“Pointing cell biology toward disease has brought so many important insights into pathogenesis. It’s from the cell biology that the next wave of treatments will emerge,” says Joseph Gleeson, Howard Hughes Medical Institute (HHMI) investigator and an attending physician in the Laboratory of Pediatric Brain Disease at Rockefeller University; the University of California, San Diego; and Rady Children’s Institute for Genomic Medicine. Gleeson will be giving a presentation in the “Disease Informs Cell Biology” Symposium at the 2016 ASCB Annual Meeting.

Using Disease to Illuminate Basic Cell Biology at ASCB 2016

Cultured neurons. Image courtesy of Joseph Gleeson.

“The Invasion of the Bioengineers and Vice Versa

When Valerie Weaver brought her first and, at that point, only graduate student to the 2000 ASCB Annual Meeting, her University of Pennsylvania (Penn) bioengineering student wasn’t happy. “She complained that there were hardly any engineers at the meeting,” Weaver recalls with a laugh. “The following year, it was better, and now ASCB has a high proportion of bioengineers who attend. It’s fantastic.”

Bioengineers of all stripes are one of the fastest growing contingents at the ASCB Annual Meeting as cell biology expands outward and other disciplines from mathematics to tissue...
MBoC Special Issue

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EXECUTIVE DIRECTOR’S Column

On Cup Holders and Evidence-Based Approaches

By Erika Shugart

How do we make decisions? And how can we do it better?

My husband and I will need to buy a car in the near future, and the thought fills me with dread. There are so many options! Investigating reliability, safety, and environmental impact, never mind the “driving experience,” then weighing all of that against our needs and the cost seems to take too many hours. I haven’t even gotten into the optional features and color. I once read that the number of cup holders in a car is a major determinant of its appeal to some car buyers. Last time my family needed to buy a car, we asked our neighbors for their advice and wound up with one of the million blue minivans that populate our suburban neighborhood. My husband and I hate it, but it is practical. I should have more expertise in automobiles, since I drive a car every day, but I have never taken the time to learn about them.

We are all busy, and no one has the time to become an expert in all things. In the lab, hypotheses are formulated and tested and evidence derived from experimentation is applied to decisions. This is the way of science. However, everyone takes mental shortcuts, even scientists. It’s human. But if scientists want to have the greatest impact outside of their immediate arena of research, they must approach these areas intentionally and apply evidence-based approaches that have been identified over the past decade, not fall back on shortcuts. We also need to be smart in the use of metrics. I encourage you to think about those areas in which you can take a more evidence-based, rigorous approach to improving your practice. I believe that there are four areas in which this approach offers the greatest potential for impact:

1. Communicating with non-scientist audiences, such as the public and policy makers,
2. Teaching,
3. Increasing participation of underrepresented groups in science,
4. And measuring the impact of research.

I am going to touch upon each of these briefly and share resources that can get you started with learning how to take a more rigorous approach to your practice in these areas.

Communicating with Non-scientists

In my previous role as a science communication practitioner, I had the opportunity to work with marvelous scientists from disciplines as diverse as global climate modeling to decision making to cell biology. All of them had a deep-seated curiosity about the natural world and brought rigor to their approach to understand the phenomenon they studied. However, when it came to understanding and selecting communication approaches they often fell back on assumptions and gut feelings.

One of the first shortcuts that scientists sometimes take in the communication field is to adopt a one-size-fits-all solution to get the word out to the “public.” However, the public is not monolithic—reaching a science-interested, documentary-watching mother of two is quite different than reaching a 16-year-old social media mavens. It is important to think carefully about what you are trying to accomplish and who might be interested in your message so that you can select an approach that will reach your audience.

Another common mistake that scientists make when communicating to the public is to assume that they can convince people to agree with them by giving them more information. Unfortunately, this is not the case. Often an
appeal to emotion or to your audience’s sense of identity can be more effective. One way to get people excited about science is not to assail them with facts, but instead to appeal to their hearts. Science communication is an active field of research and can be used to inform our approaches to reaching out to non-scientist audiences. You can start to learn more about these topics and the wide range of social science literature that informs this area with the Sackler Colloquia on the Science of Science Communication (http://bit.ly/2b0SOxH), which were two meetings that brought researchers in a wide range of disciplines together with science communication practitioners.

Teaching
As educators of the next generation of scientists, as well as of students who may never be scientists but who live in a world where they need to understand and use science, it is imperative that we do our best to teach them not just what we know but how we know it. When I was in university it was state of the art to pose an occasional Socratic question or explode a hydrogen-filled balloon in chemistry class, but straight lectures were de rigueur.

Today the field of biology education has demonstrated that there are better approaches to teaching. Have you heard of terms such as active learning, assessment, and backward design? If so, that is terrific and I hope your students’ assessments reflect your enlightened practice.

Active learning builds on the understanding that students learn better when they are active in the process. Active learning builds on the understanding that students learn better when they are active in the process.

Promoting Diversity
Science has a diversity problem. We need individuals of different genders, races, and ethnicities from different regions to participate in the scientific endeavor. Some of the approaches that are used to try to fix lack of diversity don’t work. For example, I was dismayed to read the results of a recent study (http://ftp.iza.org/dp9904.pdf) that examined the impact of stopping the tenure clock for parental leave. The study, which looked at the top 50 economics departments, found that gender-neutral parental leave policies resulted in a 22% decrease in the number of women obtaining tenure and a 19% increase in the number of men receiving tenure. While the results are the opposite of the goals of these common programs (and it remains to be seen if these findings will have an impact on university policy), the approach is exactly what we need to be doing—try new programs that we hypothesize will help the situation, examine their impact, and change them if needed.

In addition to learning from experiments in the academic world, we can learn from the business world, in which increasing diversity is a very active area. Companies have been measuring diversity in their ranks and the impacts of programs such as diversity training and mentoring for many years. The Harvard Business Review’s July-August issue (https://hbr.org/archive-toc/BR1607; pay wall) focused on diversity and featured an article on research that examined practices of midsized U.S. companies. It was found that voluntary diversity training works better than mandatory training. Targeted college recruitment practices and diversity taskforces were other initiatives that worked. By building on the lessons learned in different sectors we can make the needed changes to create a diverse workforce in the sciences.

Evaluating Science and Scientists
The final area that can be improved by a more rigorous approach is scientists’ evaluation of each other. Metrics are invaluable for assessing the impact of programs and in decision-making, but when we depend too heavily on a single metric to the exclusion of other data it can lead to poor choices. This is epitomized in science’s
over-dependence on the journal impact factor (JIF) for decisions about departmental worth, promotion, and tenure. As I discussed in a note in the ASCB Post in July (www.ascb.org/note-bias-novelty), many of the most novel papers in science receive most of their citations five years after initial publication, and they are published in lower-JIF journals.

The JIF is a metric, but it is not the best metric for measuring the worth of an individual paper or even the worth of a journal. This is why ASCB was one of the lead organizers of the San Francisco Declaration on Research Assessment (DORA; www.ascb.org/dora). As outlined in the DORA there is a better approach we can take to measure the worth of research. We can look at article-level metrics, rather than journal-level metrics. We can judge the merits of the science by the content of the paper, rather than assessing its worth solely by where it was published. We can look at our colleagues’ broader scientific contributions, such as datasets and tools, rather than make decisions only on published articles.

The movement to stop over-reliance on JIFs is gaining momentum. In recent weeks a major society publisher, the American Society for Microbiology, stopped advertising JIFs (http://bit.ly/2aVCC50), and *Nature* has just announced (http://go.nature.com/2biQra3) that it will present a wider range of metrics due to the limitations of the JIF. I encourage you to become a signer of DORA and begin to put the declaration into practice.

There are some things in life that can’t be improved by a scientific approach, such as love or enjoying a beautiful piece of art. I have briefly touched upon four diverse topics that can benefit by the use of the practice and rigor of science. I hope that you will take time to consider what you might do in these areas. Meanwhile, I will work to improve my approach to buying cars, even if this means developing a formula for the optimal number of cup holders my family needs.

**Some of the approaches that are used to try to fix lack of diversity don’t work.**

*When we depend too heavily on a single metric to the exclusion of other data it can lead to poor choices.*

Does Your Institution Pay for Your ASCB Membership?

It may be possible to bill ASCB membership dues to direct or indirect costs under a National Institutes of Health (NIH) grant. NIH guidelines state that subscriptions are allowable as direct costs and memberships as indirect costs (see section 200.454 of the U.S. Federal Government Uniform Guidelines). Your ASCB membership includes an annual subscription to *Molecular Biology of the Cell* valued at $645 per year.

Some universities allow membership fees as a direct cost to a project if it reduces the overall cost of attending a conference by more than the fee. The difference in price between a nonmember and member ASCB Annual Meeting registration far exceeds the cost of an ASCB membership. Savings range from $50 for undergraduate students, $130 for graduate students, $210 for postdocs, to $230 for regular members.

Check with your university or granting agency to find out if either of these circumstances applies to you.

If you have questions, contact Membership Manager Marta Chacon at 301-347-9324 or MChacon@ascb.org.
Biophysicist Eva Nogales Named 2016 Porter Lecturer

Eva Nogales, a University of California, Berkeley professor, Lawrence Berkeley National Laboratory senior faculty member, and Howard Hughes Medical Institute investigator, will give the 2016 Keith Porter Lecture at ASCB 2016 this December in San Francisco. Nogales has revolutionized the structural study of proteins frozen at cryogenic temperatures (below –238°F, or −150°C) with cryo-electron microscopy. In a landmark paper published this May, her lab reported the structure of a human transcription promoter in near-atomic resolution. A native of Spain and a graduate in physics from the Universidad Autonoma de Madrid, Nogales made her way to biophysics after a chance encounter at a conference with the director of the Synchrotron Radiation Source in the UK, who invited her to join the facility. While working on her PhD at Keele University, Nogales was drawn to novel biological applications of physics and particularly toward the self-assembly of microtubules. “Just through the universal language of mathematics you can explain amazing physical phenomena...I think that connection between mathematics and the natural world was very attractive,” Nogales said in a 2014 interview. Nogales was the first to discover the structure of tubulin, the subunit of microtubules, as a postdoc in Ken Downing’s lab at the Lawrence Berkeley National Laboratory, where she moved in 1993. Nogales is a long-time ASCB member who received the 2005 ASCB Early Career Life Scientist Award. She also won the Chabot Science Award for Excellence in 2005 and was elected as a member of the National Academy of Sciences in 2015. The Porter Lecture is named for Keith Porter, a pioneer in the use of electron microscopy in biology and one of the founders of ASCB. Nogales will give the Porter Lecture in San Francisco on Sunday, December 4.

—Christina Szalinski

Daniel Alfonso Colón-Ramos, a Student with 1,000 Questions, Wins E.E. Just Award

Daniel Alfonso Colón-Ramos always liked asking questions. Growing up in Puerto Rico, his questions earned him a lousy reputation among teachers. But now as a professor of Cell Biology and Neuroscience at Yale University, Colón-Ramos’ endless inquiries have led him to win ASCB’s 2016 E.E. Just Award for outstanding scientific achievement by a minority scientist. Colón-Ramos will give the E.E. Just Lecture at the 2016 ASCB Annual Meeting, receiving a plaque and a medal for his accomplishments.

In Puerto Rico, Colón-Ramos remembered, “My teachers gave me the nickname ‘the student of 1,000 questions.’ It wasn’t kindly given.” But his thousands of questions led him to discover a career where asking questions was rewarded, “I learned early on that scientists asked questions, and I thought, ‘Here’s a profession where I can ask questions about what was going on around me.’” Pursuing biology, he earned his bachelor’s at Harvard, and then joined Sally Kornbluth’s lab at Duke University for his PhD in genetics and molecular biology. After finishing his PhD, Colón-Ramos realized that, “I had this skillset to answer any question.” And the questions he wanted to answer turned on “how cells self-organize in tissues during development.” Looking for postdoc positions, he spoke to Kang Shen at Stanford University who was working on neurodevelopment in Caenorhabditis elegans. “It just completely blew my mind what you could do with C. elegans, how well you could link cell biology to the behavior of the organism,” Colón-Ramos said.

“It just completely blew my mind what you could do with C. elegans, how well you could link cell biology to the behavior of the organism.”
The possibilities in working with *C. elegans* still excite him. In his recent work at Yale, he’s used *C. elegans* to study energy flow at the neuronal synapse. “In neurons you have synapses far away from the cell body [where mitochondria make the cell’s energy], but the synapses need energy to do their function,” he explained. “We discovered through forward genetic screens that glycolytic proteins [ancient enzymes involved in energy production] respond to local energy demands at the synapse.” Clusters of these energy generators, called glycolytic metabolons, were believed to exist, but this was the first time they were observed in neurons and a living organism.

