanger
- Hengameh Shams
- Caroline Shamu
- Sze Wan Shan
- Samuel Silverstein
- Clifford Steer
- Donna Stolz
- Brian Storrie
- Daniel Strongin
- Gerald Sufrin
- Joel Swanson
- Kelly Tatchell
- Catherine Thaler
- Barbara Vertel
- Jim Vigoreaux
- Dickow Villar
- Barbara Wakiwoto
- Jean Wang
- Roberto Weigert
- Allan Weissman
- Thea Wilkins
- Roy Williams
- Maureen Wirsching
- Jason Wolfe
- Lindsey Wolfe
- William Wood
- Michael Yaffe
- Keith Yamamoto
- Alexander Yamamoto
- Sadaki Yokota
- Qing Zhong

*As of 12/31/2012*
Dear Labby,

I have gotten into a crazy situation, and an ASCB member in my lab suggested I should write to you. My deal is that I and another fourth-year graduate student in the lab are designated as the two “co-equal” first authors on a paper that is pending publication. I fought hard to be the sole first author, which ruined my (already not great) relationship with this other student, who went ballistic over the matter. The head of our lab caved in and made us co-equal because, in my opinion, she just wanted the issue to go away.

Now the manuscript has come back and the reviewers want some additional experiments. Of course this is standard. These experiments are totally within my expertise but, incredibly, our lab head went ahead and asked the other first author to do them. He is not nearly as expert on these techniques as I am, but if he gets these new results I think my lab head may vault him into a sole first author position. I am really upset. My lab head said she offered this to the other student to “boost” his thesis. (I should mention that we both hope to finish next year, although he may need to take another year.)

In undergrad chemistry I learned about various modes of reactions, one of which was called a “displacement” reaction. I feel like that.

—Displaced

Dear Displaced,

A very sorry tale and full of the “poison fruit” the tree of shared first authorship can bear. Labby believes that your lab head should have met with all the authors in the lab (or if there are authors at other institutions, in a conference call) to plot the strategy for revision. For her to have gone to the other student and offered him the opportunity to conduct the needed experiments seems unfair to you, not only because you might be the more appropriate person to do them with respect to expertise, but for a far more important reason: You are the other co-first author and thus should have been consulted!

As regards your lab head’s motive, if she felt that this student’s thesis progress (either its kinetics or quality) was in need of boosting, this was surely the wrong way to accomplish that. This illuminates what is really the foul core of shared first authorship (and indeed Labby could deliver a manifesto on this publishing mode). The essence of the scientific profession is that a given investigator “owns” the work. Some parts of a PhD thesis can be collaborative, but there must be a core of inquiry that is powered solely by the mind and bench work of the student.

You are right to be upset. You have already confronted your lab head about the precipitant event. Your next step might be to extract her assurance that you will not be displaced as co-first author—there would be considerable comfort in that. If you don’t receive that assurance, you should take your case to the dean of your graduate school.

Those chemical reactions you learned about as an undergraduate are useful analogies for the matter at hand. They include attacks on bonds, altered energies of affinity, some extractions of constituents, and then, for some of the players, departure. Each and every one of these chemical phenomena is present in your story as an analog to a human relationship. Try to stay in that probative step of exploratory binding, before the final reaction step happens. Labby hopes she has encouraged you to stay in the reaction center.

—Labby

Got Questions?

Labby has answers. ASCB’s popular columnist will select career-related questions for publication and thoughtful response in the ASCB Newsletter. Confidentiality guaranteed if requested. Write us at labby@ascb.org.
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