Teaching Tomorrow’s Scientists
An ASCB Virtual Meeting
May 30, 2020
9:00 am-1:00 pm PDT

Registration now open!

Program

9:00-9:10 am  Introduction

9:10-9:45 am  Sara Brownell, Arizona State University: How groups of students are differentially impacted by active learning

9:45-10:20 am  Rachel Kennison, University of California, Los Angeles Preparing graduate students and postdoctoral scholars for success in diverse STEM classrooms by engaging in reflective teaching practices

10:30-11:15 am  Workshop: Introduction to ggplot as an entry way to R for beginners

10:30-11:15 am  Workshop: Strategies for incorporating science literacy

11:25-12:10 pm  Workshop: Using a reconciliatory approach to teaching evolution to religious students for increased acceptance

11:25-12:10 pm  Workshop: Linking interdisciplinary concepts through CUREs: from chemistry to cell biology

12:15-1:00 pm  Lunch Discussion Groups

The deadline for meeting registration is May 27.

#ASCBEducates2020

For more information and to register visit www.ascb.org/ascb-meetings/
teaching-tomorrows-scientists-an-ascb-regional-meeting-2
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Invest in the Future of Science

In 2019 your generous, tax-deductible donations helped provide the following grants:

- Postdoctoral Travel Grants
- Graduate Student Travel Grants
- Junior Faculty Travel Grants
- Minority Travel Grants
- International Travel Grants

In addition, your contributions provided support to the Early Career Scientist Award, the Merton Bernfield Memorial Award, the WICB Awards presentation, the Keith Porter Lecture, international outreach, ASCB’s public policy and public information efforts, and the LSE Fund.

We would like to thank you for supporting ASCB. Your support is vital to allow ASCB to continue to provide valuable resources to scientists.

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introduction

Beyond the Shadow
by w. mark leader, editor

This issue of the Newsletter focuses on advocacy. Much of the issue was planned before COVID-19 changed the world. The COVID-19 pandemic overshadows everything, of course. See p. 10 for a message from the ASCB Executive Committee regarding the pandemic and how ASCB is trying to help its members cope with the disruption it causes. And see p. 11 for information about some of the unique public policy questions that are beginning to arise in the pandemic’s wake.

Now the scene depicted on the cover—scientists like you meeting with members of Congress and their staffs at the 2019 Congressional Science Fair—is unimaginable. Indeed, the 2020 Science Fair has been cancelled. In his Feature article (p. 8), Gary Gorbsky talks about Science Fair as a venue for advocacy that’s different from traditional office meetings. Eva Nogales in her President’s Column (p. 6), graduate student Colbie Chinowsky (profiled on p. 32), and Labby (p. 31) all discuss the importance—and the satisfaction—of being an advocate for science.

How is this talk of advocacy relevant in the shadow of COVID-19? First, advocacy is about communicating your science and helping people understand why it is important. Second, as emphasized by writers in this issue, congressional representatives and their staff members will listen to you and may even be grateful for the information you offer them. These ideas apply whether your message is delivered in person or remotely. Perhaps when we move beyond the shadow of the pandemic and can once again meet in person, advocacy efforts will be bolstered by widespread public awareness of the important and conspicuous role science is playing in the battle against COVID-19.

One other thing the pandemic has changed is how you are reading this. Rather than mail copies of the Newsletter to shuttered offices and labs, we have suspended the print edition for at least this issue and are instead offering a digital flipbook version. Please let us know how you like it (mleader@ascb.org).

Cover image: Participants at the 2019 Congressional Life Science Fair. Credit: Rebecca Drobis
Antentor Hinton, a postdoctoral research fellow at the University of Iowa, received the Excellence in Mentoring Award from Iowa Illinois Nebraska STEM Partnership for Innovation in Research and Education (INSPIRE). INSPIRE is a collaboration between the National Science Foundation and the Louis Stokes Alliances for Minority Participation among 16 two-year and four-year colleges and universities working together to broaden the participation of underrepresented minorities in science, technology, engineering, and mathematics education in the Midwest.

Alejandro Sánchez Alvarado, scientific director of the Stowers Institute for Medical Research in Kansas City, MO, and Howard Hughes Medical Institute Investigator, was recently named the 2019 recipient of the Sastra-Obaid Siddiqi Award by Sastra University located in Tamilnadu, India. The award is named for the leading Indian National Research Professor and the Founder-Director of the Tata Institute of Fundamental Research National Center for Biological Sciences who contributed to research on the genetics and neurobiology of Drosophila.

Angela Wandinger-Ness, associate director for education, training, and mentoring at the University of New Mexico (UNM) Comprehensive Cancer Center and endowed professor in the UNM School of Medicine’s pathology department, received the 2020 Lifetime Mentor Award from the American Association for the Advancement of Science during its annual meeting in February. The award honors researchers who, for 25 years or more, have positively impacted the atmosphere of a department or institution by mentoring students from communities that are underrepresented in STEM fields, such as women, African American, Native American, and Hispanic men, and people with disabilities.

ASCB members Clifford Brangwynne and Michael Rosen and ASCB Fellow Anthony Hyman together were awarded the 19th annual Wiley Prize in Biomedical Sciences for their pioneering work on subcellular compartmentalization based on the formation of phase-separated biomolecular condensates, a process implicated in both physiological and pathological events. Brangwynne is a professor of chemical and biological engineering at Princeton University. Rosen is chair and professor in the Department of Biophysics at the University of Texas Southwestern Medical Center. Hyman is a professor at the Max Planck Institute of Molecular Cell Biology and Genetics. The prize was presented on April 3 at Rockefeller University.
2020 Canada Gairdner International Awards

Four of the five recipients of the 2020 Canada Gairdner International Award for biomedical research were ASCB members:

ASCB Fellow **Mina Bissell**, “for characterizing ‘Dynamic Reciprocity’ and the significant role that extracellular matrix signaling and microenvironment play in gene regulation in normal and malignant cells, revolutionizing the fields of oncology and tissue homeostasis.” Bissell is the Distinguished Senior Scientist, Biological Systems and Engineering Division, at Lawrence Berkeley National Laboratory and faculty in the Graduate Groups in Comparative Biochemistry, Endocrinology, Molecular Toxicology, and Bioengineering, at the University of California, Berkeley.

ASCB Fellow **Elaine Fuchs**, “for her studies elucidating the role of tissue stem cells in homeostasis, wound repair, inflammation and cancer.” Fuchs is a Howard Hughes Medical Institute Investigator and Rebecca C. Lancefield Professor and Head of the Robin Chemers Neustein Laboratory of Mammalian Cell Biology and Development at The Rockefeller University.

ASCB Fellow **Roel Nusse**, “for pioneering work on the Wnt signaling pathway and its importance in development, cancer and stem cells.” Nusse is professor and chair, Department of Developmental Biology; member, Institute for Stem Cell Biology and Regenerative Medicine at the Stanford University School of Medicine; and the Virginia and Daniel K. Ludwig Professor of Cancer Research and Investigator, Howard Hughes Medical Institute.

ASCB member **Masatoshi Takeichi**, “for the discovery, characterization and biology of cadherins and associated proteins in animal cell adhesion and signalling.” Takeichi is senior visiting scientist, RIKEN Center for Biosystems Dynamics Research, Kobe, Japan; and professor emeritus, Kyoto University, Japan.
A critical part of any scientist’s life is communication. We write grants, scientific papers, and reviews, and we give presentations of our work at conferences and seminars. In fact, we love talking about our science, as anyone who ever asked us how our research is going and encouraged us to tell them more about it would quickly perceive. But while we generally feel comfortable relating the details of our work to our peers, we tend to be more hesitant to engage in communication with the general public or with policy makers, even though we know how important those conversations are.

ASCN will remind you of your responsibility for science advocacy and outreach, but also empower you with the tools and opportunities to do a fabulous job at it.

**Fighting Your Fears with Some Help from ASCB**

We are all aware of the challenges we face when we talk with nonscientists (it is difficult even talking with scientists in a different field!). When talking with the public, we may even have to reanalyze the words we use while keeping in mind that the uninitiated may not only be unfamiliar with them, but may even have a damaging misinterpretation of their meaning. (One example I love, which I learned at a workshop by Alan Alda, concerns the word “model,” which for the average person in the street or congressperson will not conjure images of *Caenorhabditis elegans* or *Xenopus laevis*, but of Cindy Crawford or Gisele Bündchen). On the one hand, very little preexisting knowledge on our topic of study can be assumed when we talk with the layperson. On the other hand, simplifying our message while trying to make it more appealing to nonspecialized audiences can make us feel as though we are giving up to inaccuracies or half-truths, or even scarier, overblowing the significance of our claims.

And yet the challenging responsibility of talking with those that are not in our line of work but who fund us through their taxes, determine our fate through policy making, or may be the ultimate beneficiaries of our research is critical for the future of basic science. Thus, we have to dedicate some part of our always scarce time to learn the right language, create the right opportunities, and deliver the right message. This nontrivial task of advocacy and outreach should be on the to-do list of every basic scientist. The good news is that each of us does not have to do this alone. Scientific societies are a great channel to maximize the impact of our efforts toward public engagement, by providing teaching tools, by being on the alert for opportunities, and by giving continuity and branding to our efforts. If you are willing to engage in advocacy and outreach, ASCN is your best ally!