“I feel very privileged that I could follow my passion,” Colón-Ramos said, “in great extent due to mentors that I’ve had, and other minority scientists who came before me.” While he has managed to make his way in the current research system, Colón-Ramos believes that it’s important to recognize the historic legacy that limited the advance of women and minority scientists. The biomedical enterprise must look closely at what is limiting participation by previously excluded groups, and address those issues. “As a scientist one of the things I value is ideas from other scientists. I hate to think that the opportunities of some scientists are limited by their background,” said Colón-Ramos. “That’s not something I want for science.”

“My main piece of advice to a minority scientist second-guessing their place: You belong and science needs your ideas and your inputs,” Colón-Ramos said. He continued, “Science is a humanistic enterprise that belongs to every person. It doesn’t belong to one group, one demographic, or one country. It belongs to everyone. The knowledge that emerges from scientists impacts all of us. Knowledge is a fundamental part of the human experience.”

—Christina Szalinski

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**MBoC Introduces Author Checklist to Enhance Research Reproducibility**

*Molecular Biology of the Cell* (MBoC) has developed a checklist for authors to help them ensure that their work can be reproduced by others. In so doing, the journal is following the recommendations in the 2015 whitepaper by the ASCB Reproducibility Task Force.

The checklist was developed by a committee of *MBoC* Editorial Board members chaired by Editor Jean Schwarzbauer and including Associate Editors Rick Fehon, Carole Parent, Greg Matera, Alex Mogilner, and Fred Chang with input from Editor-in-Chief David Drubin and other members of the board.

In an editorial to appear soon in *MBoC*, Schwarzbauer, W. Mark Leader, and Drubin explain that the checklist is intended to be a tool for authors, not a burden. “Rather than being yet another hurdle that scientists must overcome to publish their work, the checklist is intended to be a formal reminder of the research and data presentation practices that most of us use routinely anyway,” the authors state. And the checklist will be easy to use: “There are four sections: Data Presentation, Methodology and Statistics, Reagents and Model Systems, and Data Accessibility. When submitting a manuscript, authors will be asked to answer only four questions confirming that their paper meets the applicable requirements for each section or, if it does not, to provide an explanation. The answers to the questions and the explanations will be available to editors and reviewers.”

The checklist is available at www.ascb.org/files/mboc-checklist.pdf. Authors who submit Articles or Brief Reports to *MBoC* on or after November 15, 2016, will be required to use it.

—W. Mark Leader
Additional Editors Named for MBoC Special Issue on Forces On and Within Cells

Molecular Biology of the Cell (MBoC) Editor-in-Chief David Drubin and Issue Editor Valerie Weaver have announced the appointment of three additional Issue Editors who will join Weaver in guiding the journal’s first Special Issue on Forces On and Within Cells. The new editors are Andrés Garcia, Georgia Institute of Technology; Alexander Dunn, Stanford University; and Alpha Yap, University of Queensland.

“I am very grateful to Valerie for assembling this team,” said Drubin. “They bring diverse perspectives and expertise and incredible intellectual firepower to this effort. This will be a great issue that will benefit a broad audience of authors and readers.”

The Special Issue will be published in summer 2017 and will include papers that deal with the generation, detection, and effects of forces that act within or upon cells. Additional information can be found at www.ascb.org/mboc-forces.

The issue will also include invited Perspectives on relevant topics. Anyone who is interested in writing a Perspective is encouraged to contact the editorial office at mboc@ascb.org.

Authors are encouraged to submit manuscripts by January 15, 2017, to allow time for them to be reviewed and revised by the deadline for the issue. (Perspectives will be due on February 15.) Manuscripts may be submitted at www.mbcpapers.org. Questions about the issue should be directed to David Drubin at mboc@ascb.org.

—W. Mark Leader

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ASCB-Gibco Emerging Leader Prize Essays

In fall 2015, ASCB awarded the first-ever ASCB-Gibco Emerging Leader Prizes to three cell biology researchers. ASCB introduced the prizes to honor not-yet-tenured independent investigators with outstanding scientific accomplishments and strong publication track records. The prizes were underwritten by Gibco, a brand of Thermo Fisher Scientific.

ASCB President Peter Walter invited each of the prize winners and each of the seven additional finalists to contribute an essay to the ASCB Newsletter. The writers were encouraged to provide a personal statement that articulates who they are, their science, and how they got into it; to describe their major scientific accomplishments; and to discuss their “dream results” and where they see themselves in the next five years.

This issue of the Newsletter features the essay of finalist Melissa Gardner.

Melissa Gardner

The Gardner laboratory applies physical engineering principles to dissect molecular mechanisms for how cells divide and for how cell division can be controlled to prevent genetic diseases and cancer. Our overarching goal is to improve human health by developing a better mechanistic understanding for how cells divide. This is important because rapid cell division is central to the spread of cancer.

I have followed a nontraditional path to a research career. While working as a product development engineer in the medical device industry, I decided to pursue a PhD in biomedical engineering on a part-time basis. My reason for returning to graduate school was that I found that the development of medical devices was focused around the mechanics of the device itself, with little attention given to cellular mechanics or to the response of the cell to the injury caused by a medical device. The lack of knowledge in these areas would at times undermine the intended purpose of even the most carefully designed medical device. So I developed a passion for cell biology and for basic science research that could contribute to a better understanding of cellular processes.

Because of my background, my approach to cell biological questions is also nontraditional in that my laboratory applies engineering principles in an effort to better understand the inner workings of the cell. My engineering background combined with dual appointments in Cell Biology and the Medical School has allowed for the strong integration of both computational (modeling, analysis) and experimental (in vitro, in vivo) methods in my laboratory. As an example of this integration, we have developed a new live-cell assay, based on physical principles and advanced microscopy, that allows us to measure chromosome mechanical properties in real-time during mitosis, at different points in the cell cycle, and for different cell types. Thus, we are poised to evaluate the role of chromosome mechanics in the fidelity of chromosome segregation during mitosis, to understand how this may be defective in cancer cells, and also to determine whether new or ongoing cancer therapeutics may affect this process. Our approach could ultimately allow us to study patient cell lines to provide more individualized insights into the role of chromosome mechanics in cancer.

This approach would not be possible without a strong vertical integration of computational and experimental methods. In part, my laboratory’s research approach represents an integration of the skills I obtained during my training, as we use the computational modeling skills that I learned in my thesis work with David Odde and the biophysical in vitro reconstitution skills that I learned during my postdoctoral training with Joe Howard. However, by learning from colleagues in my new, tenured home at the University of Minnesota, I have extended these skills to

We have developed a new live-cell assay... that allows us to measure chromosome mechanical properties in real-time during mitosis, at different points in the cell cycle, and for different cell types.
include yeast cell culture and genetics, protein purification and biochemical analysis, tissue culture, and mammalian cell imaging. This has allowed my laboratory to vertically integrate our studies from the molecular scale to the cellular scale, using both experiments and computational modeling. Therefore I feel that we are positioned to make contributions toward dissecting the molecular mechanisms of mitosis in the years to come.

**MBoC Offers New Brief Report Format**

*Molecular Biology of the Cell (MBoC)* has introduced a new Brief Report format to give authors another option in how they present their research. Brief Reports are short articles on findings that represent a conceptual advance for the field or that enable or stimulate progress in the field. “This is a format for publishing work that represents an important advance that can be communicated in a pithy piece,” explained *MBoC* Editor-in-Chief David Drubin.

Brief Reports will be limited to 20,000 characters (exclusive of Materials and Methods and References), five display items (tables or figures) in the text, and four display items in supplementary material. The new format will also require a combined Results and Discussion section.

Visit [www.mbcpapers.org](http://www.mbcpapers.org) to submit a Brief Report or Article to *MBoC*.

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Broadening Participation in the Life Sciences: Current Landscape and Future Directions

Kenneth D. Gibbs, Jr.* and Pat Marsteller†
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“Broadening participation” and related terms such as “diversity,” “inclusion,” and “equity” mean many things to different people. For this special issue, we defined the term “broadening participation” to mean efforts that develop talent and promote the inclusion of students and scientists from all social backgrounds in all levels of the life sciences (K–12 through postdoctoral training, early-career independence, and senior leadership). The topic of broadening participation is often accompanied by controversy and concerns about nonmeritoricrat decision making and the diminution of quality and rigor. It is our vision that the results of broadening participation efforts would be a vibrant scientific enterprise that continues to harness the contributions of those from traditionally well-represented backgrounds while fostering full participation and engagement of those from other backgrounds (e.g., women, racial and ethnic minorities, people with disabilities, sexual and gender minorities, first-generation students, those from low-income backgrounds).

Over the past few decades, the life sciences have made significant progress in increasing the participation in education of women and students from historically underrepresented racial and ethnic minority backgrounds (URM, i.e., African American, Hispanic/Latino, American Indian, Alaska Native, Native Hawaiian and Pacific Islander; National Science Foundation, National Center for Science and Engineering Statistics, 2015). In 2012, women earned more than 50% of bachelor’s degrees and PhDs in the life sciences. Students from URM backgrounds earned 17% of bachelor’s degrees and 8% of PhDs (which, while lower than their 32% representation in the population, represents progress). At the same time, there is significant evidence that students from these groups continue to face challenges within the classroom and training environments (Gibbs and Griffin, 2013; Eddy et al., 2014; Grunspan et al., 2016; Lauer et al., 2016). Women and scientists from URM backgrounds remain underrepresented as principal investigators on research grants, as faculty members, and in senior leadership positions (Myers and Fealing, 2012; National Institutes of Health, 2012; Heggeness et al., 2016; Plank-Bazinet et al., 2016). Other groups, such as Asian-American scientists, are often well represented in undergraduate and graduate programs and in junior faculty positions (though there are differences across ethnicity), yet still experience stereotyping and remain underrepresented in senior leadership positions (Maramba et al., 2014). These and other representation gaps lead to the loss of contributors to the talent pool and limit the ability of the life sciences community to address critical scientific and societal challenges (Tabak and Collins, 2011; Ferrini-Mundy, 2013; Valantine and Collins, 2015).

Clearly, we are not the only ones who recognize the persistent issue of limited participation in the life sciences. We received more than 120 submissions in response to our initial call for abstracts for this special issue, and 57 submissions of full manuscripts. (For context, CBE—Life Sciences Education received 194 submissions in all of 2015.) The papers published in this issue fit four main themes:
Innovative and effective interventions or approaches for broadening participation,
Mechanistic explanations for “why” certain approaches have been effective,
Novel insights about contextual issues that influence broadening participation efforts, and
Syntheses of research and practices that provide a “plan of action” heading forward.

We also invited features from major life sciences education funding agencies (National Institutes of Health, National Science Foundation, U.S. Department of Agriculture, and Howard Hughes Medical Institute) that highlight current funding opportunities and provide perspectives on challenges and opportunities related to broadening participation in the life sciences.

As the life sciences community continues its efforts to broaden participation, we feel it is important to take the following approaches:

Clearly define benchmarks of success and associated measures. Broadening participation research and evaluation efforts can be impaired by a lack of clearly defined variables, desired outcomes, or common language. For example, terms like “retention” or “persistence” are not self-evident. Retained for what? Persisted to what? Similarly, people often identify as having multiple, intersecting social identities that interact to effect experiences and outcomes (Griffin and Museus, 2011). Thus, care must be used when applying demographic labels such that it is clear what populations are impacted by the approach. Future research and evaluation efforts should clearly define:

Who is (are) the intended target population(s)? This requires more nuanced language such that our data and analyses can be more nuanced. For example, a first-generation immigrant from Laos and a fourth-generation Japanese-American may both be identified as “Asian” but are likely to have substantively different experiences in life sciences education and career development.

What are the desired outcomes, and why are they important for the intended target population(s)? This requires assessment of the context in which an intervention is to be deployed to ensure it is necessary and to provide a baseline against which to test the effectiveness of the intervention.

Where, or in what context, are approaches being examined or tested? This requires the recognition and articulation of the unique opportunities and constraints imposed by the environment. An intervention that is successful in one context (e.g., a 2-year institution) may or may not have the same impact in a different context (e.g., an academic medical center).

What is the theoretical or empirical work that supports the potential for the intervention to be successful? There are many, validated theoretical approaches for examining factors that impact broadening participation efforts, ranging from classroom learning to career choice (Eccles and Wigfield, 2002; Lent et al., 2002; Hurtado et al., 2012). These and other relevant frameworks should be used in formulating and framing broadening participation efforts.

How will we know whether we are successful? Interventions targeted at outcomes such as learning gains or enhancing entry or transition into the next training or career stage should measure these outcomes as directly as possible.

