THE AMERICAN SOCIETY FOR CELL BIOLOGY

ASCB NEWSLETTER

OCTOBER 2007

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What's New at the Annual Meeting?

The times they are a-changin', to quote Bob Dylan, and so is the ASCB Annual Meeting. You won't want to miss the 47th ASCB Annual Meeting in Washington, DC, December 1–5. The ASCB has added new sessions and formats designed to encourage interaction with speakers as well as ensure discussion of important topics. This is your opportunity to discuss peer review with members of an important National Institutes of Health panel. December is also the time to engage in a critical discussion with the National Science Foundation about the future of science education.

Not-to-be-missed are discussions of visionary Working Group members, addressing new approaches to investigating the cytoplasm and Alzheimer's disease, respectively. In addition, two new workshops (details on one below) offer

Annual Meeting, continued on page 4

Useful Databases for Cell Biologists

David Haussler

Web-based genomics tools play an increasingly important role in cell biology. The website www.genome.ucsc.edu is used by more than 70,000 researchers every month, receiving more than two million page requests per week. This site contains a large number of database and analysis tools that help scientists understand the human and 38 other animal genomes. Understanding how to use this database and others is the goal of the new ASCB Annual Meeting workshop, Useful Databases for Cell Biologists (December 5, 12:30–2:30 pm).

Workshop participants will learn how the Genome Browser zooms and scrolls over chromosomes, showing experimental data from many sources alongside the work of annotators worldwide. It provides links to other resources, including the Ensembl and NCBI MapViewer browsers, model organism databases such as FlyBase, and resources such as Entrez, Uniprot, and PubMed. Several other tools support and complement the Genome Browser. The Gene Sorter shows expression, homology, and other information on groups of genes that can be related in many ways. BLAT quickly maps a user-supplied sequence to the genome. The Table Browser provides access to the databases in a text rather than a graphical format, and can be used to intersect and synthesize various annotation types. VisiGene is a virtual microscope and slide collection of in-situ images. In Silico PCR maps primer pairs to the genome. This workshop will give an overview of all of these tools. ■

Did You Know…?

- It's not too late to register for the 47th ASCB Annual Meeting, December 1–5, in Washington, DC:
  - Missed the Early Registration deadline? You can still register for the meeting at the regular rate at www.ascb.org/meetings through December 4.
- You can still get your badge mailed to you if you register now.
  - Register by November 1 and your badge will be mailed to you. Attendees registering after November 1 must bring their confirmation receipt to the registration area at the Washington Convention Center to pick up their badges.
- Hotel rooms are still available.
  - The deadline for hotel reservations is November 6. Make your reservations online at www.ascb.org/meetings or by contacting the Washington Housing Bureau at (800) 492-7886 U.S/Canada, or (847) 940-4211 for international registrants.
- We're looking forward to seeing you in Washington, DC, in December! ■

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Executive Director

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Inquiry-based Science Education for Primary Schools

Why We Should Care

I believe that every child is, or could be, a scientist. By this I don't mean that every child should grow up to work in a laboratory. I mean that it is important that we give all young people the opportunity to discover the wonder of the world around them, while acquiring valuable scientific habits of mind. The "every child a scientist" movement that I advocate would be aimed at ensuring that every child's education includes a substantial amount of meaningful time spent in scientific explorations.

What might science look like for five-year-olds? In some U.S. kindergarten classes, the teacher hands each child a clean white sock to wear while walking around the school yard. Back in the classroom, she tells the children to collect all the black specks stuck to the socks and sort them into two piles; they are to figure out which are seeds and which are dirt. To help with this task, each child is given a $3 plastic "microscope" and asked to make a drawing of each speck, gently coached to notice if any of the specks have regular shapes, and encouraged to plant both specks, while hypothesizing which specks are seeds and might develop into plants.

Bruce Alberts

Imagine an education that includes solving hundreds of such challenges over the course of the 13 years of schooling that lead to high school graduation—challenges that increase in difficulty as the children age. Outstanding curricula of this type already exist, having been developed and refined in the U.S. for 50 years. I believe that children who are encouraged to investigate their world in this way would be great problem solvers in the workplace; they'd have the analytical abilities and the can-do attitude needed to be competitive in the global economy. Even more importantly, they would be more rational human beings—people better equipped to make wise judgments for their families, communities, and nations.