I invite you to visit the Policy & Outreach tab on the ASCN website (www.ascb.org/science-policy-public-outreach). There you will find a link to the Science Outreach section with Communication Toolkits that provide suggestions on how to reach out to the general public in a number of ways, including making use of social media and multimedia, working with the press, and discussing controversial topics. This section of the website also includes links to information about ASCN Public Engagement Grants and outreach grants from the Committee for Postdocs and Students. Also from the Policy & Outreach page, you can follow the Advocacy & Policy link to find an Advocacy Toolkit with a variety of suggestions on how to become involved in science policy advocacy. There are one-page “Be an Advocate for Science” papers that give you detailed tips on how
to engage with elected officials or create on-campus policy and advocacy groups.

**Have Some Fun When Talking with Non-Experts**

I particularly enjoyed reading the well-selected bullet points from the ASCB website on general tips for science communication: know your audience, focus on the big picture, avoid jargon, find the best metaphors, and keep your message simple. We need to remember that our nonscientific audience will be less interested in the details of our latest experiment than in the overall direction of our work and the field in general. For some practice, why not participate in the Elevator Pitch session at our annual meeting?

My personal take is that when talking with nonscientists, in addition to telling a compelling story, it helps to connect with our audiences at a personal level, so that they become more receptive and engaged. Take a minute to say something about yourself and what your science means to you personally. I call this the empathic connection. You should also make clear how important it is for you that they understand and see the value of your work. For a recent personal example, last winter I gave a presentation to high school students. It was one out of a series of short talks from professionals from different fields and I was “the scientist.” Although I only had 12 minutes, I decided to start with a picture of my own graduating high school year, from which I blew up the image of four of us (out of a group of about 30) that had gone on to earn science degrees. With that image of Eva at 17, I was hoping they would identify with me before I told them about microscopes and microtubules (and showed them some really cool videos). It was actually a fun experience!

**Make Capitol Hill One of Your Favorite Destinations**

When it comes to advocacy, nothing hits the mark like a well-orchestrated trip to Capitol Hill. I have now been able to visit our legislative houses with other members of ASCB on several occasions. Kevin Wilson, the ASCB Director of Public Policy and Media Relations, does all the groundwork for us and we get a fantastic crash course on how to speak to our politicians to make the message clear and compelling. Kevin contacts the different offices, sets up the schedules, helps us define the points that we will be bringing forward for discussion, and gives us all the background information and beautifully prepared written material that we can use to make our point and to leave behind for further consideration. Through the day, we visit the different senators’ and representatives’ offices as a small group that feels like a well-coordinated team. It is a truly wonderful experience.

One important thing that I have learned from my “Hill Day” experiences is that advocacy has to be a two-way conversation and we need to be ready to listen as well as to talk. The other is that each one of those politicians’ offices sees dozens of visitors every day, all with good causes, all asking for support/funding/legislation. Imagine yourself in a position of some power where everyone that came by was asking for a piece of the pie. What I learned is that it is good to start by showing gratitude and end by offering your service: “How can I/WE help YOU?” As individual researchers and as a scientific society, we have a lot to offer (e.g. data, expertise) and we should come across as being part of a team with common goals, prepared to play our part.

If you are jumping out of your chair right now with excitement about getting involved in your own outreach or advocacy, staff at the ASCB office can offer suggestions and walk you through your first try; contact info@ascb.org. Remember that there is an outreach and advocacy opportunity that takes as much time as you have to give.

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**About the Author**

Eva Nogales is a Howard Hughes Medical Institute investigator; a professor of Biochemistry, Biophysics and Structural Biology at the University of California, Berkeley; and Senior Faculty Scientist at the Lawrence Berkeley National Laboratory.
As researchers we know it is vitally important to be active advocates for life sciences with the public and with our elected officials. Most of the time the personal interactions involve lectures or one-on-one conversations. This past June, I participated in the Congressional Life Science Fair sponsored by the Coalition for the Life Sciences (CLS), a coalition the ASCB founded and still supports, and the Federation of American Societies for Experimental Biology (FASEB). There, instead of just talking with members of Congress and their staffers, which I had done the day before, I was able to involve congressional personnel and other attendees in doing their own bit of science with an interactive exhibit.

**Flavors of Advocacy**

The day before the Science Fair, I joined other members of the ASCB leadership, including ASCB committee members, for a day of meetings on Capitol Hill with members of Congress and their staffs. These Hill Days, held in conjunction with the ASCB Council mid-year meetings, provide senators, representatives, and their staffs the opportunity to meet with ASCB scientists and learn about our research and the important role the federal government plays in that research.

I’ve been participating in the ASCB Leadership Hill Days since 2015, and each one has been a valuable and even fun experience. The Science Fair, however, was a completely different flavor of advocacy event.

The Congressional Life Science Fair started just two years ago in 2018 as a way to celebrate the various areas of life science research. At that time, leaders at CLS and FASEB realized that all other forms of science have science fairs on Capitol Hill but not the life sciences. Since CLS and FASEB represent (combined) over 130,000 biomedical researchers they knew they had to be the ones to host a life science fair.

**What Happens at the Science Fair?**

So what does a science fair on Capitol Hill look like? There were about 15 individual six-foot tables.
Each table had a representative from a different organization, institution, or university. Each table highlighted a different area of life science research. For example, there was a table that explained research into Duchenne muscular dystrophy, a table that allowed participants to try a robotic arm, and tables with model organisms such as zebrafish and tardigrades.

At my table, attendees could swab out a few of their cheek cells, label the sample with a fluorescent DNA dye, then image the nuclei in their cells and their oral bacteria with a fluorescence microscope from ECHO Microscopes. Thanks to an easy-to-use interface participants could image their cells and quickly transfer the photos to their phones, leading to quick sharing on social media.

The Congressional Life Science Fair had over 250 people attend, the majority of whom were congressional staffers. My table and others with interactive exhibits were kept busy the entire time. The fair continues to grow and become part of the important advocacy work that takes place on Capitol Hill. The CLS and FASEB hope to increase participation, which includes seeing more individuals showcase science as well as increasing the attendance. It is yet another great way to get important policy makers to feel the excitement and recognize the importance of research. For other ways to be an advocate for science and how ASCB can help you, see the essay in this issue from ASCB President Eva Nogales (p. 6).

While my table at the Congressional Life Science Fair represented my home institution, the Oklahoma Medical Research Foundation, my participation was fully sponsored by the CLS. The CLS offers a few travel awards and opportunities to participate in this fair. If you are interested in being alerted to these opportunities, please sign up at https://bit.ly/2UOAMau. There are no dues to join the CLS. (Unfortunately, the 2020 Congressional Life Science Fair scheduled for June 11 has been cancelled because of the COVID-19 pandemic. Check the briefings calendar at www.coalitionforlifesciences.org for future events.)

Note
I thank ECHO Microscopes for providing, assembling, and staffing the microscope at my table. I also thank Lynn Marquis, Director of CLS, for supporting my attendance at the fair and for assistance in preparing this essay.

About the Author
Gary J. Gorbsky is chair of the Cell Cycle & Cancer Research Program at the Oklahoma Medical Research Foundation and currently holds the office of Treasurer at ASCB.
A Message from the ASCB Executive Committee about the COVID-19 Pandemic

By Eva Nogales, Ruth Lehmann, Andrew Murray, Kerry Bloom, Gary J. Gorbsky, and Erika Shugart

The members of the ASCB Executive Committee share your anxiety and sadness about the personal and professional disruption that the global COVID-19 pandemic is causing. We, too, are frustrated about closed laboratories and classrooms, canceled meetings, and the lost opportunities to interact with our friends and colleagues. Yet we are hopeful that through our collaborative efforts we will be able to put this unprecedented threat behind us and that we will come out stronger and better prepared for possible future threats of this nature.

Our thoughts are with all of our colleagues and fellow scientists around the world, including you, our members, whom we have the privilege to serve as the Executive Committee of the Society. See below for some of the ways ASCB is working to get our Society and the scientific community connected during these challenging times:

ASCB Programming Updates
At present, we do not anticipate the need to cancel Cell Bio 2020—an ASCB|EMBO Meeting planned for December in Philadelphia. However, our spring and summer events are being postponed or revised. You can keep up with the latest information about our events by viewing the COVID-19 updates on our website at www.ascb.org/about-ascb/covid-19-update.

Virtual Communities
Stay connected to your colleagues and fellow members though ASCB’s online community (https://community.ascb.org/home). We encourage you to join in by sharing your thoughts and questions with your colleagues. Now may be a good time to contact the people we wished we could talk to more often.

Education and Professional Development
Expanding our offerings of online webinars, videos, and other virtual ways to interact is one way ASCB hopes to mitigate our professional isolation. Check our Meetings & Events website page (www.ascb.org/meetings-events) for announcements about these upcoming opportunities. We are also crowd-sourcing ideas for future webinars through our online community, so please share your thoughts there.