Institutionalize the collection, analysis, and reporting of relevant participation data, and use them in decision making. Systematic data collection and analysis efforts will require institutional commitment at all levels, including administrators, faculty members, and staff. Tools are being developed that can help accomplish this, such as Tools for Evidence-based Action (http://t4eba.com) at the University of California–Davis. The community must consider which metrics and metadata are most informative and how they can be standardized in ways that maintain their usefulness both locally and nationally. Acting on this recommendation will require not only collecting data but also reporting them to people in positions to take action. For example, disaggregated data on student flow and success must be shared with faculty and staff in ways that protect student and colleague confidentiality. Faculty and staff must also be empowered and incentivized to use the data to identify issues, formulate plans, take actions, and evaluate progress.

Take a systemic approach to broadening participation. Our view is that the persistent challenge of broadening participation results from the complex interplay of individual, contextual (e.g., in the classroom, research group, or department), institutional, and systemic factors. To meaningfully “move the needle” on outcomes requires understanding how these factors interact and intervening across them. For example, programs aimed at freshman success in “gateway” courses or providing undergraduate research experiences are important and necessary. However, if the ultimate goal of these efforts is to impact diversity at more distal endpoints (such as the professoriate), they must be coupled with strategies that address the entire career development pathway, including doctoral education, postdoctoral training, faculty appointments, grant making, and promotion and tenure criteria. Additionally, it is important to consider the extent to which traditional measures of merit (and the incentive structures they produce) continue to serve the life sciences community and efforts to broaden participation. For example, there is evidence that, at a population level, women and students from URM backgrounds are disproportionately motivated to pursue science because of the ability to apply scientific knowledge to real-world problems (Thoman et al., 2015; Diekmann et al., 2016; Jackson et al., 2016). Therefore, continued emphasis on traditional research topics approached in traditional ways that do not emphasize or promote how scientific knowledge can be used to address practical problems may differentially impact their academic and career advancement.

Leave “the pipeline” framework behind. No metaphor is so deeply entrenched in conversations around the scientific workforce in general and diversity in particular as “the STEM pipeline.” However, we firmly believe that this metaphor poorly describes the development of scientists (Cannady et al., 2014). “The pipeline” implicitly limits pathways for entry and reentry into the scientific enterprise and shifts focus away from systemic issues that differentially impact the participation of scientists from various backgrounds. We explicitly asked authors in this special issue not to use this term in their manuscripts and instead to focus on “career development pathways” or the development of the “talent pool.” Metcalf’s essay in this issue uses critical theory to illuminate the limitations of the pipeline metaphor and the necessity of questioning popular models of...
scientific development and retention (Metcalf, 2016). To be clear, although the term “pipeline” is problematic, we support many of programs and structures that were catalyzed by this metaphor and that have resulted in participation gains in life sciences education and career development.

Oftentimes, the case for broadening participation efforts is made for reasons that range from increasing innovation, to ensuring the United States maintains an adequate domestic talent supply in the context of changing demographics, to correcting historical injustices (Page, 2008; National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, 2011). While all of these justifications are valid, our hope is that we will soon move to a world in which the opposite question is asked: Why would we not do everything we can to broaden participation? The system we have has served us well, but it needs to evolve in a manner that will serve us optimally in the future. As there is no evidence that scientific potential or ability are coupled with the social and demographic categories we use to describe ourselves, broadening participation will allow the life sciences community to cultivate and harness all available talent to identify and address pressing scientific and societal concerns.

REFERENCES


Gibbs KD Jr, Griffin KA (2013). What do I want to be with my PhD? The roles of personal values and structural dynamics in shaping the career interests of recent biomedical PhD graduates. CBE Life Sci Educ 12, 711–723.


ANNUAL Meeting Preview Section

Cellular Communities of Bacteria and More Coalesce at ASCB 2016

Bacteria may seem like exceedingly simple and lonely organisms, but more and more evidence shows they can communicate, act collectively, and respond to their changing environments. At the 2016 ASCB Annual Meeting “Cellular Communities” Symposium, Bonnie Bassler, professor at Princeton University and Howard Hughes Medical Institute (HHMI) investigator, and Dianne Newman, professor at the California Institute of Technology and HHMI investigator, will share their latest research on bacterial communities. Jürgen Knoblich, professor at the Institute of Molecular Biotechnology in Vienna, Austria, will also speak in the Symposium, about his work in stem cell communities.

Newman studies how bacteria survive in stationary phase, or when they’re not rapidly doubling their population. “Less attention is paid to this phase of bacterial growth at the molecular level, historically. But in nature this phase of growth is much more representative of how bacteria actually live,” Newman said. Her lab has been focused on investigating secondary metabolites, small molecules that are products of metabolism, made by bacteria under these conditions. “We’ve been studying their biology, what they do for the organisms that produce them…. We’ve found [secondary metabolites] have many primary functions for survival, including contributing to biofilm development as signaling molecules and facilitating energy generation and iron acquisition,” Newman said.

The Newman lab’s latest studies have focused on Pseudomonas aeruginosa. “You can find it everywhere, in many different habitats. Where it’s become notorious is in the lungs of cystic fibrosis patients. It’s well adapted to surviving in the lung as it fills with mucus,” she said. While investigating a class of secondary metabolites made by Pseudomonas called phenazines Newman and colleagues recently discovered that “an enzyme [that degrades a particular phenazine] actually inhibits biofilm development. We weren’t expecting it to have the impact that it did. We are excited about potential therapeutic possibilities,” she said.

“Our studies have just begun to scratch the surface about what these metabolites are doing. There is so much in the microbial world that hasn’t been looked at, because classical reductionist laboratory studies were not designed with high fidelity to nature,” Newman said. Not that these past studies weren’t tremendously valuable, Newman and Bassler pointed out. “The reductionist approaches [of the past] have positioned us to learn something meaningful when we take on new challenges outside the flask,” Bassler said.

Bassler researches “how bacteria communicate, count their numbers, and control their collective behaviors, and that’s called quorum sensing,” she said. Bassler first learned about bacterial communication at a conference...
where Mike Silverman “showed that these obscure glow-in-the-dark marine bacteria made light in unison,” she said. Bassler was captivated by the possibility and went on to do a postdoc in his lab, and she has been studying bacterial communication since.

“Bacteria use multiple molecules to talk. For example, there will be a molecule that is exquisitely species specific, that’s how bacteria count their kin, another molecule says ‘I’m your cousin,’ and another is generic for all bacteria. The bacteria interpret these and they do different things depending on whether they and their kin are in the majority, or whether other bacteria are in the majority,” Bassler explained. And there are plenty of these types of molecules waiting to be identified, she said.

The Bassler lab recently discovered a molecule made by bacteria in the human microbiome that helps us fight pathogens. “In the microbiome, bacteria live on all kinds of substrates that we feed them, but they also live on mucin, the mucus that covers the intestinal lining....[T]he microbiome digests that and they use the threonine from it, and make a molecule, an autoinducer, that pathogens interpret and disperse... it reduces infectivity,” Bassler said.

Bassler, too, is exploring the therapeutic potential of her work. “My lab is making synthetic molecules that are able to turn on or off quorum sensing on demand. These molecules are being developed into medicines, applications for industry, coatings for surfaces, and infection-resistant materials,” she said. But Bassler warned that clinical applications are a ways off. “The molecules exist and they work in a test tube, but we have to figure out how to deploy them safely and smartly.”

Both Bassler and Newman are in awe of their micro subjects, and excited by the possibilities they present. Said Newman, “there is so much basic science to discover in understanding how bacteria survive.” “Bacteria are ingenious; it’s a privilege to get to figure this stuff out. We have to have humility; bacteria have had 4 billion years to establish themselves. They’re so sophisticated, and we assume they’re so simple, and they’re not,” Bassler says. ■

—Christina Szalinski
Keynote

Genes, Genomes and the Future of Medicine
Richard P. Lifton
The Rockefeller University/HHMI

Symposia

Mechanical Forces in Cell Biology
Matthieu Piel
Institut Curie, Paris, France
Jody Rosenblatt
Huntsman Cancer Institute, University of Utah
Valerie Weaver
University of California, San Francisco

Organelle Organization
Jodi Nunnari
University of California, Davis
Tobias Walther
Harvard/HHMI

Disease Informing Cell Biology
Joseph G. Gleeson
University of San Diego and The Rockefeller University/HHMI
Vamsi Mootha
Massachusetts General Hospital

Quality Control
Anne Bertolotti
MRC Laboratory of Molecular Biology, Cambridge, UK
Laurie Glimcher
Weill Cornell Medical College
Ramanujan “Manu” Hegde
MRC Laboratory of Molecular Biology, Cambridge, UK

Join the conversation.
#ASCB16
Imaging the Cell in the 21st Century: Challenges and Opportunities in Fluorescence Microscopy

Organizers: Hari Shroff, NIBIB/NIH and Justin Taraska, NHLBI/NIH
Sunday, December 4
4:15 pm-6:10 pm

Learn the answers to key questions about imaging: What sets the spatial resolution in a super-resolution experiment? How can one image in thick samples with a quality comparable to that in single thin cells? What are the prospects for better and brighter probes? Which imaging technology is right for a biological problem? How can different methods be correlated to provide information from multiple modes of imaging in the same sample?

Cryo-EM: What It Can Do Now and How You Could Get Started

Organizer: Grant Jensen, California Institute of Technology/HHMI
Monday, December 5
4:15 pm-6:10 pm

This workshop will begin with explanations of the fundamental challenges in biological EM; the key principles of cryo-preservation, electron imaging, and detector technologies; and the three basic modalities of cryo-EM (electron crystallography, single particle analysis, and tomography). It will then provide updates on what each modality can do now, who should be thinking about trying cryo-EM, and National Institutes of Health plans to establish regional cryo-EM centers.

Leveraging CRISPR for Precision Biology

Organizers: Jacob Corn, University of California, Berkeley, and Martin Kampmann, University of California, San Francisco
Tuesday, December 6
4:15 pm-6:10 pm

This in-depth workshop will cover the use of CRISPR-based approaches for genome-wide genetic screens, including loss-of-function screens (CRISPR nuclease, CRISPRi) and gain-of-function screens (CRISPRa). It will also cover basic and advanced genome editing using CRISPR-based tools and topics such as guide RNA design, evaluation of off-targets, ways to improve efficiency, and working in cells and organisms.

Visit ascb.org/2016meeting/workshops for more information
Special Interest Subgroups

Plan to arrive early to attend Special Interest Subgroup Sessions!

This is where ASCB members totally drive the scientific agenda; the focus of Saturday is on a wide range of topics self-organized by groups of interested scientists. These are among the most popular scientific sessions at the ASCB meeting, which is why we are now offering two separate sessions on Saturday, starting at 8:30 am!

Saturday Morning Subgroups
8:30 am – 12:30 pm

Subgroup A: Small GTPase Regulation of Membrane Traffic in Health and Disease
Organizers: Suzanne Pfefter, Stanford University; and Yuxiao Wang, University of California, San Francisco

Subgroup B: Neuronal Cell Biology: Cytoskeleton and Trafficking
Organizers: Stephanie Gupton, University of North Carolina, Chapel Hill; and Laura Anne Lowery, Boston College

Subgroup C: Actomyosin Contractility: From Reconstituted Networks to Morphogenesis
Organizers: Ronen Zaidel-Bar, Mechanobiology Institute Singapore; Margaret Gardel, University of Chicago; and James Sellers, NIH/NHLBI

Subgroup D: Emerging Model Systems
Organizers: Bob Goldstein, University of North Carolina at Chapel Hill; and Nicole King, University of California, Berkeley/HHMI

Subgroup E: Crosstalk between Autophagy and Secretion
Organizers: Hesso Farhan, University of Oslo, Norway; and Mondira Kundu, St Jude Children’s Research Hospital, Memphis

Subgroup F: Bottom-Up Cell Biology
Organizers: Daniel Fletcher, University of California, Berkeley; and Matthew Good, University of Pennsylvania

Subgroup G: Evolutionary Cell Biology
Organizer: Holly Goodson, Notre Dame University

Subgroup H: Science with Undergraduates: Authentic Experiences from the Laboratory to the Classroom (and in Between)
Organizers: Derek A. Applewhite, Reed College; Sabrice Guerrier, Millsaps College; Omar A. Quintero, University of Richmond; and Joshua C. Sandquist, Grinnell College

Subgroup I: “CRISPR-Trac”: Live Cell Dynamics of Chromosomes and Transcripts Interrogated by Cas9-sgRNA Labels
Organizers: Thoru Pederson, University of Massachusetts Medical School; and Robert H. Singer, Albert Einstein College of Medicine; Howard Hughes Medical Institute, Janelia Campus