The Importance of Scientific Habits of Mind

A science education that nourishes scientific attitudes and values is also the best tool we have for reducing the dogmatism that threatens the world today with deadly conflicts. Scientists across the world are able to work together across a wide range of cultures; we share a common way of reaching conclusions that is based on logic and evidence. Scientists are also optimists, seeing remarkable progress being made in our own fields of work—be it biology or astrophysics—and therefore able to believe in the possibility of progress more broadly. Our ways of thinking are founded not only on strong respect for evidence and logic, but also on honesty and an openness to new ideas. These are important habits of mind that can be learned when children do inquiry-based science in school.

How far are we from this ambitious goal? We are doing well in kindergarten, but less well after that. If one visits almost any kindergarten class, the five-year-olds are doing something that looks like science. For example, the teacher might have them cut open an apple and look at it carefully. They've eaten lots of apples, but they have never looked at them in this way before. They get excited by exploration and trying to make arguments based on evidence. They begin to learn how to listen to their classmates' opinions and ideas, and, hopefully, to build new ideas together. This is what we want them to do at this age—and mostly, in my opinion, what kindergarten should be about.

The Effect of Fact-laden Science Curricula

It is critical that we maintain the exploratory and collaborative spirit of a kindergarten class throughout all years of schooling, but as students

progress through primary school, either they are likely to have no science at all, or they might be assigned a textbook from which they memorize 10 kinds of whales, parts of the body, and so on. This kind of activity is almost universally passed off as science, but it's not. We don't need to teach kids thousands and thousands of facts about science; why, for example, should they learn the words "endoplasmic reticulum," "Golgi apparatus," and "mitochondrion" at age 12? Far too often our science teaching is a mile wide and an inch deep, and it makes science no different from any other subject with large amounts of information to be memorized. In fact, analyses have revealed that there are more new words to be learned in some science courses than in a foreign language class.

It should be no surprise that teaching science as thousands of facts turns most students away from science. I have been examining textbooks for K–12 science ever since I became involved in science education reform. At first glance, they look great, with beautiful photographs and drawings scattered about on every page. But take any chapter in the middle of the book and sit down and read it carefully. See if it is interesting, and put yourself in the place of a naïve student; can you understand the concepts behind the boldface words? Once you have spent a few hours on such an exercise, you will have a better sense of the mind-numbing "science" our grade-school children are expected to study.

[A]nalyses have revealed that there are more new words to be learned in some science courses than in a foreign language class.

The Central Role of Public Schools

For our societies to be humane and successful, a different type of science education needs to reach all our children, and therefore must become deeply embedded in all public schools. It bothers me that so many of my colleagues send their children to private schools today, since I believe we need their active involvement as parents to keep our public schools effective. I keep thinking of the wonderful opinion pieces produced by Warren Buffet and Bill Gates in opposition to President Bush's push to abolish the inheritance tax in the U.S. several years ago. Their most telling argument for keeping the tax was the importance of leveling the playing field for future generations. As they pointed out, reducing financial inequalities will give the U.S. the best chance of selecting the most able and deserving people in the next generation to run the various aspects of a modern society—from our businesses to our elected officials.

It is in the public schools that the future leaders of our nation must be nourished, because it is critical that we cast a net as wide as possible for the talent and energy it takes to create a healthy society. For this purpose, high-quality, inquiry-based science education for all is essential. Why? Because it gives every student a chance to excel at tasks that mimic those that make a difference in the real world, regardless of a student's home background or language skills. Major improvements in science education are thus more important than most people think: They are critical for the future vitality of the U.S., and every other country, as a land of opportunity, a land where those with the most talent and energy succeed. ■

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

Resources for Building Partnerships

In response to "Science in a World at War" by Mark Peiffer (*ASCB Newsletter,* July 2007) about the challenges for scientists in the Middle East, two readers called attention to several ongoing efforts to build bridges between Palestinian and Israeli scientists.

- The United States-Israel Binational Science Foundation has issued a call for proposals for $50,000 grants to support workshops bringing together Israeli, American, and Palestinian scientists to develop partnership research projects (www.bsf.org.il).
- The Israeli-Palestinian Science Organization (IPSO) also has programs that fund joint scholarly and scientific projects (www.ipso-jerusalem.org; the IPSO's U.S. partner's website is www.fipsousa.org).

SALE
SALE
SALE

Special T-Shirt Prices!