Helping Out
Currently, hospitals and health departments in the United States need personal protective equipment and the reagents used to detect COVID-19. If you have items to donate, we suggest contacting PPE Link (for “personal protective gear”; https://ppelink.wordpress.com) or your local university-based health care system where RNA-extraction kits may be needed.

Contact Us
You can send an email at any time to ascbinfo@ascb.org for help in navigating funding, scientific policy, and career questions.
Science Policy Needs Related to COVID-19 Coming into Focus

By Kevin Wilson

The research community’s policy-related needs and concerns arising from the COVID-19 pandemic are starting to take shape. The ASCB Public Policy staff is collecting a list of those issues and is already beginning to work on them. These issues include:

• How will additional funds provided to science agencies in COVID-19-related stimulus legislation be used?
• National Institutes of Health (NIH) should provide support for lab assistants while labs are shut down. ASCB has already written a letter to NIH Director Francis Collins expressing the need to support these important employees. (The NIH has said that fellows and trainees will continue to receive stipend payments while labs are closed.)
• International trainees who are here in the United States but unable to conduct their research may face problems with expiring visas.
• Institutions should extend tenure clocks to make up for lost time arising from lab closures.
• Institution hiring freezes are leaving many young investigators without jobs.
• There will be a need to provide labs with supplemental funding to reopen.
• Specific materials and equipment funding will be needed.

If you have concerns related to research policy, please contact Kevin Wilson (kwilson@ascb.org).

See the article on p. 25 for information about how NIH and the National Science Foundation are supporting their communities.

For updates, follow the ASCB twitter feed @ASCBiology.

The Newsletter Welcomes Letters to the Editor

Have thoughts you’d like to share with your colleagues? We’d be happy to consider your Letter to the Editor for publication in the ASCB Newsletter. Write to the Editor at mleader@ascb.org.
Chalfie Elected ASCB President for 2022

Martin Chalfie was elected by ASCB members to serve as ASCB President in 2022. Chalfie is a Nobel laureate and professor in the Department of Biological Sciences of Columbia University. He will serve as President-Elect on the Executive Committee in 2021.

Also elected (unopposed) as ASCB Treasurer for a three-year term is A. Malcolm Campbell, Davidson University.

Others elected to Council include Amy S. Gladfelter, University of North Carolina at Chapel Hill; Andrew G. Campbell, Brown University; Erin D. Goley, Johns Hopkins University School of Medicine; and Casper C. Hoogenraad, Genentech, who is representing members in industry. Each new member of Council will serve a three-year term beginning January 1, 2021.

The recommended bylaws changes, intended to make the Society more open, transparent, and inclusive and to increase opportunities for member involvement, passed by a majority of voting members, including regular, postdoc, graduate student, educator, and emeritus members. The new bylaws will be fully in effect starting in 2021; in the meantime there will be a transition period for any changes that are required to comply with the new bylaws.

The ASCB deeply appreciates the willingness of the other candidates to run for office: Alejandro Sánchez Alvarado, Stowers Institute for Medical Research; Erin L. Dolan, University of Georgia; Jessica Polka, ASAPbio; Nasser Rusan, National Heart, Lung, and Blood Institute, NIH; and Aron Jaffe, Third Rock Ventures.

The ASCB also thanks the Nominating Committee members for their service: Chair Bob Goldstein, Derek A. Applewhite, Prachee Avasthi, Brian Lewis, Rodrigo A. Maillard, Avital A. Rodal, Shirley Tilghman, Scott Wilkinson, Star Thibeault, and Erika Shugart (ex officio).
Co-editors chosen for *CBE—Life Sciences Education*

By W. Mark Leader

Kimberly Tanner and Jeffrey Schinske will become co-Editors-in-Chief of *CBE—Life Sciences Education (LSE)* on August 1, 2020. The two will succeed Erin Dolan after her second term as Editor-in-Chief.

Tanner, professor of biology at San Francisco State University (SFSU), joined the editorial board when *LSE* was founded in 2002. She served as guest editor for the 2006 special issue on neuroscience education and is the current guest co-editor for the 2020 special issue on cross-disciplinary biology education research. A prolific author, her many publications in *LSE* include the popular series of features Approaches to Biology Teaching and Learning. At SFSU, she founded the Science Education Partnership and Assessment Laboratory, which focuses on how people learn science, especially biology, and how teachers and scientists can collaborate to make science teaching and learning more like how scientists work.

Schinske, chair of biology at Foothill College in Los Altos Hills, CA, joined the *LSE* editorial board in 2013. His research focuses on understanding issues of equity and inclusion in the classroom. His involvement in education research includes co-directing the Community College Biology Instructor Network Supporting Inquiry in Teaching and Education Scholarship, a National Science Foundation initiative supporting nationwide partnerships to engage community college faculty in biology education research.

“The members of the ASCB Council and I are confident that Kimberly and Jeff are the ideal leaders to maintain the journal’s upward trajectory, continue its outreach to the broader life sciences education community, and navigate some of the challenges it faces such as the journal’s transition to long-term financial sustainability,” said ASCB CEO Erika Shugart in an email to the *LSE* editorial board.

ASCB is grateful to members of the search committee who identified Tanner and Schinske and recommended them for approval by the ASCB Council: Peggy Brickman (chair), Jennifer Loertscher, Graham Hatfull, Ross Nehm, Gary Reiness, and Carl Wieman.
Apply Now for Prestigious ASCB Honorific Awards

Self-nominations by ASCB members/applicants are permitted for all awards. Unless otherwise indicated, deadlines are May 15, 2020. Apply online for all awards at www.ascb.org/grants-awards. Co-awardees are not accepted for any awards.

EARLY CAREER SCIENTISTS

Günter Blobel Early Career Award
Who is eligible: An outstanding life scientist who has served as an independent investigator for no more than seven years as of May 15.
Winner receives: Plaque, $1,000, meeting registration, economy airfare, up to four nights’ hotel, up to four days’ per diem, and gives a Minisymposium talk at Cell Bio 2020-an ASCB|EMBO Meeting.

WICB Junior Award for Excellence in Research
Who is eligible: A woman in an early stage of her career (within seven years of appointment to an independent position at the nomination deadline).
Winner receives: Plaque, $1,000, meeting registration, economy airfare, up to four nights’ hotel, up to four days’ per diem, and gives a Minisymposium talk at Cell Bio 2020-an ASCB|EMBO Meeting.

MID-CAREER SCIENTISTS

WICB Mid-Career Award for Excellence in Research
Who is eligible: A woman at the mid-career level (7–15 years in an independent position at the nomination deadline).
Winner receives: Plaque, $1,000, meeting registration, economy airfare, up to three nights’ hotel, and gives a Minisymposium talk at Cell Bio 2020-an ASCB|EMBO Meeting.

ESTABLISHED SCIENTISTS

ASCB Fellows
Who is eligible: All Regular and Emeritus members may nominate two of their colleagues or self-nominate. Fellows must have been an ASCB member for at least 10 of the past 15 years and a scientist whose research has had a significant and sustained impact on the field of cell biology.
Winner receives: Plaque and pin and acknowledgment before the Meeting Keynote.

E.B. Wilson Medal
Who is eligible: An individual who has demonstrated significant and far-reaching contributions to cell biology over a lifetime in science.
Winner receives: E.B. Wilson Medal, meeting registration, economy airfare, up to four nights’ hotel, and up to four days’ per diem, and gives the E.B. Wilson Lecture at Cell Bio 2020-an ASCB|EMBO Meeting.

ASCB Prize for Excellence in Inclusivity
Who is eligible: An individual who has made an impact by encouraging a diverse workforce and creating an inclusive environment through mentoring, cultural change, outreach, or community service.
Winner receives: $5,000 for further inclusion activities, is featured in a video at the Meeting Keynote, is featured in an article in the ASCB Newsletter, contributes an essay in Molecular Biology of the Cell, and receives up to $1,300 for meeting-related expenses.

Sandra K. Masur Senior Leadership Award
Who is eligible: A woman or man at a later career stage (generally full professor or equivalent) whose outstanding scientific achievements are coupled with a record of active leadership in mentoring both men and women in scientific careers.
Winner receives: Plaque, $1,000, meeting registration, economy airfare, and up to three nights’ hotel to attend Cell Bio 2020-an ASCB|EMBO Meeting.

Mentoring Keynote
Who is eligible: An individual who exemplifies mentoring by their impact on the training of scientists and scholars who belong to underrepresented groups.
Winner receives: Plaque and meeting travel expenses, and gives the Mentoring Keynote at Cell Bio 2020-an ASCB|EMBO Meeting.

GRADUATE STUDENTS AND POSTDOCS

ASCB Porter Prizes for Research Excellence
Who is eligible: Graduate students and postdocs.
Winners receive: $2,000 for outstanding predoctoral research and $4,000 for outstanding postdoctoral research, plaque, dinner with the Porter lecturer, travel costs of up to $1,000, and give Minisymposium talks at the Cell Bio 2020-an ASCB|EMBO Meeting.
Deadline: July 15; abstract submission required first.