Subgroup J: Patterning the Cytoskeleton: PTMs, MAPs and ABPs
Organizers: Kristen Verhey, University of Michigan Medical School; and Antonina Roll-Mecak, NINDS/NIH

Saturday Afternoon Subgroups
1:30 pm – 5:30 pm

Subgroup K: Accelerating Science and Publication in Biology (ASAPbio)
Organizers: Prachee Avasthi, University of Kansas Medical Center; and Jessica Polka, Accelerating Science and Publication in Biology (ASAPbio)

Subgroup L: Using the Human Protein Atlas - Tips and Tricks
Organizer: Tove Alm, KTH Royal Institute of Technology

Subgroup M: Emerging Roles of ROS-Related Redox Signaling in Cell Biology
Organizers: Daniel M. Suter, Purdue University; Christian Gonzalez-Billault, Universidad de Chile; and Jonathan R. Terman, University of Texas Southwestern Medical Center

Subgroup N: The Cell Biology of Stem Cells
Organizers: Diane Barber, University of California, San Francisco; Rick Horwitz, Allen Institute for Cell Science, Seattle; Michael Graham Espey, NCI/NIH

Subgroup O: 4th Biannual Frontiers of Cytokinesis
Organizers: Amy Maddox, University of North Carolina, Chapel Hill; Doug Robinson, Johns Hopkins University; and Dimitrios Vavylonis, Lehigh University

Subgroup P: Building the Cell 2016
Organizer: Susanne Rafelski, Allen Institute for Cell Science, Seattle

Subgroup Q: Translational Cell Therapy for Cancer
Organizer: Betsy Foss-Campbell, Society for Immunotherapy of Cancer

Subgroup R: Mechanisms and Consequences of Cell Size Regulation
Organizers: Fred Chang, University of California, San Francisco; and Orna Cohen-Fix, NIDDK/NIH

Subgroup S: Nanotechnology Approaches for Interrogating Cell Signaling
Organizers: Young-wook Jun, University of California, San Francisco; Bianxiao Cui, Stanford University; and Shawn Douglas, University of California, San Francisco

Subgroup T: Cilia, Signaling, and Human Disease
Organizers: Peter K. Jackson, Stanford University School of Medicine; and Jeremy Reiter, University of California, San Francisco

Wednesday Subgroup
8:30 am – 11:05 am

Subgroup U: Understanding T Cell Activation, Developing Tools for Cancer Immunotherapy
Organizer: Xiaolei Su, University of California, San Francisco

www.ascb.org/2016meeting
NEW Super-Resolution Systems From Nikon

Image live cells at nanoscale resolution with Nikon’s all-new N-STORM 4.0.

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Gleeson believes that “next-gen” sequencing promises new treatments with its fast and cheap genetic screening, but without understanding the mechanisms of the proteins encoded in those genes it’s difficult to take genetics to the clinic. A marriage of cell biology and medicine is an essential next step, according to Gleeson.

Gleeson will be joined in the Symposium by Vamsi Mootha, HHMI investigator and a professor of Systems Biology and of Medicine at Harvard Medical School. Both speakers have medical backgrounds, and both are investigating fundamental biology as it relates to disease. Mootha’s research team works to elucidate the network properties of mitochondria and how these properties go awry in human disease. His lab recently published evidence that the hypoxia response, the body’s reaction to low oxygen levels, could alleviate symptoms of mitochondrial disease in mice. His lab is now investigating the long-term safety and optimal treatment regimen in animal models.

Gleeson’s scientific career illustrates how two-way information traffic can bridge clinical work and basic research. He studies neurodevelopmental diseases and his interests flow from his years as a clinician in child neurology when he became increasingly frustrated that there was little he could do for so many of his patients. “I felt I needed to try a different approach. The textbooks in neurology, especially in the pediatric realm, are mostly descriptive; there’s no connection to genetics or cell biological pathways. For the most part we lack the abilities to make a specific diagnosis and to treat for that reason, and you can’t treat if you can’t diagnose. My research approach was to get into special populations or disease types where we were going to have power to make discoveries that could improve diagnosis and treatment,” Gleeson says.

Gleeson spends a month in the Middle East every year, in places where consanguineous marriages are fairly common, recruiting families with a broad range of neurodevelopmental diseases. “Often we have no idea how to classify the patients; they have features of autism, epilepsy, neurodevelopmental diseases, or developmental delays in some way,” Gleeson said. His team identifies a mutation by sequencing the patients’ genes and looks for other families with the same mutation. “Once we spot that gene that’s mutated, we can go back and find the commonalities and make predictions about what the cell biology will reveal to us.”

Yet with exome sequencing, his team is unable to identify mutations about half the time, suggesting that there may be mutations hiding in the noncoding region, Gleeson said. In some patients where they are able to find gene mutations, it is still difficult to develop treatments that target those mutations. “Some genes are enzymes and we can have a pretty good idea about how we can change the enzymatic activity or alter substrate or product to bring a treatment, but a lot of them are structural scaffolding proteins or don’t have any known function. Figuring out how to bring those toward treatment is going to be a challenge,” Gleeson explained.

Despite challenges, Gleeson is hopeful. “We’re heading to an era where we’re going to be able to have much more precise information we can provide to families with [neurodevelopmental] conditions....”

“We’re heading to an era where we’re going to be able to have much more precise information we can provide to families with [neurodevelopmental] conditions....”

ANNUAL Meeting

Using Disease, continued from p. 1

“[N]ext-gen” sequencing promises new treatments... but without understanding the mechanisms of the proteins encoded in those genes it’s difficult to take genetics to the clinic.

—Christina Szalinski
engineering flow in. A biochemist by degree, a cell biologist by postdoctoral training, and a cell-centered bioengineer by practice, Weaver is now Director of the Center for Bioengineering and Tissue Regeneration at the University of California, San Francisco (UCSF). She is also a speaker with Matthieu Piel of the Institut Curie in Paris and Jody Rosenblatt of the Huntsman Cancer Institute at the University of Utah in the “Mechanical Forces in Cell Biology” Symposium at the 2016 ASCB Annual Meeting this December in San Francisco.

The Symposium organizers are expecting a diverse audience—bioengineers curious about cell biology sitting elbow-to-elbow with cell biologists eager to hear the latest bioengineering technological insights. The research presented should be highly diverse as well, says Weaver, as mechanical force research has exploded in all directions. “In our lab, we’re working on everything from nano scale [interactions] to recruiting of single molecules. We’re looking at how it influences membrane curvature, receptor recycling, nuclear reorganizing—basically the whole nine yards, and, of course, cancer.”

This was not the situation at ASCB 2000 when Weaver and her lonely grad student presented their work. At other meetings and on campus, Weaver herself felt a little isolated scientifically. The year before, Penn had recruited Weaver from a postdoc in the Lawrence Berkeley National Laboratory with Mina Bissell, a pioneer of mechanical force and physical context in breast cancer. (At ASCB 2016, Bissell will receive the E.B. Wilson Medal, the ASCB’s highest honor for her lifetime work on extracellular matrix [ECM] in tumorigenesis.) That Weaver was recruited from a cell biology lab to a research institute for medical engineers was an indication that scientific thinking was already changing.

The first years at Penn, though, were tough. Her engineer colleagues, working on large-scale problems such as bone shear or bioreactor design, were largely baffled by Weaver’s work on the cellular level. She was building 3-D models of the ECM to see if mechanical stiffness alone could disrupt normal breast tissue growth and induce tumor formation. At the same time, Weaver found it difficult to lure potential grad students from cell biology and cancer labs across the Penn campus to join her in a medical engineering building. “They were intimidated by all the heavy machinery in the building,” she recalls.

Eventually Weaver snagged a student with an undergraduate background in nuclear engineering and convinced her that mechanical force plays a fundamental role in cells and that this would be a big field one day. “It is such a fundamental regulator of every aspect of how the cell operates and tissues function,” says Weaver. Adding mechanical force to the cellular context changes everything. “The cell seems to be doing something fundamentally different. It’s changing the cell’s physiology. It’s changing gene expression.”

These days, bioengineers and cell biologists who study mechanical force at the cellular level are not lonely at ASCB. Weaver couldn’t be more pleased. “It took quite a while and now that it’s a presence, it’s only going to increase.”

A look at the work of the other two Symposium speakers, Piel and Rosenblatt, shows some of the startling new directions that mechanical force research is taking cell biology. The Institut Curie’s Piel has helped to puncture the myth of the untouchable cell. The Piel lab has shown that mammalian cells migrating through narrow passages can be squeezed so hard that nuclear proteins leak from, and cytosolic proteins leak into, the cell nucleus, affecting the cell’s behavior and chances for survival. At the Huntsman Cancer Institute, Rosenblatt has taken a closer look at a seemingly humdrum piece of cellular housekeeping—how epithelial cells get rid of their dying neighbors by extrusion—to reveal a powerful force in

“The [neighboring epithelial cells] respond by forming actin and myosin contractile rings around the dying cells that pop them out of the tissue like spitting seeds from a watermelon.”
morphogenesis and a vulnerable gateway for attacking pathogens. Cells entering apoptosis signal their impending doom to neighboring cells. The neighbors respond by forming actin and myosin contractile rings around the dying cells that pop them out of the tissue like spitting seeds from a watermelon. Rosenblatt has shown that physical extrusion is also a prime defense for epithelial tissue, keeping a tight seal against bacterial pathogens. But when extrusion is defective, pathogenic invaders can coopt the process and use it as a path for infection.

With such a diverse mix of disciplines, technologies, and new ideas, Weaver says that physical force cell biology is poised for an explosion in discovery. “We’ve got super tools and exciting concepts. Who knows what we’ll discover? There’s a whole world of exciting cell biology that we can take a look at now.”

—John Fleischman
Career Development Programs and Events at the Annual Meeting

The Annual Meeting offers a wealth of programs and events to give you the tools, insights, and inspiration you need to advance your career or explore a new career trajectory.

- Career Awareness and Development Resources for Junior Scientists
- Applying for the NIH K99
- Confident Career Decision-Making through Internships
- Green Cards for Scientific Researchers: U.S. Immigration Options
- Navigating the Faculty Job Search
- Exploring and Preparing for a Faculty Career
- Career Panel: Entrepreneurship and Consulting
- Career Panel: Industry
- Career Panel: Science Communication
- Career Panel: Science Policy
- Career Panel: Teaching and Administration
- Delivering Science: Effective Communication Skills to Become a Successful Scientist (Future of Research Group Workshop)
- International Affairs Committee Research and Training Exchange Fair
- MD/PhD, Is It Right for Me?
- Mentoring in Research
- One-on-One Career Coaching
- One-on-One CV Review
- Science Writing Lecture and Workshop
- Vendor Networking Happy Hour
- Your Most Important Lecture: How to Give an Effective Chalk Talk
- Meet the Editor of CBE—Life Sciences Education
- Meet the Editor of Molecular Biology of the Cell
- Poster Competition and Reception
- Biotech Mini-Course (Friday, Dec. 2)
- Advocacy Toolbox
- Career Discussion and Mentoring Roundtables
- E.E. Just Award Lecture
- Mentoring Keynote
- Women in Cell Biology Network Reception
- Women in Cell Biology Mentoring Theater
- From Application to Interview: A Guide to Getting into Graduate School
- Hit the Ground Running: Early Success in Graduate School
- Planning Your Exit from Graduate School
- Negotiation: Getting a Faculty Job
- Mentoring Up: Communication Style Assessment for Postdocs and Junior Faculty
- How to Set Up and Manage Collaborations

Education Programs/Events

Workshop: Teaching All Students—Inclusive Pedagogy in Higher Education

Workshop: Using Cancer Resources to Actively Engage Introductory and Cell Biology Students (complimentary but pre-registration required; includes lunch)

Special Interest Subgroup: Science with Undergraduates: Authentic Experiences from the Laboratory to the Classroom (and in Between)

Foundational Cell Biology Workshop—Promoting Success of ALL Students in the STEM Classroom

Education Minisymposium—Evidence-Based Education: Evaluation of Cell Biology Innovations

Undergraduate Program—Animating Cell Biology
Janet Iwasa, University of Utah

High School Program—Explore the World with a Fold-Your-Own Microscope
Manu Prakash, Stanford University (outdoor program; capped at 100 students)

Bruce Alberts Award for Excellence in Science Education, presented to David Lopatto, Grinnell College

How Do You Solve a Problem Like Science Denial? One Conversation at a Time
Ann Reid, National Center for Science Education
Graduate Students and Postdocs

Organizing a One-Day Local Meeting?