Look for incredible bargains in Washington, DC! The ASCB will be offering amazing deals on most T-shirts. Look for the ASCB Booth in the center of the Exhibit Hall. ■

What's New, continued from page 1

a unique format to get your questions answered about fluorescence correlation spectroscopy and useful databases for cell biologists. And postdocs and students can take advantage of special question and answer sessions with Symposia speakers, scheduled after each Symposium.

Overviews, Areas of Focus

Whether you're seeking an overview of the field; in-depth exploration of a particular area, technique, or pedagogical strategy; career advice; information about postdocs or a new position, collaborator, or mentor, the ASCB Annual Meeting is the place to be. Program Chair Dyche Mullins and the 2007 Program Committee have planned a rich scientific program, featuring:

- Special interest subgroup presentations on membrane rafts, CLASPs, and use of systems biology to understand the RTK network
- Sessions of special interest, like:
  - Congress 101: A Case Study on How to be an Advocate for Science
  - Congressional Liaison Committee Seminar—mock U.S. congressional office appointments
  - Women in Cell Biology (WICB) Network Reception—learn more about the Committee, its interests, and activities
  - WICB-sponsored daily Dinner Meet-Ups
  - Education Committee–sponsored workshop on clickers
  - Postdoc workshop on careers outside of academia
  - Minorities Affairs Committee (MAC) workshop on writing for biomedical publication

Special Opportunities

You can take advantage of discounted tickets to see a Wizards basketball game on either the night of December 2 or December 5. (For tickets, visit www.verizoncenter.com/wiz/ascb1 or www.verizoncenter.com/wiz/ascb2.)

The Annual Meeting dates are December 1–5. The place is the Washington Convention Center. For the best choices in housing, make your hotel reservations by November 6 (see p. 1). We look forward to seeing you there! ■

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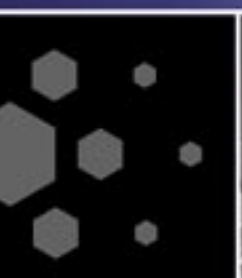




The ASCB 47th Annual Meeting

December 1–5, 2007

Washington Convention Center, Washington, DC

Bruce M. Alberts, President ■ R. Dyche Mullins, Program Chair ■ John Hammer, Local Arrangements Chair

Keynote Symposium

Saturday, December 1

New Biologists for the New Biology—6:00 pm
William Bialek, Princeton University
Shirley Ann Jackson, Rensselaer Polytechnic Institute

Symposia

Sunday, December 2

Membrane Dynamics—8:00 am
Pietro De Camilli, Yale University School of Medicine/HHMI
Kit Pogliano, University of California, San Diego
Kai Simons, Max Planck Institute, Dresden

Architecture of Signaling Systems—10:30 am
Richard M. Losick, Harvard University
Tobias Meyer, Stanford University School of Medicine
Pamela A. Silver, Harvard Medical School

Monday, December 3

Cell Biology of Metazoan Development—8:00 am
Kathryn Anderson, Memorial Sloan-Kettering Cancer Center
Marie-Anne Felix, Jacques Monod Institute, CNRS
Richard Harland, University of California, Berkeley

Unconventional Organelles—10:30 am
Martina Brueckner, Yale University School of Medicine
Stephen Gould, Johns Hopkins University
Yoshinori Ohsumi, National Institute for Basic Biology

Tuesday, December 4

Geography of Signaling—8:00 am
Howard Chang, Stanford University
Deborah Hogan, Dartmouth Medical School
Elly Tanaka, Max Planck Institute, Dresden

Force and Form in Cell Biology—10:30 am
Dennis Discher, University of Pennsylvania
Michael P. Sheetz, Columbia University
Valerie M. Weaver, University of California, San Francisco

Wednesday, December 5

Single Molecule Studies—8:00 am
Steve Kowalczykowski, University of California, Davis
Paul Selvin, University of Illinois
Michelle Wang, Cornell University

Cell Biology in Ten Years—10:30 am
Benjamin F. Cravatt, III, The Scripps Research Institute
David Haussler, University of California, Santa Cruz
Stanislas Leibler, Rockefeller University

For more information, contact the ASCB: (301) 347-9300 www.ascb.org/meetings

Minisymposia

Sunday, December 2

Cell Biology Working Groups: Challenges in Cell Biology
a) The Nature of Cytoplasm
Wallace Marshall, University of California, San Francisco, Moderator
b) The Cell Biology of Alzheimer's Disease
Lennart Mucke, University of California, San Francisco, Moderator

