



Looking Backwards and Forwards

Almost a year ago, in my inaugural ASCB President's Column, I wrote that my major objective was to create new opportunities for improved communication among the volunteer members of the ASCB leadership, between the ASCB and its members, and among ASCB members themselves. The year has sped by, and while our work is by no means complete, we've made significant progress toward these goals. I'll describe this progress, but first it's important to acknowledge who the "we" are.



Sandra Schmid

Giving Credit Where It's Due

The most important members of the "we" are the ASCB staff, most of them based in Bethesda, MD. Staff works tirelessly to:

- Edit, support, and produce the *ASCB Newsletter* and our outstanding journals (*Molecular Biology of the Cell* and *CBE—Life Sciences Education*)
- Keep us informed about ASCB activities and national and international events that affect our science and our profession
- Represent us and advance our goals
- Put together our exemplary Annual Meeting and other programs, to support the work of our volunteer committees and assist members to accomplish goals
- Maintain our fiscal health, track trends, and advise volunteer leaders on best practices, tactics, and sustainability
- Run the day-to-day operations of the ASCB for the benefit of our nearly 10,000 worldwide members.

For those of you who attend the ASCB Annual Meeting you'll see staff doing double (and triple) duty—at the ASCB Booth and Attendee/Member Services Desk, at sessions and other events, in the Career Center, and handling many other behind-the-scenes responsibilities that ensure a great meeting for us all.

Other critical members of "we" are the many volunteer leaders who serve as Chairs and members of committees. Their numbers

are many and I encourage you to check out the committee rosters on the website and express your thanks. Committees are another place where innovation happens and where identifying and serving our members' needs starts.

Thank you also to the many who volunteered to help committee efforts. While we didn't have slots for all, serving as Ambassadors, joining the Congressional Liaison Committee or Project 50, and blogging about discoveries presented through ASCB are all wonderful ways to advance cell biology.

I'm also grateful to the elected ASCB leadership—the Executive Committee and Council—for their advice, enthusiasm, and commitment to the valuable efforts of the ASCB.

What We've Started

So what's been accomplished and what have we started? Here's my list:

- We introduced ASCB Pathways, a new, monthly, easily accessible e-newsletter with clickable links that keeps you informed of ASCB activities, opportunities, and important developments. (We asked you about our communication, and thank you for the high marks you gave us.)
- We are collecting member information on research interests and approaches, teaching activities, etc., and creating a searchable member database that enables you to more easily find and connect with each other. (Haven't updated your member profile yet? It's easy. Go to www.ascb.org and click on the bright yellow button on the right-hand side of the page. This is a unique member benefit members asked for...and we complied.)
- Council now meets monthly by phone to discuss key issues important to our members and to think about new ways to better serve our members. We have conducted numerous focus groups among students, postdocs, and faculty—members and nonmembers—to learn more about your needs and how we

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can better address them. We also learned more about what members know and don't know about what the Society offers, and are addressing that regularly.

- We are carefully planning for a major website overhaul that will provide more than just a new look and more effective interface, but also increased content of value to our members. (Interested in providing ideas? Write ascbinfo@ascb.org to volunteer.)
- Council members attended the December 2011 Subcommittee on Postdoctoral Training (SCOPT) Open Forum to hear first hand how the ASCB can better meet the career development needs of our young colleagues.
- We've increased the number of Science Discussion Tables and introduced new Networking sessions at the ASCB Annual Meeting.
- We conducted a Town Hall session at the ASCB Annual Business Meeting to hear more of your ideas and concerns.

No Place Like Home

We hope that these efforts will enhance your sense of belonging to a community of cell biologists. Many have told us, and I agree, that the ASCB is their scientific home, their community. We know that is one of the main reasons why people remain members of the ASCB.

I promised to use this President's Column as a vehicle to discuss matters of concern to our community. My intent: inspire you to start some conversations within your own labs and departments. Many of the issues I've covered over the year affect young scientists—training, acknowledgment, and career preparation. I've also discussed the inevitable changes that will impact how we conduct science in an era of restricted growth. How can we most effectively utilize the limited financial resources available for the scientific enterprise and best leverage the diverse talents of our trainees?