Apply for an Early Career Meeting Grant
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Accelerate Your Career
ASCB helps to fund and organize your local meeting. Such meetings will typically involve two or more local research institutions or colleges (within or outside of the USA). Topics may range from basic science to career development, with a clear relevance to the broadly defined field of cell biology.

For more information go to ascb.org/earlycareermeetinggrants or email hkyler@ascb.org.

Deadline for Applications: September 15, 2016

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Planning for San Francisco—The Science of the Future Is Here!

San Francisco has easily become one of the most popular destinations for both business and pleasure. You name it, San Francisco has it. More importantly, some of today’s top science is being conducted right here! Come see what all the hype is about and meet other experts in your field.

Come Early, Stay Late
Take the time to enjoy all that San Francisco has to offer. Whether it’s fantastic food, amazing sites, or exciting activities you’re interested in, you’ll find it in San Francisco. Go ahead, enjoy the California cuisine, tour Alcatraz, take in the Golden Gate Bridge view, or venture out to the breathtaking Muir Woods.

Housing
Be Sure to Book Your Hotel with onPeak, ASCB’s Official Housing Partner
Through onPeak, the ASCB has secured a limited number of hotel rooms at specially reduced rates to make your trip to San Francisco affordable. Student rates are available for ASCB Student Members on a first-come, first-served basis. Reasons why you should book within the block:

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- **Convenience:** A one-stop travel shop is at your service.
- **Support:** We’re your advocate before, during, and after your stay.
- **Reputation:** Uptake of rooms in the housing block demonstrates ASCB’s value to cities in which it holds meetings.

Visit www.ascb.org/hotelinformation for more information or to book a room.

Room-Share Information
The ASCB provides a room-share service for all registered meeting participants. Visit www.ascb.org/2016meeting/2016roomshareapplication for more details. Applications can be submitted through November 17. While applications can be received through November 17, please be advised that special ASCB hotel rates are guaranteed through onPeak only until November 10, 2016.

Final 2016 ASCB Annual Meeting Program and Mobile App
The final Program will be available online for viewing/download approximately three weeks prior to the meeting. A mobile app will be available at that time, at www.ascb.org/2016meeting or by searching for “ASCB2016” in your app store. Printed copies of the Program will be available for pick-up in the Registration area onsite.

Already Registered but Need to Access Your Registration?
Visit https://my.ascb.org/portal/#myascbmeeting to:

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“I never miss the ASCB Annual Meeting. It’s the best place to catch up on the latest in cutting edge cell biology research at the symposia, minisymps, and posters. It’s where I learn about the latest technologies at the exhibits. And best of all, it’s where I see old friends and make new ones.”

—Jean Schwarzbauer
Avoid Carrying Your Poster to the Meeting

Makesigns.com will be the ASCB’s poster printing service for the 2016 Annual Meeting. Makesigns.com will print posters 42 inches high by 66 inches wide on glossy paper or on fabric. Information about the poster printing service will be sent to all poster presenters in their notification emails and is also available at www.ascb.org/2016meeting under “Present.” The cost for each glossy paper poster is $68.94, and the cost for each fabric poster is $149.87. Shipping is free on orders placed by 12:00 pm CST on Wednesday, November 23. The last day to upload your poster for printing and pick-up at the Convention Center is November 28, 2016, at 12:00 pm CST.

Did you know?
You Can Still Submit an Abstract for the 2016 ASCB Annual Meeting

You still have time to submit an abstract for poster consideration for the 2016 ASCB Annual Meeting, to be held December 3–7, 2016, in San Francisco. October 13 is the final deadline. We welcome the latest, hottest science!

Are there nonmembers in your lab who want to submit abstracts?

- Now is the time to encourage them to join ASCB. Our “one-stop-shop” will allow submitters to apply for membership and submit their abstract with one payment without leaving the abstract submission site. They will also be eligible for the discounted member-only registration rate for the meeting.
- Nonmembers will pay a higher submission fee if they choose not to join the ASCB, so why miss out on the savings?

Members can save up to 33% on registration/abstract fees.

For more information go to www.ascb.org/2016meeting and click “Submit Abstract.”

ASCB Poster Competition Judges Needed

The ASCB Minorities Affairs and Education Committees are looking for judges for the ASCB Poster Competition that will be held during the 2016 ASCB Annual Meeting in San Francisco, on Saturday, December 3, 2016, from 3:30 pm–5:30 pm. There will be 80–100 posters to judge, but no more than two or three per judge.

If you are interested in judging, please sign up at https://my.ascb.org/initiatives/#/apply/75.
If you have any questions, please contact Christina Szalinski at cszalinski@ascb.org.
ASCB Learning Center 2016: More to See, More to Touch, and More to Do!

The ASCB Learning Center (Exhibit Hall) is the hub of the 2016 Annual Meeting, the place you can come for a personal tour of new technologies, products, and services that you've been considering. Here you can get your questions answered, face to face. Here you can try out lab equipment or materials before buying. You'll find the newest technologies and products. You can look through the latest books and talk to journal editors, one on one. Maybe you'll even win a prize or at least score some science swag.

At the heart of the Learning Center are ASCB's famous poster aisles, where ideas, data, and careers are shaped, and the more than 200 companies presenting interactive and up-close demonstrations of their products and services. In today's accelerating research world, the Learning Center is where you can find what you need now—or what you will need tomorrow—for your research.

We've made it easy to schedule time to visit the Learning Center. On Sunday, Monday, and Tuesday, we've set up a special three-hour period—12:00 pm–3:00 pm—when all programming takes place in the Learning Center. Come have lunch in the Learning Center, visit the exhibits, explore the posters, and attend Tech Talks. It's a chance to recharge your batteries (both biological and mobile) for the afternoon and evening science presentations.

Seasoned meeting attendees know that there's no better way to learn about new technologies than by talking to the experts at the exhibit booths. Let an exhibitor swipe your badge and more information will come to you after the meeting. Swiping your badge is a painless way for you to support the ASCB Annual Meeting, since exhibitors highly prize the contacts they make with researchers. You'll be helping ASCB build better meetings in the future.

Tech Talks, Publisher’s Row, and the Mobile App

Choose from more than 30 Tech Talks presented by exhibitors Sunday–Tuesday from 7:00 am–7:45 pm. These presentations will be in two dedicated venues—one right inside the ASCB Learning Center and one by the entrance—as well as in exhibitor booths. Check out these special opportunities to learn more about products and technologies from the experts.

Browse Publishers' Row to see a display of new books, media, and journals. The ASCB journals, Molecular Biology of the Cell (MBoC) and CBE—Life Sciences Education (LSE), will have their own booth. Visit booth 423 for opportunities to meet editorial board members from MBoC.

Looking for a particular product? You can check the Annual Meeting Program and the Meeting Mobile App (with multimedia links) for a full description of every exhibitor's product line. In addition, exciting new product launches are hyperlinked from the meeting website and you'll find special offers from the exhibitors in the Coupon Book that will be available onsite.

The Annual Meeting Program and the Meeting Mobile App (iPhone and Android) will be available online approximately three weeks before the meeting at www.ascb.org/meetings. Your print copy of the Program will be waiting for you at the Moscone Center.

“Join us for ASCB2016! Come share rich scientific experiences and the unique career building opportunities with current and future peers and colleagues.”
—Andrew G. Campbell
Fed Central
Want to discuss the status of current grants, the potential for future funding, and other types of collaborations with federal agencies? You’ll find the connections you want waiting in the dedicated Fed Central area.

Startup Central
Startup Central is the place to find innovative startup companies. Startup Central has expanded this year and includes LipoType GmbH, Montana Molecular, Nanolive SA, NanoSurface Biomedical, Open Imaging, Inc., Tag Optics, Scientist, and VitaScientific.

Career Insights and Inspiration
The Learning Center is also the home of the ASCB Career Center and of Roundtable Central, where the always popular Tables Talks, Career Discussion and Mentoring Roundtables, and Science Discussion Tables take place.

Refreshments and Commentary
The exhibits will be open Sunday–Tuesday from 9:30 am–4:00 pm. Come to the ASCB Learning Center each morning after the first Symposium of the day to enjoy refreshments from 9:30 am–11:00 am. In the afternoon, a cold drink and snack will be available from 1:30 pm–3:30 pm.

On Tuesday, stop by the Learning Center Theater at 3:00 pm to experience Celldance 2016 and the Elevator Speech Contest. Grab a snack and a good seat for the live world premiere of three “Tell Your Cell Story” videos from leading ASCB member labs. The video makers will be on hand for commentary and questions. Then it’s time for the winning Elevator Speech Contest Videos.

Make the ASCB Learning Center your meet-up point or daily rest stop. Prepare to be wowed by the science in the poster aisles and the exciting new science technologies and insights offered in the exhibitor booths!

To view a list of 2016 exhibitors and their products, go to www.ascb.org/2016meeting/exhibitors-list.

—Louise Campbell-Blair, Director, Business Development

Companies Giving Tech Talks*

ACEA Biosciences, Inc.  
Allen Institute for Cell Science  
Andor Technology  
ASI/Applied Scientific Instrumentation  
BioLegend  
BioTek Instruments, Inc.  
Bitplane, Inc.  
Bruker Corporation  
Carl Zeiss Microscop, LLC  
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eLife  
Horizon Discovery  
Illumina, Inc.  
Leica Microsystems  
NemaMetrix, Inc.  
Nikon Instruments, Inc.  
Photometrics  
PLOS (Public Library of Science)  
Science for Life Lab  
Semrock, a part of Idex Health and Science  
Thermo Fisher Scientific  
Startup Central Exhibitors

*As of August 24, 2016

New Technology Launches
Organizations launching new technologies from the ASCB Learning Center include ALVEOLE, Science for Life Lab, Ximbio, and more! Check them out at www.ascb.org/2016meeting-tech-launches.

Visit the NEW Artists’ Row
A showcase of cell biology-themed arts and crafts for your last-minute holiday gifts! Meet the artists who create them.
The ASCB thanks the following organizations for supporting the 2016 ASCB Annual Meeting*

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- International Center for Genetic Engineering and Biotechnology (ICGEB)
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The ASCB thanks the following organizations for supporting the 2016 Doorstep Meeting on the Cell Biology of Cancer

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www.ascb.org/career-development-resources/
If we can’t eliminate implicit bias, we can teach people the personal and structural actions they can take to neutralize its impact.

Implicit bias is the buzzword of the moment. Departments, universities, medical schools, hospitals, companies, police departments, professional societies—all are reaching out to anyone offering any sort of education about implicit bias for their members. August bodies such as the National Institutes of Health (NIH), the National Academies, and the National Science Foundation have all pointed to implicit bias as one of the important factors contributing to the loss of women in science, technology, engineering, mathematics, and medicine (STEMM) careers. Current campus activism and protests—primarily by undergraduate students of color but including all academic personnel concerned with the lack of diversity and inclusive climates—have also brought attention to the role of implicit bias in creating inequitable conditions. It is not surprising that organizations are looking for education on the topic in the hopes of improving the climate and overall diversity of their workplaces.

At the same time, how do we know that a focus on implicit bias will catalyze the changes we seek? Surely there is more than implicit bias at play in creating the wide disparities we see—for example, the fact that about 53% of PhDs in biology go to women, but only 46% of assistant professors and only 31% of associate professors of biology in U.S. universities are women. If an organization invests in implicit bias education for its members, what can it expect in return?

What Is Implicit Gender Bias?
Humans process information not only in the conscious, intentional, explicit way that we typically think of when making decisions or speaking our minds, but also in an unintentional, unconscious, implicit way. In the case of unconscious gender bias, preconceptions based on common societal gender stereotypes filter our processing of information. For men, the common stereotypes are described as “agentic”—possessing action-oriented qualities such as being strong, decisive, risk-taking, and independent. Women are typically stereotyped as “communal”—possessing interpersonal qualities such as being kind, supportive, nurturing, and caring. Because of the unconscious application of these stereotypes, identical information about a man and a woman is perceived, interpreted, and acted upon differently. This process is almost always unintentional and occurs without awareness.

STEMM fields have typically been populated by men and are assumed to require agentic qualities for success. This creates a problem for women because stereotyped assumptions about women, applied unconsciously, can limit their opportunities and diminish their perceived competence in the field.

What Does It Take to Reduce or Eliminate Implicit Gender Bias?
Breaking the “habit” of unintentionally applying stereotyped assumptions about individuals requires more than good intentions. Like when breaking any bad habit, one must be motivated to act without bias, one must have the knowledge and ability to know when implicit bias is at play; one must have the skills to break the habit, and one must then engage in deliberate practice to break that habit. In 2010–2012, with funding from the NIH, our team developed a 2.5-hour workshop to provide participants with the motivation, knowledge, skills, and practice needed to assist university STEMM faculty in their goals to break the habit of implicit gender bias. More information about the workshop we implemented, including...
information on how to obtain the workshop materials, is available on our website: http://wiseli.engr.wisc.edu/breakingbias.php.