Cell Cycle
Michael Glotzer, The University of Chicago
Sue L. Jaspersen, Stowers Institute for Medical Research

Cytoskeletal Dynamics and Polarity
Ed Munro, Center for Cell Dynamics, University of Washington
William Saxton, University of California, Santa Cruz

Host–Pathogens Interactions and Innate Immunity
Joanne Engel, University of California, San Francisco
Jean Greenberg, The University of Chicago

Intermediate Filaments and Nuclear Lamins
Pamela K. Geyer, University of Iowa
Birgit Lane, IMB Singapore and University of Dundee

Neuronal Cell Biology
Michael D. Ehlers, Duke University Medical Center/HHMI
Franck Polleux, University of North Carolina at Chapel Hill

Protein Folding
Elizabeth Craig, University of Wisconsin–Madison
Suzannah L. Rutherford, Fred Hutchinson Cancer Research Center

Signaling through Cell Adhesion Proteins
David A. Calderwood, Yale University School of Medicine
Masatoshi Takeichi, RIKEN Center for Developmental Biology

Monday, December 3

Apoptosis and Organelles
Seamus J. Martin, Trinity College Dublin, Ireland
Donald Newmeyer, La Jolla Institute for Allergy and Immunology

Cell Migration/Motility
Jeff Hardin, University of Wisconsin–Madison
Irina Kaverina, Vanderbilt University Medical Center

Mechanisms of Epigenetic Regulation
Gary Felsenfeld, National Institute of Diabetes & Digestive & Kidney Diseases/NIH
Cynthia Wolberger, Johns Hopkins School of Medicine/HHMI

Mechanisms of Membrane Trafficking
Juan Bonifacino, National Institute of Child Health & Human Development/NIH
Elizabeth Conibear, University of British Columbia

Molecular Motors: Alone and in Groups
Gijsje Koenderink, Institute for Atomic and Molecular Physics
Daniela Nicastro, Brandeis University

Nuclear Import and Export
Charles N. Cole, Dartmouth Medical School
Richard W. Wozniak, University of Alberta

Prokaryotic Cell Biology
Zemer Gitai, Princeton University
David Z. Rudner, Harvard Medical School

X-ylation and Cell Signaling
Holly A. Ingraham, University of California, San Francisco
Kim Orth, University of Texas Southwestern Medical Center

Tuesday, December 4

Biological Oscillators
Jay C. Dunlap, Dartmouth Medical School
Hideo Iwasaki, Waseda University

Cell Biology and Disease
Lucy A. Godley, The University of Chicago
Timothy J. Mitchison, Harvard Medical School

Epithelial Morphogenesis
M. Thomas Lecuit, Developmental Biology Institute of Marseilles-Luminy
Jennifer Zallen, Sloan-Kettering Institute

Evolution of Eukaryotic Endomembrane Systems
John A. Fuerst, University of Queensland
Trevor Lithgow, University of Melbourne

Making 'omics Useful to Cell Biologists
John D. Aitchison, Institute for Systems Biology
Nevan J. Krogan, University of California, San Francisco

Mechanics of Cytoskeletal Systems
Margaret L. Gardel, The University of Chicago
Wolfgang Losert, University of Maryland, College Park

Mitosis and Meiosis
Sue Biggins, Fred Hutchinson Cancer Research Center
Dean Dawson, Oklahoma Medical Research Foundation

Nuclear Organization and Dynamics
Sui Huang, Northwestern University Feinberg School of Medicine
Susan R. Wente, Vanderbilt University Medical Center

Wednesday, December 5

Assembling Complex Cytoskeletal Structures
Jacek Gaertig, University of Georgia
Dave Kovar, The University of Chicago

Cell Biology of the Synapse
Edwin R. Chapman, University of Wisconsin–Madison
Graeme W. Davis, University of California, San Francisco

Chromatin Architecture and Remodeling
Laura Rusche, Duke University Medical Center
Jerry Workman, Stowers Institute for Medical Research

Extracellular Matrix as a Memory Storage Device
Linda Gay Griffith, Massachusetts Institute of Technology
Patricia Keely, University of Wisconsin–Madison

High-Tech Cell Biology
Grant Jensen, California Institute of Technology
Kendall Knight, University of Massachusetts Medical School

Regulatory Roles of Lipid Microdomains
Barbara A. Baird, Cornell University
Michael Edidin, Johns Hopkins School of Medicine

RNA Silencing Mechanisms
Natasha J. Caplen, National Cancer Institute/NIH
Alla Grishok, Columbia University

Stem Cell Niches
Leanne Jones, Salk Institute for Biological Studies
Haifan Lin, Yale University

LETTER to the Editor

To The Editor:

I applaud the recent column (*ASCB Newsletter*, August 2007), "On Better Serving Our Graduate Students," by Bruce Alberts. There was little support, and even significant contempt on the part of some senior people, when I left academic medicine in 1994. At the time I was an assistant professor in pathology at NYU School of Medicine and a Lucille P. Markey Scholar in the Biomedical Sciences.