Merton Bernfield Memorial Award
Who is eligible: An outstanding graduate student or postdoctoral fellow (at the time of nomination) who has excelled in research.
Winner receives: Plaque, $1,000, meeting registration, economy airfare, up to four nights’ hotel, up to four days’ per diem, and gives a Minisymposium talk at Cell Bio 2020-an ASCB|EMBO Meeting.
Deadline: July 15; abstract submission required first.

UNDERREPRESENTED MINORITIES

E.E. Just Lectureship
Who is eligible: An underrepresented minority scientist who has demonstrated outstanding scientific achievement.
Winner receives: Plaque, medal, and up to $1,800 to attend Cell Bio 2020-an ASCB|EMBO Meeting and gives the E.E. Just Lecture.

EDUCATORS

Bruce Alberts Award for Excellence in Science Education
Who is eligible: An individual who has demonstrated innovative and sustained contributions to science education, with a priority on national impact of the nominee’s activities.
Winner receives: Plaque, meeting registration, economy airfare, up to three nights’ hotel, and gives a talk at Cell Bio 2020-an ASCB|EMBO Meeting.

DISTINGUISHED INDIVIDUALS OUTSIDE ASCB

Public Service Award
Who is eligible: An individual who has demonstrated outstanding national leadership in support of biomedical research.
Winner receives: Certificate and is featured in a video at the Meeting Keynote.

Letters of support should explicitly address whether a nominee’s professional conduct over his or her career embodies the principles and expectations noted in ASCB’s Mission Statement, the Anti-Harassment Policy, and the Workforce Diversity Statement.
For a couple of decades now, live-cell imaging using fluorescent protein labeling has allowed scientists to peer into many subcellular processes in cultured cells. But a more advanced technique called intravital subcellular microscopy (ISMic) gives cell biologists the ability to directly observe the dynamics of subcellular structures over extended periods of time in living animals.

“This approach provides the unique opportunity to visualize and study biological phenomena that cannot be properly reconstituted in reductionist model systems,” said Roberto Weigert, whose laboratory developed ISMic. Weigert, who is a senior investigator at the Center for Cancer Research in the National Cancer Institute, and his group have established the protocols and set the benchmarks for working with this state-of-the-art, high-resolution imaging method.

“The main goal of our lab is to better understand membrane trafficking and membrane remodeling,” Weigert said, but ISMic has pushed their observations beyond expectations. Currently the Weigert lab has been able to capture high-resolution still images and videos from 20 different organs in living animals. Some of these images can be seen in the award-winning ASCB Celldance video made in 2016 (www.youtube.com/watch?v=LVPtKhXwRtI). But, he said, his lab has acquired more powerful microscopes since then.

Microscopes constantly run in the Weigert lab, gathering massive amounts of data. In some cases, the
ISMic technique can be used for “chronic imaging,” which permits the visualization of a tissue over many weeks in the same animal. Weigert said this approach works best for studying pathological processes like tumor formation, inflammation, or the immune response in organs such as skin, tongue, liver, lung, or kidney.

“This procedure can show the development of a tumor from day zero and catch all its transformations at the subcellular level. You can see a tumor developing cell-by-cell over 24 weeks and going through all the stages,” said Weigert. Recently, his lab has been focusing on neutrophil migration in cancer, inflammation, and infection. “We are finding new and unexpected things that have potential implications for therapies and diagnostics,” he added.

For imaging basic cell biological processes, such as membrane trafficking, exocytosis, rearrangement of the cytoskeleton, and the cell cycle—very fast processes that happen over a short time frame—the Weigert lab uses what they call “acute imaging.” To obtain these images, the organ or tissue to be imaged is slightly decoupled from the rest of the animal through carefully developed surgical protocols. Doing so helps minimize motion artifacts created by respiration or other movements the animal might make while keeping the physiological processes unperturbed, Weigert explained.

In addition to these protocols, the highest resolution images and videos are captured through incredibly high frame rates—one frame every 30–50 milliseconds and in some cases every 2 milliseconds. Improved image capture is also attained with more robust image post-processing software.

Weigert said his lab will continue to push the boundaries of what can be achieved with ISMic. “All these tools allow us ultimately to obtain really high resolution at the subcellular level and discover novel biology,” Weigert said. “Currently, we are following in 4D the dynamics of a novel cytoskeletal structure, which assembles on vesicles. The scale of these structures is in the submicron range, representing the maximum temporal and spatial resolution we have achieved.”
The Sixth Annual MBoC Special Issue on Quantitative Cell Biology Is Now Available
www.molbiolcell.org/toc/mboc/31/7

Highlights from
MBoC
MOLECULAR BIOLOGY OF THE CELL
www.molbiolcell.org

Here are some highlighted papers from the Special Issue and other recent issues

**Novel fibrillar structure in the inversin compartment of primary cilia revealed by 3D single-molecule superresolution microscopy**
Henrietta W. Bennett, Anna-Karin Gustavsson, Camille A. Bayas, Petar N. Petrov, Nancie Moorey, W. E. Moerner, and Peter K. Jackson (March 19, 2020)

Using three-dimensional single-molecule superresolution imaging and systematic analysis of knockout cell lines, we have determined the molecular structure and composition of the inversin compartment in primary cilia. INVS establishes fibrillar structures that recruit ANKS6-NEK8 complexes to sequester NPHP3 in this unique periaxonemal compartment.

**Desmocollin-2 promotes intestinal mucosal repair by controlling integrin-dependent cell adhesion and migration**

We report a key role for Dsc2 in simple epithelial cell migration and mucosal wound healing in vivo using newly generated mice with inducible conditional knockdown of Dsc2 in intestinal epithelial cells (Villin-CreERT2; Dsc2fl/fl).

**PI3K activation prevents Aβ42-induced synapse loss and favors insoluble amyloid deposit formation**
Mercedes Arnés, Ninovska Romero, Sergio Casas-Tintó, Ángel Acebes, and Alberto Ferrús (February 15, 2020)

The toxic effects of human Aβ42 peptide on synapses can be prevented by PI3K activation. This neuroprotection is achieved by increasing the insoluble aggregates of the peptide through the PI3K-triggered phosphorylation of the Ser-26 residue in Aβ42. The Aβ-42 toxicity syndrome includes the abrogation of PI3K expression.

**Dynamics of triadin, a muscle-specific triad protein, within sarcoplasmic reticulum subdomains**
Muriel Sébastien, Perrine Aubin, Jacques Brocard, Julie Brocard, Isabelle Marty, and Julien Fauré (February 15, 2020)

In skeletal muscle, mechanisms allowing the localization of the calcium release complex (CRC) in reticulum–plasma membrane contact points (triads) are unknown. It is shown that the CRC protein T95 has a constant diffusion in reticulum membranes and acquires a long residence time in triad because of its transmembrane domain.
KEYNOTE LECTURE

Sven Pääbo  
Max Planck Institute  
for Evolutionary Anthropology

SYMPOSIA

TRACK: COMMUNAL CELLS

Collective Cell Behavior

Alejandro Sánchez Alvarado  
Stowers Institute for Medical Research/HHMI

Leanne Jones  
University of California, Los Angeles

Growth, Pattern, and Form

Kristy Red-Horse  
Stanford University

Hiroshi Hamada  
RIKEN, Japan

TRACK: CELLULAR DYNAMICS

Cell Shape, Cell Division, Migration, and Death

Ann L. Miller  
University of Michigan

Petra Anne Levin  
Washington University in St. Louis

Cellular Identity

Rong Li  
National University of Singapore and Johns Hopkins University

Anne Spang  
University of Basel

Dynamic Intracellular Organization

Manuel Thery, French Alternative Energies and Atomic Energy Commission (CEA)

Cliff Brangwynne  
Princeton University

TRACK: CELLS IN DISTRESS AND DISEASE

How Different Cells Interact: Sex, War, Competition

Musa Mhlanga  
Radboud University and Radboud University Medical Center

Max Gutierrez  
The Francis Crick Institute

Cells in Distress and Disease

Lalita Ramakrishnan  
University of Cambridge

Peter Friedl  
Radboud University Medical Centre

TRACK: SIGNALING AND METABOLISM

Information Processing

Yitzhak Pilpel  
Weizmann Institute of Science

Diana M. Bautista  
University of California, Berkeley

IMPORTANT DATES AND DEADLINES

June TBD  
Scientific Abstract Submission Opens

July TBD  
Registration and Housing Opens

July 30  
Abstract Submission Deadline (for talk and poster presentation)

Sept. 2  
Abstract Submission Deadline (for poster presentation)

Sept. 2  
Travel Award Deadline

Oct. 1  
Early Registration Deadline

Oct. 7  
Final Abstract Submission (for poster presentation)

Nov. 14  
Housing Deadline

Nov. 19  
Registration Cancellation Deadline
Introducing Cell Bio 2020
A Meeting for You. Designed by You.

New meeting name. Same great science. Exciting changes are planned for the reinvented ASCB|EMBO meeting.