Motivation. To motivate our participants to want to engage in bias-breaking actions, we asked them to take an online Implicit Association Test (IAT), a timed sorting task. The IAT we used was directly related to the subject of women and leadership. (There are many IATs that could motivate someone to explore their own biases.) Especially among people who pride themselves as being objective, rational scientists, it can be highly motivating to uncover the unflattering reality that one has implicit biases that disadvantage groups of people. We also motivated attendees to work on their own implicit biases by showing the impact of these biases on outcomes and processes important to them (e.g., publishing and obtaining grants).

Recognizing Implicit Bias in the Workplace. We presented our workshop participants with six “bias constructs”—common manifestations of implicit gender bias in academic workplace settings. For each construct, we provided a definition and an example from either an empirical study or real-life. Participants practiced recognizing these biases in typical academic settings by working through case studies together. Just as physicians must diagnose a disease before they can properly treat it, we provide participants with the ability to recognize and name implicit gender biases so they can take corrective action to reduce or eliminate the bias. Although our motto has been “if you can name it, you can tame it,” studies show that if participants leave the workshop only understanding that we all have implicit bias, they are likely to act more biased than if they had never participated in the training at all! Thus, it is essential to provide tools the participants can use to reduce their bias.

Bias Reduction Strategies. The practical, specific bias-reducing actions offered by our workshop included structural changes that can be made to reduce bias as well as actions that each individual can take. Examples of structural changes include critically examining the physical environment—are there social cues such as the pictures on the wall that could trigger stereotypes?—and establishing clear criteria for a successful applicant before your search committee reviews any candidates. For individuals, we stressed five “personal bias reduction strategies”:

1. Stereotype replacement—recognize when you are having a stereotyped thought and consciously replace it with accurate information. For example, if you catch yourself thinking that girls are bad at math, replace that thought with the reality that there are no gender differences in math achievement once the number of courses taken is controlled.

2. Counterstereotype imaging—imagine in detail a positive example of a person from a stereotyped group who is effective in their role. Think about an exemplary woman scientist you respect prior to evaluating job applications for a new faculty position.

3. Individuating—gather specific information about an individual from a stereotyped group to prevent group stereotypes from filling in gaps in information. For example, make sure that men and women applicants for a leadership position have the opportunity to demonstrate both their communal and their agentic characteristics.

4. Perspective-taking—imagine in detail what it is like to be a person from a negatively stereotyped group. Imagine what it feels like to have your ideas ignored or to be passed over for a networking opportunity because it involves travel.

5. Increase opportunities for contact—pursue authentic relationships with positive counter-stereotypic individuals. Meet with senior women faculty to discuss their ideas and visions for the future.

We encouraged participants to reflect on the strategies and to consider which strategies they could use or adapt in their everyday life. We then asked each participant to write down a “commitment to action” on how they will specifically use at least one of the strategies in both their work and non-work lives.

What Changed When Faculty Received Implicit Gender Bias Education—and What Didn’t Change?

At the University of Wisconsin-Madison, we pair-matched 92 departments (or department-like units) and randomly selected one department in the pair to receive the workshop, while the other department was a waitlist control (that is, we offered the control...
training, and organizations desperate to eliminate such bias from their spaces are jumping on the bandwagon. Our study shows that implicit bias education can make positive changes in one’s application of bias as well as in one’s workplace climate. However, before you invest in this sort of education in your own units, we recommend that you take a close look at what is being offered. What kind of stereotype-based biases will be covered? Will the group be properly motivated to understand why they should take a look at their own biases? Is the material presented in a way that reduces blame for having implicit bias, while at the same time encouraging participants to take responsibility for reducing it? Most importantly, will the workshop include specific strategies that are targeted to their organizations and/or their own lives that participants can use to reduce the bias? Many educational modules leave out this important step. With education and practice, we can reduce the gender bias habit!

—Jennifer Sheridan and Molly Carnes, University of Wisconsin-Madison

References and Footnotes


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**MBoC Will Consider Previous Reviews of Your Manuscript**

The Editorial Board of Molecular Biology of the Cell (MBoC) may be able to expedite review of a manuscript that has been previously reviewed by another journal if the authors provide the reviewers’ comments, the editor’s disposition letter, and a letter responding to the reviews and stating what changes have been made to the manuscript.

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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.
Congress is considering whether to increase the mandatory set-asides to the Small Business Innovation Research (SBIR) and Small Technology Transfer (STTR) programs. The set-aside funding mechanism takes a portion of the budgets of 11 agencies, including the National Institutes of Health (NIH) and the National Science Foundation (NSF). According to a report in *Science*, SBIR and STTR together siphoned off $2.5 billion from other agencies last year.\(^1\) So the question for cell biologists is, Will this proposed increase harm basic research?

The current authorization for both the SBIR and STTR programs expires in September 2017. The House bill being considered, HR 4783, would increase the SBIR set-aside from 3.46% in FY18 to 4.5% in FY22. The STTR set-aside would increase from 0.45% to 0.6% over five years. The Senate bill being considered, S 2812, would increase the SBIR set-aside from 3.2% to 6% over 10 years. The STTR set-aside would increase from 0.45% to 1% over six years.

At a June 16 hearing of the House Science Subcommittee on Research and Technology, the top Democrat on the subcommittee, Rep. Daniel Lipinski (D-IL), raised the question of whether the increase for these awards could potentially “come at the expense of support for other critical research programs” and limit the flexibility of NIH spending.

Lipinski made a point to emphasize his concerns with the funding process of the SBIR and STTR programs. “Unlike any other program, SBIR and STTR are funded using a percentage of participating agencies’ extramural research and development budgets. That percentage has increased by 30% since 2011, even as the larger budgets have remained flat. While the SBIR program has great value, we must look at it in the context of overall agency budgets admissions.”

Subcommittee Chairwoman Barbara Comstock (R-VA) opened the hearing describing how taxpayer-funded basic research conducted through the NSF, NIH, Department of Defense, and other federal agencies “underwrites the breakthrough science and the key discoveries that have created today’s world.” The panel of witnesses at the hearing included Pramod Khargonekar of the NSF, Michael Lauer of the NIH, Patricia Dehmer of the Department of Energy, and Jilda Garton of Georgia Tech Research Corporation.

Lauer stated that the NIH supports a permanently authorized SBIR/STTR but stressed that there needs to be flexibility on reward size. He noted that researchers have stated that “the biomedical enterprise suffers from hyper-competitiveness with increasing number of researchers competing against each other for relatively fewer available dollars. Historically NIH [grant] success rates have been at 1 in 3 and are now down to less than 1 in 5.” Lauer went on to say that he felt this would threaten the diversity of NIH’s research portfolio.

According to the official House Science Subcommittee on Research and Technology press release, “this hearing was the first step in conducting oversight of the programs and making sure taxpayer dollars are being well spent.”

—is Tommy Mattocks, Public Policy Coordinator

Reference

Researcher Who Made the Fly Fly Again in Genetics Criticizes NIH Narrowing of Model Organism Support

“The NIH’s broad and species-diverse program of basic research during the last 60 years generated a revolution in our understanding of biology and medicine,” writes Allan C. Spradling, professor at the Carnegie Institution for Science in Baltimore and a Howard Hughes Medical Institute investigator, in a PNAS opinion article published July 26. “Given this record, why is the NIH now narrowing its vision for basic research to favor subject matter preselected in-house and emphasizing primarily mammalian models?”

Spradling believes that the “why” driving this narrowing is the misperception by the National Institutes of Health (NIH) leadership that in the postgenomic world, the NIH should favor mammalian research, funding only studies that are tightly focused on human medical conditions. Yet Spradling points out that a broad research focus was actually recommended by NIH’s advisory committee and was supported by Congress. Despite these recommendations, NIH study sections and the NIH administration now seem to regard research with a basic focus as “irrelevant” and have excluded it from initiatives, says Spradling, citing the 4D-Nucleome project.

Spradling’s own career illustrates the unexpected benefits that can flow from seemingly arcane work on nonhuman organisms. Working with ASCB member Gerry Rubin in the early 1980s, Spradling perfected a breakthrough gene-editing system in *Drosophila*, using “P-elements” to insert new genetic material in transposons. Cumbersome by modern standards, the P-element technique was, in its time, a revolutionary tool. It revitalized fly genetics by giving researchers a practical way for the first time to genetically engineer the germline of a multicellular animal. That allowed fly geneticists to begin to explore structure–function questions in flies, work that suggested the scientific bonanza that could follow the sequencing of an entire genome. That, in turn, led to the *Drosophila* Genome Project, which became the proving ground for Craig Venter’s controversial “shotgun” sequencing technique, which proved to be an essential tool for the Human Genome Project.

In his PNAS opinion piece, Spradling calls on the scientific community to continue to make the case for basic research to the public and to Congress. “[S]tudies with a broad range of models advance our understanding of conserved biological mechanisms and cannot be replaced by increasing the number of narrowly focused studies,” warns Spradling.

—Christina Szalinski

Reference

Congressional Biomedical Research Caucus

There was standing room only for Robert Langer’s presentation at the Congressional Biomedical Research Caucus on July 8. Langer, of the Massachusetts Institute of Technology, gave a talk entitled “Bioengineering the Future.”

Washington in Review

As Congress nears the end of its legislative session for 2016, here is an update on recent legislative activities that affect biomedical research.

National Institutes of Health (NIH)
The House Labor, Health and Human Services, Education and Other Agencies (Labor HHS) Appropriations committee recommended funding the NIH for FY17 at $33.3 billion. This is $1.25 billion above last year and $2.25 billion above the President’s request. The Senate Labor HHS committee recommended $34 billion for NIH for FY17. This is an increase of $2 billion over FY16 levels.

National Science Foundation (NSF)
The House Appropriations Committee recommended NSF be funded at $7.4 billion in the Commerce, Justice, Science (CJS) and Related Agencies Appropriations bill. This is $57 million below the FY16 enacted level and $158 million below the President’s request. The Senate Appropriations Committee passed a bill similar to the CJS Appropriations bill that would provide $7.5 billion for NSF.

Fetal Tissue Research
The Select Investigative Panel on Infant Lives was formed in the wake of the summer 2015 release of controversial undercover videos allegedly revealing that Planned Parenthood was profiting from the sale of fetal tissue. The panel, created by the Republican majority, hones in on fetal tissue research, the necessity of it, and the bioethics of it.

There have been two hearings thus far. Overall, the Republicans question the need to use fetal tissue in research. Republicans on the Select Investigative Panel are subpoenaing companies, including StemExpress, that were involved in the undercover videos. The Majority members claim to have evidence that some clinics are selling fetal tissue for profit—a violation of federal law. There is no word on when the next hearing will be or what evidence the majority has uncovered.

21st Century Cures Act
The 21st Century Cures Act is a piece of legislation that seeks to bring our healthcare system into the 21st century by investing in medical innovation, incorporating the patient perspective, and modernizing clinical trials. The House passed the entire piece of legislation last year, but it has since stalled in the Senate. The Senate Health, Education, Labor and Pensions (HELP) Committee passed 19 individual bills instead of the one comprehensive 21st Century Cures bill that the House passed. The committee doesn’t have the authority to include the mandatory funding that the House provided. The chairman of the HELP committee, Sen. Lamar Alexander (R-TN), is working with the budget committee to secure funding and has stated that he will not bring the bills to the floor until they secure bipartisan support.
COMPASS Points

Training to Teach: Preparing for the Other Half of Academia

Academic faculty jobs are difficult to come by, and science graduates are increasingly taking positions outside of academia. Recognizing this trend, ASCB and other organizations are leading efforts to help students who are looking for nontraditional career paths. Despite the daunting odds, though, you may still have your eyes set on academic life. There is great appeal to the prestige and security of a tenured faculty position and to the prospect of pursuing your research passion. For those who maintain this goal, there is plenty of advice on preparing for and securing a faculty position. The advice often (and understandably) centers on the research component of academia: what line of research is most likely to bear fruit, how do you secure funding, and other critical questions.

What about the other half of a professorship? Teaching is, of course, a major part of many faculty positions. But in most graduate programs, the skills needed to be a good teacher are either not explicitly taught or not emphasized enough.

Depending on the type of academic institution you are aiming for, a lack of teaching experience may not be too much of a hindrance when it comes time to apply for jobs. Research-intensive, R1 institutions will focus primarily on your publication record, research plan, and the funding to pay for your research. However, if you are applying to liberal arts colleges—especially primarily undergraduate institutions—they will almost certainly ask for a statement of teaching philosophy. (ASCB CV Reviewers are available to review your teaching statement: www.ascb.org/cvreview.) Moreover, such an institution will likely consider your teaching and mentorship record when you are up for tenure. Training to be an educator early on will help you to compete more effectively for these kinds of academic positions.