Looking Optimistically Forward

I'm grateful to those who took the time to write and express their opinions, many of which were published as letters to the editor. I hope that I stimulated others to be introspective, to ask questions, and to think about what we're doing right and where we might do better.

Some, more specifically my own postdoctoral fellows (whom I'd like to acknowledge for carefully reading and commenting on draft columns), have suggested that my columns might have been too pessimistic. Personally, I am an idealist and an optimist. So, for my last column, allow me to list three things I'm optimistic and excited about:

1. I'm excited about the emergence of cell biology as the central science capable of connecting scales from molecules to organisms. Skilled cell biologists, trained to understand the inter-relationships of complex cellular processes and able to develop and utilize quantitative measurements of these activities, are needed to place discoveries made in biochemistry, biophysics, and systems biology in the functional context of the living cell. Similarly, as advances in whole genome sequencing map phenotype-causing mutations in animal models and disease-causing mutations in humans with increasing ease, skilled cell biologists are needed to reveal disease-causing mechanisms at the level of the cell. Cell biology, as a discipline, is more relevant than ever.
2. I'm excited because the tools available to cell biologists have never been so powerful, and so cool! RNA interference allows us to selectively eliminate specific proteins, which can then be reconstituted with retroviral vectors; this makes living cells the ideal "test-tube" for structure/function analyses. New methods for genome editing in mammalian cells will enable us to directly tag or manipulate genes without altering expression levels, just as has been done in yeast. The ever-expanding family of fluorescent proteins (green, yellow, cyan, mCherry, tomato, strawberry, plum), together with their pH-sensitive, photo-activatable or photoconvertible derivatives, allow us to track the activity and itineraries of our proteins of interest in living cells. High-speed spinning disc confocal microscopy, light sheet-based fluorescence microscopy, STORM/PALM super-resolution microscopy, TIRF microscopy, and EM tomography provide opportunities for high temporal and spatial resolution imaging to understand cellular structures and organization. Next generation sequencing

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allows us to define the transcriptomes and to map mutations comprehensively with high accuracy and increasing (near single cell) sensitivity; this is opening new doors to discovery. Importantly, computational biology, bioinformatics, and mathematic approaches enable us to track, analyze, and model the data we collect. These are but a few examples of tools available today that were not available 20 years ago when I started my own lab. Being a cell biologist today is like being a kid in a toy store! These tools are accelerating the pace and depth of discovery.

3. I'm optimistic because the scientific enterprise is at a tipping point. Due to forces such as decreasing funding levels, a steady-state reality, and the complexity of the biological problems, we are finally ready and willing to tackle change, which has become essential. In the future, science will be even more collaborative and require teamwork. No single lab, let alone individual, will have the expertise to be the best cell biologist, physicist, computational biologist, structural biologist, physiologist, etc. Therefore, the only way to combine the best of these divergent skills—so as to be competitive, solve complex problems, and open new frontiers—will be to collaborate. To accommodate team science, individual laboratories will, in general, be smaller. Students and postdocs will receive more individual attention and learn to work more effectively with others. Cell biologists will be able to communicate in different technical “languages,” such as modeling, statistics, physics, structure, etc. Women and minorities may be more successful in the context of team science because diversity and a willingness to collaborate always work

to a team's advantage. Because effective team science requires a mix of students, postdocs, and professional staff, balancing personnel at these levels will change the current funnel-shaped pipeline to one more cylindrical. This will proportionally increase career opportunities for young trainees.

My father and I are Star Trek fans. He frequently declares that “300 years from now all of these problems (i.e., whatever it is we're discussing) will be solved.” I'm more optimistic. I'm confident that every year cell biologists will boldly go where no cell biologists have gone before. The results from our explorations will hugely impact our understanding of human physiology and hence our abilities to treat human disease.

Thank you for contributing to my optimism. ■

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

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