Cutting-edge science is the core of the cell biology community, and Cell Bio 2020 is the place to learn from and collaborate with stellar researchers in the field. ASCB prioritizes inclusivity and diversity in science as reflected in the meeting’s hot topics and engaging programming. To enhance our inclusive environment, we look to you, our members—as presenters, organizers, and attendees from every career level, research area, and institution—as leaders to create and plan content that best suits the meeting you want to attend. This is a meeting designed by you.

Want to be a part of designing the 2020 program? Check out these opportunities:

EDUCATION & PROFESSIONAL DEVELOPMENT
SESSION ORGANIZER
Application Deadline: Thursday, May 14

These sessions focus on education, career development, international relations, science policy, communications, and diversity in the scientific workforce. Member-organizers or outside organizations are responsible for planning the session from idea to execution.

ROUNDTABLE DISCUSSION LEADER
Application Deadline: October 7

These informal sessions focus on hot topics within the scientific community. Attendees can grab their lunch and join a topic of discussion important to them and network with their peers. Table leaders are responsible for facilitating the topic discussions.

NEW! SCIENTIFIC AND EDUCATION MEETING TRACKS

These special interest tracks aim to enhance your meeting experience by identifying sessions, poster presentations, and other relevant content focused on your areas of interest. These tracks are designed to help you find your niche and navigate the meeting within the increasingly diverse research specialties of cell biology. Choose from eight tracks—seven scientific and one education and professional development.

MARK YOUR CALENDARS!

2020 ASCB Doorstep Meeting:
The Cell Biology of Neurodegeneration and Repair

Saturday, December 5 | 8:00 am to 4:15 pm
Pennsylvania Convention Center

Join us for this highly interactive meeting focused on new developments in the mechanistic basis for neurodegeneration, highlighting progress on trafficking pathways, including lipid trafficking; lysosomal pathways; autophagy; cytoskeletal dynamics and RNA biology; and novel approaches to repair damaged neurons. Come connect with junior and senior investigators to jumpstart new ideas for therapeutic intervention!

Learn more at www.ascb.org/2020doorstep.
Emerging Voices

Write about What You Care about on the COMPASS Blog

By Natalya Ortolano

Academic researchers are practically glorified science writers. The further you move in your career, the less time you spend at the bench and the more time you spend in front of your computer writing grants, papers, and arguing with reviewer #3. We develop our technical writing skills as trainees, authoring manuscripts and applying for fellowships. While some enjoy grant writing, many are deterred from pursuing a career in academia based on the amount of writing the job requires. Even if you are someone who can feel a panic attack building at the thought of a career involving grant writing, you may enjoy writing about things you care about in an informal setting. If this is you (or you’re like me and love writing fellowship applications), you should pitch your article idea to the Committee for Postdocs and Students (COMPASS), and we can help you publish it on the ASCB Post. If we don’t think the article is a good fit, we can potentially help you find another place to publish.

Uhm, What’s COMPASS?

An excellent question. Our committee is dedicated to providing ASCB trainees with resources and experiences to help them grow as scientists (or whatever they want to be). We organize programming for the ASCB annual meeting focused on helping trainees identify career paths, navigate challenges during training, and generally be the best they can be. We also provide opportunities for science advocacy and outreach. For example, we offer outreach grants to ASCB members (priority given to student and postdoc members) who are planning outreach events to help increase public understanding of science.

Just one of the many awesome things we do is to give trainees a voice. Members of COMPASS write articles for the ASCB Post on a weekly basis. These articles are meant to provide the trainees’ perspective on all aspects of science including career development, teaching, academic culture, data representation, scientific trends, and everything in between. Outside of controversial topics (determined on a case-by-case basis), you can write about anything that lights your fire. By doing this, you can fine-tune your writing skills by writing about something YOU are interested in. Still not convinced? Check out this article we wrote about science writing: www.ascb.org/careers/writing-scientist-skill-life. I told you, we cover everything.

How Can I Pitch My Idea?

If you are a current ASCB member and a trainee, you can send pitches to ascb.compass.communications@gmail.com. We don’t want you to write a whole draft of an article before emailing us because if it is not a good fit you will have wasted your time. Instead, please send us a brief paragraph (no more than 150 words) describing what you want to write about, the audience you want to reach, and why you are the best person to write about this topic. For example, I recently wrote an article about the challenges and benefits of publishing negative data. A pitch for this article would look something like this:

Publishing a story with negative data in a journal can be challenging due to the current stigma that a “good publication” means you have positive data. However, scientists produce more negative data than
positive and making this data accessible could save others time and money. Finding venues to publish negative data could help graduate students earn a first author publication sooner, improving graduation rates. As a student, I want to publish some of my negative findings to benefit myself and the field but worry about the lack of currently published negative studies. In my article, I would like to discuss the challenges of publishing negative results and provide students resources for disseminating negative findings.

Also, it’s important to make sure that what you are pitching has not already been discussed in another recent blog.

**What Happens Once My Pitch Is Accepted?**

Once we have accepted your pitch, we will ask you to write the blog. Once we receive it we will share it with members of the communications subcommittee within COMPASS. After a week, we will send you back edits and you will have a week to incorporate the edits. The edited draft will be reviewed by editors for the ASCB Post, and once final edits are incorporated, your article will be posted on the ASCB website. Also, we encourage you to post links to your article on Twitter (and maybe even give COMPASS a shout out). If you really, really enjoy the process, then we are going to try to recruit you to COMPASS so you can do the process all over again!

If we do not accept your pitch, we are happy to suggest other outlets for your article and help you navigate how to pitch somewhere else.

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**About the Author**

Natalya Ortolano is a PhD candidate in Vivian Gama’s laboratory at Vanderbilt University.
While Nicholas Kristof was discussing talent and opportunity in regards to geographical location and access to opportunities in various countries, his point rings deeply true in terms of access to opportunities in the STEM fields in the United States, specifically for students from minority groups, first-generation college families, and low socioeconomic backgrounds.

One of the biggest challenges for such students is often a lack of information about careers in science. Not being aware of opportunities or how to harness them can be severely limiting and is a barrier to entry into STEM fields. As a faculty member at the University of Texas MD Anderson Cancer Center, I have been involved with a few programs that try to achieve change in this area. As part of the Open Houston Program, I have spoken at middle and high schools in underrepresented minority communities about my journey from India to my current position and career in science. The Open Houston Program is designed and executed by the Women and Minority Faculty Inclusion Program at MD Anderson Cancer Center (https://bit.ly/3cy4vw3).

**Open Houston Program: Introducing Students to Role Models in Science**

The Open Houston Program brings minority and women faculty from the MD Anderson Cancer Center together with elementary, middle, and high school students from underrepresented minority groups. These visits are designed to introduce students to role models in STEM and to open a dialogue about how everyone can belong in STEM fields. Once students become aware of the possibilities and the opportunities, enabling and encouraging them to pursue those opportunities comes next.

After my visits to schools through Open Houston, I often receive emails from teachers of students who are interested in talking to me further about opportunities that may exist at MD Anderson Cancer Center and how to pursue them. I respond to these inquiries in a few different ways: 1) I invite the students to visit the lab for a tour, and we walk them through what we do in lab; 2) I provide information on how to pursue careers in STEM, including the availability of stipends (for the programs where stipends are provided); 3) I direct students to the four to six paid summer internship programs at MD Anderson that provide access to students by matching the student’s experience and interest with host labs where the students work for 8–10 weeks.

In addition to the Open Houston Program, my lab actively participates in the Outreach Program at the Graduate School of Biomedical Sciences (GSBS) at MD Anderson Cancer Center / UT Health (https://bit.ly/2Uiei19). The Outreach Program, together with teachers from local high schools, organizes a day-long event for students from various underrepresented communities to visit the graduate school. Labs from around the institution do a show-and-tell on model systems, basic science, and cutting edge technologies.
and offer short career path talks from faculty, students, and others. The program has been extremely effective because many of the students who visit the institute as part of the Outreach Program apply for our summer high school student programs, allowing them further opportunities to explore specific STEM career paths. Encouragement and celebration of diversity foster a healthy STEM environment.

Finally, as a member of the Graduate Education Committee at the MD Anderson UT Health GSBS, I chair the subcommittee on Diversity, Inclusion, and Equity to help best support at-risk students, faculty, and staff, who are integral to STEM. This is an effort to create a sustainable, inclusive environment that effectively paves the way for the success of minority groups in academic settings. The goal of this effort is to foster a diverse, vibrant, and healthy academic environment.

My lab’s scientific fabric is also deeply enriched by these experiences. I am fortunate enough to have a team of diverse scientists and scientists-in-training who participate in the Outreach Program with me. This by definition requires them to work as a team to be most effective at making an engaging presentation to underrepresented minority students. Working as a team then flows over into their daily interaction in the lab, which ranges from brainstorming on critical experimental ideas to even building tools that may be important for a lab mate’s research. Most wonderfully, it has fostered in them the desire to pay forward what they learn from these experiences. Thus they actively take on leadership roles. For example, two of my graduate students, Amanda Minogue and Jacob Ortega, are respectively the current president of the Graduate School Council at Baylor College of Medicine (BCM) and president of the BCM chapter of the Society for Advancement of Chicanos/Hispanics and Native Americans in Science. (I am a faculty member in the graduate program in Developmental Biology at BCM.) Another example is student Han Bit Baek, who is active in the Genetics and Epigenetics Graduate Program Community Committee at MD Anderson UT Health Graduate School. The increased engagement with outreach programs and the joy of belonging to the world of science has led to successful careers in STEM fields for many of my lab members. It’s truly a win–win situation!