Fortunately, several options are available to help graduate students and postdocs become better educators. Below are some tips that I have accumulated on my own academic path. This advice is applicable not only to those interested in faculty positions but can also broadly serve as preparation for a variety of career paths where research is not the exclusive or dominant focus.

Get Some Formal Training in Pedagogy

Imagine you have an offer for that Holy Grail, assistant professor position. You have a well-developed project proposal and perhaps even a grant to fund it. But your position includes teaching hours, and now it’s your first day in the classroom. How will you conduct yourself as a teacher? How will you decide what content to cover? Will your lessons be all PowerPoint all the time, or will you use some other means to deliver science to your students? If you have not thought much about these questions, it may be helpful to take some formal classes in pedagogy.

The basic premise of pedagogy training is that teaching should be understood like any other scientific enterprise: evidence-based. Ideally, formal training will allow you to take a step back, evaluate your own preconceptions of teaching, and shape your approach in the classroom based on the best available empirical data on how students actually learn. Pedagogy courses will vary but will generally show you how to account for the unique learning styles of students using different teaching approaches, address cultural diversity, design a curriculum, incorporate pedagogical research into the classroom, and develop a statement of teaching philosophy.

One such course is Scientists Teaching Science, an annual online class provided by the New York Academy of Sciences. Many universities also offer in-person classes, so check the offerings at your institution. Online resources on this topic are somewhat scattered, though free resources are available if you do
Teach as an Adjunct Professor

Many doctoral programs involve a teaching component, so you may already have classroom experience as a teaching assistant. If you’ve never had the chance to teach, or would like more hands-on experience independently running a classroom, consider applying for an adjunct faculty position at colleges in your area. First-hand exposure to the classroom is probably the single most valuable experience away from the bench for an aspiring teaching professor. Even when you know the course content backward and forward, there is still quite a lot to learn as a novice educator. Getting in front of a class early on will allow you to develop your identity as a teacher and find your preferred teaching style. Importantly, if you suffer from stage fright when giving scientific presentations, teaching will serve as a great trial by fire. Standing at the head of a classroom every week will help you to overcome your fear of public speaking pretty quickly. Moreover, you will get a feel for managing a classroom full of students, shaping a syllabus, and developing homework and exams—all essential elements of most full-time faculty positions.

When interviewing for an adjunct position, it is important to get a clear idea of the expectations and responsibilities well before entering the classroom. The degree of preparation needed can vary widely among universities and across departments. Some classes may have a well-established syllabus with pre-made exams and PowerPoint presentations ready to go. Others may require that you contact other members of the faculty as a resource for materials, and still others may expect you to do a lot of lesson planning on your own. This last scenario will be the most time-consuming, of course, but is also a great opportunity for real-world experience in curriculum development. Most likely you will be brought on to run laboratory sections, so if you are looking for experience teaching lectures you may also want to inquire during your interview about future opportunities for lecture classes.

Most universities only require their adjunct faculty to hold a master’s degree, so you can teach while still finishing your doctorate or during your postdoc. However, you should definitely have a conversation with your advisor before considering any teaching job. In addition to the three to four hours per week in the classroom, you should expect roughly an equal amount of time on other responsibilities, including grading and (potentially) preparing lessons. Typically, universities maintain a population of adjuncts who fill many of the lower-level sections. So, bear in mind that adjunct positions are generally not a pipeline to securing a tenure-track faculty position. But the time commitment of teaching is well worth the valuable experience you will gain.

Consider a Teaching-Enhanced Postdoc

A postdoctoral fellowship is designed primarily to provide training in research, although today’s graduate students increasingly land careers outside of academia or in non–research intensive positions. Many institutions now appreciate the need to develop the teaching skills of their students and postdocs and offer postdoctoral programs infused with teaching as a significant component. A notable example is the Institutional Research and Academic Career Development Awards (IRACDA) program, a program funded by the National Institutes of Health and aimed at providing enhanced postdoctoral training through concurrent pedagogical development. There are currently enough digging. iBiology is developing a scientific teaching series, which currently offers videos on how to develop “active” lessons that better engage students (www.ibiology.org/scientific-teaching.html). L. Dee Fink’s A Self-Directed Guide to Designing Courses for Significant Learning is a useful tool explaining how to design an effective syllabus and is freely available online (http://finkconsulting.info/major-publications). A variety of videos from educators and universities can also be found on YouTube.

[N]ow it’s your first day in the classroom. How will you conduct yourself as a teacher?
20 IRACDA programs nationwide. Participants generally pursue their research like any other postdoc would, but additionally receive a combination of formal and practical training in teaching. Speaking from my own experience in the Bronx-Einstein Training in Teaching and Research IRACDA program of New York, IRACDA provides extensive and well-rounded professional development in teaching. They also offer a network of faculty and peer support for those who are interested in pursuing a career centered around teaching or who are simply looking to balance their research expertise with the skillset that comes from teaching. Beyond IRACDA, there are several private and institutional programs with similar missions.

The National Postdoctoral Association offers a compendium of programs offered around the United States (http://bit.ly/2aLOmE3).

Whether you will pursue a research-intensive or teaching-centric career, a life in academia will likely mean some degree of teaching. Preparing for this while still in the early stages of your professional development will go a long way toward easing the transition to a professorship and will give you an edge as you enter a highly competitive job market.

—Travis J. Bernardo, Albert Einstein College of Medicine

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OFFICE HOURS with EdComm

Regardless of our current role in academe, education—for us and for our students—is central to our identity as scientists. With that in mind, the ASCB Education Committee (EdComm) is pleased to offer Office Hours with EdComm, a column addressing broad issues in education, ranging from career choice to curriculum development to incorporating technology into your lectures. EdComm Members and Associates look forward to answering your questions; please direct them to DearEdComm@ascb.org.

To Team or Not to Team, That Is the Question

Dear EdComm,

My colleagues consistently encourage me to use group work in my classes to facilitate student learning. I teach a variety of classes, including labs, large and small lecture-based courses, and seminars. In my labs students usually work in groups, and I started to include group exercises in my non-lab classes. However, I am tired of student complaints. Strong students complain that they do work for other people and that their grade is “unfairly” affected by other members of the group. On the other hand, weaker students complain that they do not get to learn, since the stronger group members do everything for them. I frequently see that some of the groups break down, resulting in individual students working by themselves. Other groups use the “divide and conquer” strategy, resulting in poor learning of the material overall. In addition, the quality of the patched-together reports prepared by those teams varies greatly depending on who was responsible for what part. The atmosphere in the class quickly becomes tense, and each of my new group-work assignments is always met with a universal sigh of disbelief and frustration: “More teamwork…?” What am I doing wrong?

—Eager to Stop Group Work

Dear Eager,

You are not alone. The symptoms you describe are not unique to your classroom, and many of us have faced them in one way or another. Group work can take various forms and can become quite a drag on a class if not implemented well. Thus group work remains a topic of discussion in secondary and higher education circles. Educators have used various approaches to group work, and extensive research demonstrates benefits from implementing group discussions and group projects in the classroom. When used correctly, group work can engage students in collaborative learning, fostering their interactions as a goal-driven team, which can have a tremendous effect on their understanding of content and development of communication and problem-solving skills.

Being able to work effectively in a team is one of the critical skills identified as necessary in undergraduate education. One of the VALUE rubrics from the Association of American Colleges & Universities is designed to assess student skills in team environments (www.aacu.org/value/rubrics/teamwork). Most innovative approaches to biology education emphasize the need for the teachers to create classroom environments where students can take responsibility for and work toward their learning. Student interactions can take various forms, from “think-pair-share” activities in a large lecture hall to a student team developing a grant proposal or conducting authentic research in the laboratory. Whichever form and shape group work takes in your classroom, you might want to consider questions about several aspects of the process when developing your strategy.

Group Projects

Do you give students sufficient time to think through the problems and talk about them? Are the questions you ask students open-ended and sufficiently deep to stimulate the discussion and difficult enough to challenge even high-achieving students in your class? Research on group work indicates that group work is more likely to be successful if the task is designed for positive interdependence, meaning that all students in the group need to work together to complete it. See more approaches and ideas about the tasks you make your groups complete in the papers by Kimberly Tanner.1,2

Making Teams

Do you allow students to work in self-selected groups or make groups yourself? It seems easier to just let students pick their partners. However, this approach frequently backfires, since in selecting their groups students gravitate toward roommates and friends. In such groups students sometimes socialize more than work. More importantly, this approach frequently leaves out minority or less-popular students, who either start working on their own or feel like outsiders in their groups. Maximizing diversity in your groups is usually a good approach. Students of different
backgrounds, majors, interests, and academic skills bring different perspectives to the group. The Comprehensive Assessment of Team-Member Effectiveness (CATME; http://info.catme.org) is a resource developed with support from the National Science Foundation that allows instructors to form and support group work in their classrooms.

Individual and Group Accountability
Do you have a structure that ensures that everyone on the team is responsible for his or her learning and that the team needs to produce a final product that will be assessed for its quality? Instructors choose various approaches to achieve this (see reference 1 for some ideas), from assigning a strict role to each member of the group to implementing peer-assessment of each of the group members. The CATME tool has a built-in system for peer assessment of the individual team members’ work as well as the work of the group as a whole that can be used for formative as well as summative assessment. Whichever approach you use, your classroom structure needs to encourage, demand, and assess participation of each of the students in the process.

Group Work Skills and Approaches
Do your students know what it means to build an effective team? This is a point that is most often missed by faculty and where group work most often goes awry. Spend time with your students discussing working in teams, help them set expectations, and give some support in resolving conflicts. Consider designating roles so that every group member is responsible for some aspect of the work and is expected by the team to act in that capacity. Build in opportunities for reflection and feedback and encourage students to think about how they and their peers are contributing to their group’s work. Such an approach can help students reorganize their group if necessary and also reveal problems and tensions early on, allowing you to intervene.

Students working in well-functioning groups do indeed learn better and are frequently more satisfied with their class. Even more importantly, this approach helps include all students, from shy to outgoing, from high achievers to the ones who struggle, regardless of their standing in the class and popularity among their peers. These suggestions are just a beginning. Structuring and restructuring group work in your classroom is a difficult and sometimes frustrating process, but I hope you are willing to try some of these approaches.

On a personal note, I found that calling my groups “teams” and my group assignment “team projects” and being transparent with the students about why they work in teams really helped with students’ attitudes and helped overcome “group hate.” Here is my favorite quote about group work, and I hope you will find some inspiration in it as well: “If you want to build a ship, don’t drum up people together to collect wood and don’t assign them tasks and work, but rather teach them to long for the endless immensity of the sea.” (Antoine de Saint-Exupery)

—Irina Makarevitch (EdComm member), Hamline University

References

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—Thea Clarke
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A Hook Structure Solved, Merton Bernfield, Bias Against Novelty

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Cell News—Structure of Hook That Ties Cargo to Motors Solved
Inside cells, cargo is carried inside tiny bubbles and pulled along tracks by molecular motors. But like a boxcar on a train track, something has to connect the cargo container to the locomotive engine for the cargo to move. Courtney Schroeder, member of ASCB’s Committee for Postdocs and Students and postdoc at the Fred Hutchinson Cancer Research Center, and Ron Vale, former ASCB president and professor at the University of California, San Francisco, solved the structure of the Hook domain of Hook3, a Golgi/endosome cargo adaptor that interacts with dynein.

What’s the Genetic Code? The Man behind the Merton Bernfield Award
There is a Merton Bernfield Memorial Award and there was Merton Bernfield, a pediatrician and cell biologist who knew how to think on his feet. Bernfield, the cell biologist, was a pioneer of the extracellular matrix, a leader in medical education, and the elected Treasurer of ASCB from 1990 to 1995. Bernfield, the quick thinker, had two minutes to unlock the genetic code or blow a big interview.

Notes on Bias against Novelty
Using the journal impact factor to measure the quality of scientific research undervalues precisely the type of novel, “high risk/high gain” research that we need to advance our field, says ASCB Executive Director Erika Shugart. She cites a recent article analyzing novelty in scientific literature found that “home” fields and bibliometric indicators are biased against novel research.

Upcoming Early Career Meetings

The Triangle Cytoskeleton Meeting
Saxapahaw, NC
September 12, 2016

ASCB is pleased to provide Early Career Meeting Grants to graduate students and postdocs to organize one-day meetings. Such meetings usually 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.

The next deadline to apply for funds is September 15, 2016. Applicants must be or become members of the ASCB. For more information visit www.ascb.org and click on “Meetings.”
High rates of chromosome missegregation suppress tumor progression but do not inhibit tumor initiation

Lauren M. Zasadil, Eric M. C. Britigan, Sean D. Ryan, Charanjeet Kaur, David J. Guckenberger, David J. Beebe, Amy R. Moser, and Beth A. Weaver

Expression of a truncated allele of the Apc tumor suppressor causes intestinal tumors with a low rate of chromosomal instability (CIN). Increasing the rate of CIN suppresses tumor growth without inhibiting tumor initiation in both the small intestine and colon, suggesting that increasing CIN is a useful chemotherapeutic strategy.


Clustered nuclei maintain autonomy and nucleocytoplasmic ratio control in a syncytium

Samantha E. R. Dundon, Shyr-Shea Chang, Abhishek Kumar, Patricia Occhipinti, Hari Shroff, Marcus Roper, and Amy S. Gladfelter

A mutant syncytium with clustered nuclei can maintain normal growth and nucleocytoplasmic ratio control. As in the wild type, clustered nuclei exhibit cell cycle and transcriptional autonomy. Cyclin transcript enrichment near wild-type nuclei suggests a role in nuclear behavior; however, this spatial organization is dispensable for nuclear autonomy.

Src-dependent phosphorylation of caveolin-1 Tyr-14 promotes swelling and release of caveolae
Adriana M. Zimnicka, Yawer S. Husain, Ayesha N. Shajahan, Maria Sverdlov, Oleg Chaga, Zhenlong Chen, Peter T. Toth, Jennifer Klomp, Andrei V. Karginov, Chinnaaswamy Tiruppathi, Asrar B. Malik, and Richard D. Minshall
Src-induced phosphorylation of Cav-1 is analyzed using live TIRF and FRET microscopy, as well as by biochemical analysis. Cav1 phosphorylation destabilizes plasma membrane–associated Cav-1 oligomers and thereby is crucial for regulating the fission of caveolae from the plasma membrane in vascular endothelial cells.
Mol. Biol. Cell 27 (13), 2090–2106

Rabin8 regulates neurite outgrowth in both GEF activity–dependent and –independent manners
Yuta Homma and Mitsunori Fukuda
Several Rab GTPases have been implicated in neurite outgrowth, but their regulatory mechanisms are poorly understood. Rab10 is a novel substrate of a Rab8-GEF, Rabin8, and Rabin8 regulates neurite outgrowth of PC12 cells by coordinating with Rab8, Rab10, and Rab11 and by a GEF activity–independent mechanism.
Mol. Biol. Cell 27 (13), 2107–2118

PACRG, a protein linked to ciliary motility, mediates cellular signaling
Catrina M. Loucks, Nathan J. Bialas, Martijn P. J. Dekkers, Denise S. Walker, Laura J. Grundy, Chunmei Li, P. Nick Inglis, Katarzyna Kida, William R. Schafer, Oliver E. Blacque, Gert Jansen, and Michel R. Leroux
Cilia are cellular projections that can be motile to generate fluid flow or nonmotile to enable signaling. Both forms are based on shared components, and proteins involved in ciliary motility, like PACRG, may also function in ciliary signaling. Caenorhabditis elegans PACRG acts in a subset of nonmotile cilia to influence a learning behavior and promote longevity.
Mol. Biol. Cell 27 (13), 2133–2144

Dual control by Cdk1 phosphorylation of the budding yeast APC/C ubiquitin ligase activator Cdh1
Sebastian Höckner, Lea Neumann-Arnold, and Wolfgang Seufert
Cyclin-dependent kinases (Cdks) keep the ubiquitin ligase APC/C-Cdh1 under control by disabling the Cdh1 activator subunit through multisite phosphorylation. Cdk phosphorylation sites in yeast Cdh1 are organized in autonomous subgroups that control either nuclear localization or binding of Cdh1 to the APC/C.
Mol. Biol. Cell 27 (14), 2198–2212

Iterative sorting of apical and basolateral cargo in Madin–Darby canine kidney cells
Aleksandr Treyer, Mario Pujato, Ximo Pechuan, and Anne Müsch
A novel assay quantitatively distinguishes different cargo pairs by their degree of colocalization at the TGN and the evolution of colocalization during their TGN-to-surface transport. Apical NTRp75 and basolateral VSVG in MDCK cells undergo continuous sorting between TGN exit and surface arrival.
Mol. Biol. Cell 27 (14), 2259–2271

Membrane dynamics during cellular wound repair
Nicholas R. Davenport, Kevin J. Sonnemann, Kevin W. Eliceiri, and William M. Bement
Fusion of intracellular compartments with each other and the plasma membrane has been hypothesized to occur at sites of cellular injury but has never been directly visualized. High-speed microscopy reveals this process and shows that resealing is accompanied by intracellular patterning of proteins, ions, and membrane lipids.
Mol. Biol. Cell 27 (14), 2272–2285
Phosphorylation of the RNA-binding protein Dazl by MAPKAP kinase 2 regulates spermatogenesis
Patrick A. Williams, Michael S. Krug, Emily A. McMillan, Jasmine D. Peake, Tara L. Davis, Simon Cocklin, and Todd I. Strochlic
Developing male germ cells are exquisitely sensitive to stress and rely on RNA-binding proteins for posttranscriptional gene expression. Phosphorylation of the germ cell–specific RNA-binding protein deleted in azoospermia-like (Dazl) by the stress-activated protein kinase MK2 is a negative regulator of spermatogenesis.
Mol. Biol. Cell 27 (15), 2341–2350

Improved reconstitution of yeast vacuole fusion with physiological SNARE concentrations reveals an asymmetric Rab(GTP) requirement
Michael Zick and William Wickner
In vitro reconstitution is a powerful approach to deciphering membrane fusion. However, current reconstitutions do not adequately mimic the physiological process. This study takes a big step toward overcoming those shortcomings, achieving fusion with SNARE densities comparable to the native membrane.
Mol. Biol. Cell 27 (16), 2590–2597

Abelson kinase acts as a robust, multifunctional scaffold in regulating embryonic morphogenesis
Edward M. Rogers, Andrew J. Spracklen, Colleen G. Bilancia, Kaelyn D. Sumigray, S. Colby Allred, Stephanie H. Nowotarski, Kristina N. Schaefer, Benjamin J. Ritchie, and Mark Peifer
The importance of Abl kinase activity, the F-actin–binding site, and scaffolding ability in Abl’s many cell biological roles during Drosophila morphogenesis is examined. Abl is a robust multidomain scaffold with different protein motifs and activities contributing differentially to diverse cellular behaviors.
Mol. Biol. Cell 26 (16), 2613–2631

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—David Orloff
Members in the News

Michael Rape, of the University of California, Berkeley/HHMI, an ASCB member since 2008, was named Life Sciences winner of the Blavatnik National Award for Young Scientists.

Kai Simons, Max-Planck-Institute of Cell Biology and Genetics, an ASCB member since 1984, won the 2016 Robert Koch Medal for his lifetime work on the cell membrane and lipid rafts.

Tama Hasson, University California, Los Angeles, an ASCB member since 1992, is her university’s Staff Diversity, Equity, and Inclusion Award recipient for 2016.

Three ASCB members have been named 2016 Pew Biomedical Scholars

Lauren Parker Jackson, of Vanderbilt University, ASCB member since 2015

Gloria A. Brar, University of California, Berkeley, ASCB member since 2015

Katherine S. Ralston, University of California, Davis, ASCB member since 2015

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On behalf of the many beneficiaries of your 2015 donation, thank you. Your 2016 donation will directly support the advancement of cell biology in many ways.

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Announcement

NIGMS Accepting Applications for Postdoctoral Research Associates

The National Institute of General Medical Sciences’ Postdoctoral Research Associate (PRAT) program is accepting applications from September 3 through October 3, 2016. PRAT fellows conduct research while in a National Institutes of Health (NIH) intramural research program (IRP) lab. Applicants must identify a potential preceptor in the NIH IRP and develop a research proposal. For more information about the PRAT program, see www.nigms.nih.gov/Training/Pages/PRAT.aspx or contact Jessica Faupel-Badger at badgerje@mail.nih.gov.

MEETINGS Calendar

A complete list of upcoming meetings can be found at www.ascb.org/global-meetings. The following meetings were added since the last issue of the Newsletter:

**September 28–30, 2016. Paris, France**

**December 14, 2016. Mumbai, India**
International Symposium on Computational and Experimental Studies of Microtubules and Microtubule Based Motor Proteins.

**February 11–15, 2017. New Orleans, LA**
The Biophysical Society Annual Meeting.

**ASCB Annual Meetings**
December 3–7, 2016. San Francisco
December 2–6, 2017. Philadelphia
December 8–12, 2018. San Diego

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ASCB NEWSLETTER SEPTEMBER 2016
Stop waiting. Start publishing.

less than

3 days decision to review*

27 days peer-review decision*

14 days acceptance to publication

*median numbers

molbiolcell.org

ASCB
the american society for cell biology
DEAR Labby

Negotiating Your Salary and Start-up Package

Dear Labby,

I have been offered an assistant professorship in a first-rate biomedical center and am very excited. The stimulating environment, the colleagues, the balance of teaching and research, and the community all seem really good and could be an excellent mix for me, my partner, and our infant. (I am a new mother!)

I am now in negotiations for the salary and start-up package. Especially after grad school and a postdoctoral fellowship, the salary looks good. Also the start-up package includes some equipment that I will need for my own lab. I will have access to excellent shared core facilities that have high-end technology and expertise. In addition to my salary, there is enough support for one or two people in my lab for three years.

I just read a report in JAMA that women PhDs in basic science departments similar to the one I plan to join get much smaller start-up packages than men who have comparable degrees and experience.

Now I have several questions. How do I find out what my salary and start-up package “should” be? How can I negotiate and avoid being viewed as unpleasantly aggressive by my new colleagues and boss? And finally, if I have enough money to do the research I propose, why should I even care if someone else is getting two or three times more than I?

—New Faculty Member

Dear New,

Congratulations on your successful job search. You are wise to seek information about an appropriate and realistic salary and start-up package, because both have significant long-term consequences.

Your starting salary is even more important than you may realize, because all of your subsequent raises will be based on this beginning salary as will the amount that your employer contributes to your account in the institution’s retirement program. (A $5,000 differential in annual salary, with 3% annual raises and banking the pay difference, would lead to $568,834 after 38 years of employment.) Since your job will be in a biomedical center, you can find useful data in the Report on Medical School Faculty Salaries published biennially by the Association of American Medical Colleges (AAMC). If your institution is a member of the AAMC, you may be able to access the report through your library or purchase a copy for a greatly reduced price.

As you discuss salary consider if there may be other compensations that can substitute for money, e.g., access to local and affordable daycare to make your work time most efficient. Also to support new parents, some institutions have funding to pay for people who you can direct to do some of your lab chores that are time consuming or occur in the evening or on the weekend, so you can have precious additional hours to be a parent.

Your start-up package is very important because it will have an impact on your success in competing for external funding. This will be critical to tackling your proposed research program and equally critical to the institution’s return on investment for you. So the money in the start-up package will launch your independent research.

A good place to start your investigation is by asking people who are a couple of years ahead of you what they got in their packages so you can draft your requests in line with what is “standard” for your department or discipline. Make sure you don’t limit your information gathering to one gender.

Be very specific in identifying the equipment and supplies that you will need to purchase. To get a realistic estimate of annual expenditures, talk to the person in your current lab who really knows the budget required to support the lab. And remember that to take advantage of the great core facilities, you will need to have enough money to pay the fees.

You are right to be concerned about how to negotiate. Data indicate that women can be penalized for appearing aggressive. One approach that Labby has seen work for women (and men) is to align your requests with the anticipated communal impact of your hiring, your success, and on your ability to foster the advancement of trainees. These goals are gender neutral and shouldn’t raise red flags. Your negotiation is not about making you rich. It is about your goal to answer research questions and to be competitive for external awards that will support the research. In that arena, you don’t want to be competing with people who have been given two or three times the resources you have.

Again, congratulations! Soon you will be running your own show. Enjoy the excitement and remember that your colleagues will be excellent advisors and mentors as you face the inevitable challenges that come with managing your own enterprise.

—Labby
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Cell Biology 2016
ASCB Annual Meeting

December 3–7, 2016
Moscone Center, San Francisco, CA

Workshops on CRISPR, cryo-electron and super-resolution microscopy
Support opportunities for full-day symposium on the Cell Biology of Cancer
Career center offering one-on-one CV review and career counseling, career panels, and a science writing workshop

Full details at ascb.org/2016meeting

See Annual Meeting Spread on pg. 18 for more information