About the Author
Swathi Arur is an associate professor in the Department of Genetics, Division of Basic Science Research at the University of Texas MD Anderson Cancer Center.
The Trump administration released its proposed budget for FY2021 and as in previous years, it calls for more cuts to major portions of the federal science budget. If the budget proposed by the Trump administration were to be signed into law, it would result in a 7% cut to the U.S. National Institutes of Health (NIH) and a 6% reduction for the National Science Foundation (NSF).

It is highly unlikely these proposed cuts will actually take effect, however. There is strong, bipartisan support in Congress for increased funding for the NIH and other federal scientific agencies. That support has overcome cuts to both the NIH and NSF proposed in each of the previous Trump administration budget requests.

The suggested cuts to the NIH and NSF are not unique. The Department of Energy’s Office of Science budget draft is cut by 12%, with a 31% cut to the Biological and Environmental Research portions of the Office of Science. The budget for the National Aeronautics and Space Administration is increased by 12% but the Science account is reduced by 12% and the STEM Engagement account is eliminated. Science even takes a hit at the Defense Department. In the Defense budget plan, science and technology is reduced by 13%, with basic research being cut by 11%.

The arrival of COVID-19 in the United States brought a new focus on the importance of biomedical research. In late March, the administration updated its budget request for FY2021, increasing proposed budgets for select portions of the government, including the National Institute of Allergy and Infectious Diseases.

The original budget proposed by the Trump administration was never really taken seriously on Capitol Hill, and that was before the presence of the COVID-19 pandemic highlighted the important role of biomedical research. While it is hard to know how the FY2021 budget will be impacted as a result of the pandemic, it is safe to assume that funding for all portions of NIH and NSF will be larger than the funding proposed in either FY2021 budget proposal submitted to Congress.
As the COVID-19 virus made its way around the world, members of the American biomedical research community rushed to react, first to the need to transition to new ways to teach their classes and then to close their research labs for as long as two months. In an effort to make the transition to the new reality of shuttered research labs, both the U.S. National Institutes of Health (NIH) and the National Science Foundation (NSF) issued a series of policy announcements intended to ease the concerns of the members of their community.

Both agencies have pages of their websites dedicated to answering the concerns of grantees and those wishing to submit grants. The NIH page (https://grants.nih.gov/grants/natural_disasters/corona-virus.htm) addresses proposal submission and award management, human subjects and clinical trials, animal welfare, and peer review.


While the NIH is assuring the members of its community of a great deal of flexibility in helping labs get back up and running at the conclusion of the national emergency, everyone is encouraged to be aware of the recent announcements coming from their funders in response to this unprecedented situation.
Each year the Coalition for the Life Sciences (CLS) plans a series of caucuses on Capitol Hill that are designed to foster an appreciation for and understanding of biomedical research. (ASCB is a founding member of the CLS.) The caucuses provide a forum where congressional members and staff can interact directly with preeminent researchers responsible for important scientific research. ASCB members are invited to attend. Additionally, all briefings are taped and can be viewed on the CLS website. To see any past briefing, please visit www.coalitionforlifesciences.org.

The COVID-19 pandemic has forced the cancellation of events originally scheduled for April, May, and June. Here are the topics and speakers still scheduled for 2020. Check www.coalitionforlifesciences.org for updates.

All presentations take place on Capitol Hill in Washington, DC, from 2:30–3:30 pm in 121 Cannon House Office Building.

**Friday, July 17**
Could Parkinson’s Disease be Cured by Stem Cell Advancements?
*Lorenze Studer, Memorial Sloan Kettering Cancer Center*

**Wednesday, Sept. 16**
Gene Therapy: A New Hope for Neurodegenerative Diseases
*Charlotte Sumner, Johns Hopkins School of Medicine*
ASCB’s education journal, *CBE—Life Sciences Education (LSE)*, is your source for

- Tried and tested ideas for improving your teaching and mentoring
- Data-driven strategies for improving students’ learning, development, and success
- Evidence-based approaches for engaging students and overcoming everyday teaching challenges
- Valid and reliable assessment tools

**Interested in Online Teaching?** *LSE* has published a number of articles that can help you, including:

**Student Satisfaction and Learning Outcomes in Asynchronous Online Lecture Videos**
Ronny C. Choe, Zorica Scuric, Ethan Eshkol, Sean Crusier, Ava Arndt, Robert Cox, Shannon P. Toma, Casey Shapiro, Marc Levis-Fitzgerald, Greg Barnes, and Rachelle H. Crosbie
Volume 18, No. 4 (2019)

**Design and Assessment of Online, Interactive Tutorials That Teach Science Process Skills**
Maxwell Kramer, Dalay Olson, and J. D. Walker
Volume 17, No. 2 (2018)

**Options for Online Undergraduate Courses in Biology at American Colleges and Universities**
Alison K. Varty
Volume 15, No. 4 (2016)

**Use of Feedback-Oriented Online Exercises to Help Physiology Students Construct Well-Organized Answers to Short-Answer Questions**
Jacqueline Carnegie
Volume 14, No. 3 (2015)

Check out *LSE*’s Evidence-based Teaching Guides at https://lse.ascb.org.

Explore the Anatomy of an Education Research Study at http://www.ascb.org/annotations and learn about the design, conduct, interpretation, and presentation of education research.

Stay up to date with all that *LSE* has to offer by following us on Twitter @CBELifescied.
When faced with the prospect of assembling a panel, conference session, or workshop, we frequently and instinctively invite whoever comes to mind, essentially relying on the bias of our own known scientific networks to populate such sessions. However, this can lead to overrepresentation of dominant demographics (often cisgendered, white, and male) in these venues. The use of tools or databases that allow us to search for participants based on their interests and expertise is a powerful way to increase diversity. The Women Speakers List that the ASCB Women in Cell Biology committee (WICB) has maintained for many years has recently been consolidated with a new Cold Spring Harbor Laboratory (CSHL) initiative to provide a tool for everyone to use to increase representation of women as speakers. The combination of these lists will expand our scientific networks and make them more representative of diverse scientists.

**Rationale for Speakers Lists**

It is uncontroversial that women remain underrepresented in STEM disciplines, especially as faculty, external seminar speakers, first and senior authors, grant recipients, and representatives on faculty promotion committees and institutional strategy committees. Many high-profile allies and leaders are speaking publicly about working to make “manels” (all-male panels) a thing of the past, including most prominently Francis Collins, the Director of the National Institutes of Health. Initiatives such as the New York Stem Cell Foundation Gender Equity Report Card and several other high-profile resources are doing outstanding work in documenting the continuing disparity, which is the first step to correcting the problem. A potential next step is use of a Web app that allows one to estimate the probability of appropriate representation on a panel of a given size given the demographics of a particular discipline; it is a handy way to set a benchmark for assembling a suitably diverse group of people.

Although one of the frequently cited rationales for panels, committees, and meetings that lack diversity is “we tried to find women (or other underrepresented) speakers but couldn’t,” there is no lack of a variety of talented people, many of whom are in early career stages and would benefit from the opportunity to
present. So once you have identified a need for diversity, how best to achieve it? Having a well-designed and straightforward resource provides quick access to this extended network of talent.

**Evolution of the Speakers List**

WICB has spearheaded a number of important initiatives to promote gender equality within cell biology, as well as career development programs that support all cell biologists. WICB also established the Women Speakers list to provide an accessible list of women speakers on a variety of cell biological topics. Originally curated from the program of the ASCB annual meeting in an effort to highlight women whose work had been selected for presentation or an award, the current iteration of the list is being designed to provide additional functionality and accessibility.

Through collaboration with CSHL and its Women in Science and Engineering affinity group, we are excited to launch the new speakers list, which is hosted at www.womeninbiology.cshl.edu and will also remain accessible through the ASCB site. As with the original list, the intent of this new, more comprehensive “Women in Biology” list is to provide a centralized resource where organizers of meetings and seminar series can source speakers using searchable keywords reflective of research areas and interests. The new site hosts the ASCB list combined with names of invited speakers from CSHL meetings and courses. Plans are underway to expand the list so it includes speakers contributed by other societies and conference organizations as well. The goal is to create an easily accessible tool that represents the breadth of expertise among women investigators in the biological and biomedical sciences. In addition, the availability of this tool will help alleviate the burden of labor on the highest-profile women, who often get asked but cannot always participate.

The ASCB’s Women in Biology list is complemented by a similar list curated by the ASCB Minorities Affairs Committee (MAC) that can be found at the same site as the historic WICB list (www.ascb.org/career-development/speaker-referral-lists) and serves to similarly provide a tool for increasing racial and ethnic diversity among speakers. The MAC speakers list is continually revised and the Committee welcomes suggestions for additional names of People historically Excluded from science due to Ethnicity or Race (‘PEER’) scientists.

**Future of the WICB Speakers List**

Importantly, the Women in Biology database, including the ASCB WICB list, will support self-nominations from women in faculty positions, regardless of whether they have been an invited speaker at the ASCB annual meeting, at CSHL, or elsewhere. This feature is designed to especially highlight early-career women who may not yet have given a talk at the annual meeting, yet stand to benefit from inclusion in the list. The new self-nomination feature, which is set to launch later in 2020, will include a form that allows women to choose keywords relevant to their research and declare whether they identify as members of other groups underrepresented in the sciences. Filters will enable selection on these identifiers as well as on whether potential speakers are previous ASCB award winners or speakers.

**Other Resources for Diversity**

While a number of resources similar to the Women in Biology database are already publicly available—including 500 Women Scientists (https://500womenscientists.org), Anne’s List (https://anneslist.net), The Company of Cell Biologists Node Network (https://thenode.biologists.com/network), and other discipline-specific lists—we think that through all of these lists we can build a resource for the biology and biomedical science community that is inclusive and effective in promoting and amplifying women scientists. By joining forces with CSHL, WICB
is excited to have the opportunity to increase visibility for this important resource and work with them to make it as powerful as possible, particularly for women in the early- and mid-career stages.

Finally, communication technology is also fostering the drive for increased diversity, inclusion, equity, and liberation. It is becoming easier to build peer support networks and communicate both within and beyond our immediate scientific community: Science Twitter, as well as online communities such as New PI Slack (https://newpislack.wordpress.com), Future PI Slack (https://futurepislack.wordpress.com), Mid-Career Slack (@Mid_Career_PI on Twitter), and the ASCB Online Community (https://community.ascb.org/home) enable us to join forces and amplify our voices as a diverse group.

In summary, speakers lists allow us to organize and disseminate resources. These are part of your toolbox—they translate to actionable tools that one person can use to effect change by reducing barriers to the equity, diversity, and inclusion in STEMM.

**Acknowledgments**
I would like to thank my colleagues who have worked tirelessly on generating and maintaining the speakers list, as well as those, including WICB leadership, who have advocated these recent changes. These include Mary Munson, Sandy Masur, Rebecca Heald, Diane Barber, Sue Biggins, Sophie Martin, Sowmya Swaminathan, Keith Mostov, James Nelson, and Caroline Kane, as well as Charla Lambert and Cassidy Danyko from CSHL. I apologize to anyone whose critical efforts were inadvertently omitted.

**References**
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**About the Author**
Emily Mace is assistant professor of Pediatric Immunology at the Vagelos College of Physicians and Surgeons of Columbia University.
DEAR LABBY

Really, Your Congressperson Will Listen to You

DEAR LABBY: I’m concerned about funding for basic science and I care about science policy issues that affect cell biology research. I want to do more to get the message to Capitol Hill. My problem is that I live and work in a state that’s dominated by politicians who stand for ideologies that are directly opposed to my point of view. I just think it would be a waste of my time to contact them or try to get them to support science. But my PI says that’s defeatist and I should try anyway. What do you think?

—Disenfranchised

DEAR DISENFRANCHISED: Labby hears this concern often, but not so often from cell biologists who’ve actually been to Capitol Hill and talked with their representatives or the staffers in their offices. Support for the National Institutes of Health is strong on both sides of the aisle, and increasingly there is strong support for science in general. You will likely find that you get a warm reception, even when you may disagree strongly with your representative’s positions on other issues, if the conversation is about science. There is, of course, strong support for disease-related research, but there’s also a pretty good level of comprehension of the importance of basic science discoveries that underpin more applied research.

In addition, your audience is likely to appreciate information that they can share with their constituents relating to the economic benefit of the biotech industries that grow out of a strong research base at universities and institutes in their districts. You can even point out the growing discussion of the importance of science to national security and economic competitiveness as the impact of R&D investment in China and other nations becomes clear to our policy makers.

In general, your representatives and their staffs will welcome your input, will be interested in your science, and will be keen to understand how you are affected by their votes. It’s very rare to find anyone who will argue with your point of view, even though they might disagree with you completely on other issues.

The Policy & Outreach tab on the ASCB website includes a number of ways you can be involved in advocacy and outreach. The Advocacy and Policy section includes a whole Advocacy Toolkit with one-page guides on how you can be an advocate for science, depending on how much time you have to give to the effort. These “How To” guides include important suggestions on how to schedule meetings on Capitol Hill and what Hill meetings are like.

You will find that your representatives and their staffs are thoughtful and their views more nuanced than you expect. So Labby’s advice is definitely to take every opportunity you can to advocate and to educate. Your interaction can give your representatives good ideas and the reasoning behind public positions that will support science.

—Labby

Got Questions?

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

ascb newsletter april 2020
Colbie Chinowsky is earning her PhD at Vanderbilt University, using the microvilli in the small intestine as a model to study cytoskeleton dynamics. "I specifically focus on the role of non-muscle myosin in microvillar development and maintenance, and how basic biophysical principles, such as force balance, might contribute to brush border structure," she said.

In her free time, she flexes her muscles in competitive Olympic-style weightlifting. But every day, she flexes her muscles as a science advocate. During the 2019 ASCB|EMBO meeting, Chinowsky joined 60 other attendees in a visit to Capitol Hill to meet with members of Congress and their staffs. She feels it is a scientist’s civic duty to share the importance of scientific research with as many people as possible.

“In the U.S., and many other countries, the public pays for much of scientific research through tax dollars, but many laypeople are skeptical of science, or mistrust it," she said. "I believe that this distrust is fueled by misunderstanding...[and] it is part of our job as scientists to distill our research to a level more easily understood by an audience with a wide range of education.”

Chinowsky said ASCB membership has helped bolster her advocacy efforts. “Taking advantage of going to local town halls with your Congress people or scheduling a visit to their office is another method to advocate for science,” she added. "[But] science advocacy happens every day. Take the time to explain to your friends or family why science is important, and how it contributes to advances within society.

Don’t get too bogged down in the details—they aren’t always needed to convey the importance of research. Particularly in the case of basic science, it is important to be a strong advocate because the positive effects are not as immediately obvious as research that has a clear impact on human health.”

In the future, Chinowsky hopes to join the faculty of a small liberal arts college, or pursue a career in science policy professionally, either for a large university or nonprofit organization.

“I have been fortunate to attend the ASCB annual meeting for the last three years,” she said. “These meetings have provided excellent networking opportunities with other academics in my field, as well as with experts outside my field, including vendors. The various sessions on different career paths are also a great opportunity to learn more about a variety of careers, and provide a way to connect with people in your career path of interest.”

Wherever her career takes her, she said she plans to continue her science advocacy efforts.

“Science does not, and will never, exist in a box,” Chinowsky said. “However, science is inherently complex and requires an immense amount of scientific literacy to fully understand and interpret. I firmly believe that part of our role as scientists is to use our education and scientific knowledge to convey our research in a way that can be understood by all members of the public, as our work would not be possible without them.”
Marilyn G. Farquhar, one of ASCB’s most distinguished and celebrated members, died on November 23, 2019, at the age of 91. She joined ASCB soon after its formation, and served as a Councilor from 1966–1970 and as President in 1982. She received the Society’s prestigious E.B. Wilson Award in 1987 for her many contributions to basic cell biology, as well six major awards from other scientific societies. In 2017, she was elected an ASCB Fellow. She was elected to the National Academy of Sciences in 1984 and the American Academy of Arts and Sciences in 1991. She served on the faculties of the University of California, San Francisco (UCSF; 1962–1970), Rockefeller University (1970–1972), Yale (1973–1989), and the University of California, San Diego (UCSD; 1990–2019).

Farquhar will be remembered professionally for her original contributions to the fields of intercellular junctions, membrane trafficking (endocytosis; regulation of pituitary hormone secretion and crinophagy; identification, signaling, and pharmacology of intracellular heterotrimeric-G proteins), and podocyte biology and pathology. Over her 65-year-long career she was a founder of three of these fields (intercellular junctions, crinophagy, intracellular G-protein signaling), and helped guide the evolution of all of them. She sponsored, mentored, and nurtured 64 trainees, many of whom were women. Her work was largely supported by uninterrupted funding from the National Institutes of Health. She was listed as one of the 10 most cited women authors by Citation Index from 1981–1989.

The Early Years
Although Marilyn Farquhar’s scientific productivity is well documented in 319 publications, her development as a scientist is less well known. She was raised as a third-generation Californian in Tulare, CA. She drew inspiration from her mother, Alta Gist, whose own academic ambitions had been cut short by hard times, and from a family friend, who ran a pediatric practice out of her home. After graduation from the University of California, Berkeley (1952) and two years of medical school (UCSF), she began her scientific career by working toward a PhD in experimental pathology. She made this change because her husband, John Farquhar, discouraged her from taking the clinical years of medical school. Luckily for her, the chairman of Pathology had just purchased an RCA 3B electron microscope and asked her to investigate how to prepare tissue for analysis. Another blessing was the purchase of one of the first Porter-Blum microtomes. Her thesis project was to characterize the EM changes during hormone secretion in the anterior pituitary of the rat. She used the approach of an experimental endocrinologist: target organ ablation and hormone replacement.
When her husband relocated to the University of Minnesota to continue his medical training, she followed and was fortunate to work with Robert Good and Robert Vernier. With them she made the first EM studies of renal biopsies, thereby initiating her life-long interest in renal physiology and pathology. When her husband moved to New York City for further training, she obtained a postdoctoral traineeship in the laboratory of George Palade at Rockefeller University (1958–1962). Having worked with little guidance as a graduate student, she began her formal training in the new field of cell biology in its “birthplace,” the Rockefeller. It is of interest that Palade’s anatomy doctoral thesis in Romania was on the urinary tubule of black sea dolphins, and at the time of Farquhar’s arrival his lab was studying glomerular structure. Farquhar’s postdoctoral studies of the ultrastructure of diseased kidneys complemented Palade’s interests and led to a natural collaboration.

Their experiments established that glomerular capillary basement membrane is a barrier to the transglomerular passage of large-molecular-weight plasma proteins, thereby opening an entirely new approach to renal physiology. These studies led them to identify “tight junctions” as the cell structures responsible for the water and solute impermeability of epithelia, and to characterize their principal structural elements—zonula occludens, zonula adherens, and macula adherens (desmosomes).

After the birth of two sons, she again followed...
her husband back to California where she joined the UCSF faculty (1962–1970). There, she directed her own laboratory, and focused on pituitary hormone secretion. Together with her graduate students and postdoctoral fellows she discovered the process of “crinophagy” (named by de Duve), in which excess secretory granules fuse selectively with and are degraded by lysosomes. This led others to identify crinophagy in other endocrine cells, e.g., pancreatic alpha and beta cells. At this time, she also began studies of Golgi cisternae and the function of coated vesicles in protein uptake in the epididymis and provided the first descriptions of biogenesis of neutrophil granules.

In 1969 she returned to the Rockefeller as a full professor and joined the Palade-Siekevitz group. In 1970 she divorced her husband and married George Palade, forming an extraordinarily happy and professionally productive partnership. From that time on Farquhar and Palade collaborated where there was mutual interest but maintained separate labs and programs throughout the rest of their careers.

We pause here to reflect on the peripatetic career pathway that was common for talented and professionally committed women in the 1960s and 1970s, i.e., follow your husband, bear and nurture children, remain competitive in your field. Despite many compromises, Marilyn had the brilliance and persistence to make the most of every geographic move. She was a wonderful role model for young women attempting to break into a man’s world. She advised women to follow their scientific interests with passion and persistence. She broke with tradition by showing them how to manage both a family with children and a scientific career. It would take negotiating with superiors for reduced time when children were very young, returning to a regular schedule as children became more self-sufficient. Her own career, and that of her women trainees, proved the value and efficacy of such flexible career plans.

The Later Years: Research, Teaching, and Administration

Now recognized as a brilliant cell biologist, she returned to the Rockefeller as its first female professor. Farquhar and Palade moved to Yale in 1973, where she helped build a new Cell Biology department in the medical school. In 1974 Palade was named a co-recipient of the Nobel Prize in Physiology or Medicine.

While at Yale, she and others discovered that “megalin” was the target of an autoimmune disease known as passive Heymann nephritis, an animal model of the human autoimmune disease membranous glomerulonephritis. Further study revealed that it was in the LDL receptor superfamily, and the main proximal tubule membrane receptor for the retrieval of many filtered proteins and vitamins, thereby initiating a new chapter in understanding of renal physiology.

In 1990 Farquhar and Palade moved to UCSD to establish a new Division of Cellular and Molecular Medicine. With the recruitment of top scientists, the Division became a full department with Farquhar as its founding chair. She continued her two prior areas of research, i.e., Golgi secretion and glomerular biology. She also ventured into intracellular roles of heterotrimeric G proteins, a.k.a. “molecular switches” for signal transduction. She was among the first to recognize these switches’ functional activities on intracellular membranes. While the field of pharmacology was primarily focused on how these switches signal at the cell surface, she asked what (if any) roles they might play on intracellular organelles. In the 25 years that followed, her work revealed that these G proteins function at multiple intracellular sites. She discovered a plethora of modulators of these switches (GAPs, GEFs, and GDIs) and revealed how such modulation fine tunes organelle functions (Golgi secretion, autophagy, endocytosis) and regulates membrane trafficking. This was a remarkable feat. As a cell biologist, she was widely regarded as a quintessential outsider in the field of pharmacology, and yet she became one of the largest contributors of novel molecules to that field.
She was a superb educator. Her lectures and seminars exemplified thoughtfully designed experiments, gorgeously illustrated with Ansel Adams–quality diagrams and micrographs. Her depth of understanding and her lifetime of experience enabled her to trace the history of the fields in which she worked from their inception to the present. She was meticulous in citing contributions of other scientists. Her inventiveness as an investigator attracted outstanding students to the field of cell biology generally, and to her laboratory in particular. Two of us, D.B. and P.G., were fortunate to have been fellows in her laboratory and to have benefitted from her creativity, humanity, generosity, high ethical standards, and commitment to excellence.

Farquhar stepped down as department chair in 2008 but continued to teach, mentor, and maintain a productive lab until 2015. In 2017, UCSD’s chancellor recognized her contributions to building UCSD’s medical school to a high rank among the nation’s medical schools and to fifth in the nation in external research grants, by naming her a “change maker” and awarding her UCSD’s highest honor, the Roger Revelle Medal.

**Personal Note**
As a youth, George Palade enjoyed hiking in the mountains of Romania. Marilyn gained her love of the mountains in the High Sierras of California. Following their move to UCSD they spent a month each summer relaxing and hiking in the Elk Mountains near Aspen, CO. There they frequently hiked with friends and prior trainees who enjoyed their company, shared their lunch delicacies, and were impressed by their adventurousness and stamina. More than one trainee who knew George before and after his marriage to Marilyn commented that Marilyn had a profoundly beneficial effect on him. She enabled him to relax, to shed his “European professional formality,” and to express fully his playfulness and good humor. Those so fortunate as to have shared these mountain adventures with Marilyn and George treasure their remembrance of them.

**Footnote**

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**Are You Getting ASCB Pathways?**

You should be regularly receiving our monthly email update, ASCB Pathways—alerting you to the latest ASCB happenings and Annual Meeting updates, as well as the ASCB Newsbrief. If you aren’t seeing the e-newsletters in your inbox, please log in to the Member Portal on the ASCB website to update your communications preferences and make sure you are opted-in to receive emails. If you are already opted-in, check your spam filter, and/or contact your system administrator to whitelist *ascb.org.*
Martin (“Marty”) Gorovsky died on October 22, 2019, at age 78. A native of Chicago, Marty was an undergraduate at the University of Chicago and remained there for his PhD with Hewson Swift, followed by a postdoc at Yale with Joe Gall. First attending ASCB annual meetings while a graduate student, he continued his involvement with ASCB in various capacities including as a member of the Publications Committee (1978–1979), the Annual Meeting Program Committee (1980), a symposium organizer for the 1983 meeting, and a member of the Nominations Committee (1987).

Marty was the Rush Rhees Professor of Biology and chair (1981–1994) of the Department of Biology at the University of Rochester where he was a faculty member for his entire career. Having first studied *Tetrahymena* as a graduate student, Marty was a major figure who brought this ciliate to prominence, illustrating the power of emerging model organisms to best address fundamental biological questions. He was the first to separately isolate its micro- and macronuclei, wherein two distinct modes of genome organization and expression reside. Subsequently, he developed a genetic transformation method employing DNA electroporation into conjugating *Tetrahymena* cells. Using these and other molecular tools, Marty and his colleagues pioneered how histone modifications impact chromosome condensation and transcription, studies that were foundational for the advent of the epigenetics field. Subsequently, he implicated a small RNA pathway in genome rearrangements associated with DNA elimination in the developing *Tetrahymena* macronucleus, demonstrating an RNA interference–based mechanism for an endogenous genome editing process.

Marty received the University of Rochester 2003 Award for Graduate Teaching and the university’s Cancer Center Davey Award for Outstanding Cancer Research. Marty was admired as a research mentor, teacher, and colleague, exemplifying scientific rigor and biological insights. His personal bearing was one of warmth, generosity, and modesty. He will be missed, but his important work and mentorship remain a cornerstone for chromosome biology.

**About the Authors**

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**A Big Thank You to Our Donors!**

We have had a number of significant donations since the beginning of the year that have helped to support a wide range of programs including the newly renamed Günter Blobel Early Career Award. Our honorific awards nominations are now open so I hope that you will consider nominating a deserving colleague or submitting a self-nomination (see p. 14).

During these turbulent times, I am grateful for all of our donors, volunteers, and members. By being part of the largest society of cell biologists you help to advance the profession. ASCB is working for you by increasing the number of webinars we offer, transitioning some of our in-person regional meetings and professional development classes to virtual, and advocating for funding and other issues that will be critical to continuing our robust scientific enterprise.

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**Upcoming Deadlines**

- Education & Professional Dev. Application: May 14
- Registration/Housing Open: July 2020

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