I am glad to see that there has been a growth in training programs for alternative careers, although most academic medical institutions that I have encountered during my subsequent legal career do not seem to understand that there is life outside the ivy-covered walls. I left full-time science with a group of other, young assistant professors; one is now a senior editor at Elsevier and the other is head of patents at Novo Nordisk.

We have—as Alberts pointed out in his article—all been able to make very interesting contributions to diverse fields using our scientific knowledge. For such transition programs to succeed, Alberts and other leaders need to continue to publicly support alternatives. The harsh reality is that the system cannot absorb the current number of trainees for full-time academic positions. In addition to Alberts's ideas, I suggest the ASCB consider holding a session at the Annual Meeting in which people who have taken different roads with their science can present. I respectfully disagree with Alberts's proposal to develop a new graduate degree, because the business world is already skeptical enough of academics and would not—in my opinion—welcome another degree.

It would be nice if taking the "different" road were easier for the next generation of young scientists. Moreover, without scientists in every area of our society, we will inevitably encounter difficulty dealing with the ever-increasing pace of technological development. ■

—Michael A. Davitz
Axinn, Veltrop & Harkrider LLP

ASCB Annual Meeting

New This Year for Postdocs and Students

Come meet the Annual Meeting Symposia speakers for a brief Q&A session in Room 304 immediately following each morning's Symposium.

Exhibit Hall Hours

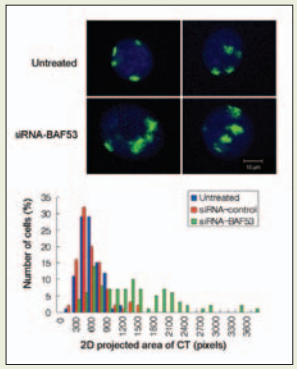
This year, the Exhibit Hall will only be open three days; Sunday–Tuesday.

Late Abstracts

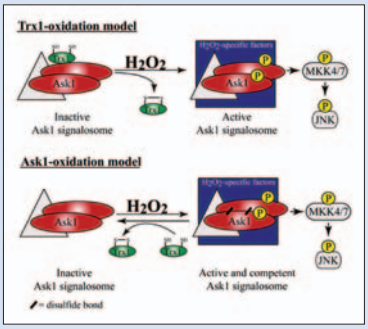
Late abstracts (no longer printed) will be included in the regular abstract CD. These CDs will be available in bins throughout the Washington Convention Center and at specially marked kiosks for abstract reviewing. ■

Expansion of Chromosome Territories with Chromatin Decompaction in BAF53-depleted Interphase Cells

Kiwon Lee, Mi Jin Kang, Su Jin Kwon, Yunhee Kim Kwon, Ki Woo Kim, Jae-Hwan Lim, and Hyockman Kwon



Chromosomes in interphase cells are confined to mutually exclusive chromosome territories (CTs) located in the nucleus. The architecture of the CT has been described as a meshwork of compact chromosomal subdomains that are channeled by an inter-subdomain space. Chromosomal subdomains have been visualized as interconnected, bead-like structures with diameters ranging from 100 to 450 nm. However, the higher-order organization of chromatin within the subdomain is still not understood. In addition, proteins that regulate the higher-order folding of chromatin are yet to be identified. BAF53 is an actin-related protein found in many chromatin-modifying complexes. Here the authors show that siRNA-mediated knock-down of BAF53 leads to the expansion of chromosome territories and the reduction in chromatin compaction in mammalian interphase nuclei. In addition, histone H3 exhibits decreased K9 dimethylation and increased H3-K79 dimethylation, alterations expected to reduce silent euchromatic regions. Finally, cell cycle progression is arrested at the G1/S border in BAF53-deficient cells. Thus, BAF53 appears to regulate higher-order folding of chromatin and the formation of chromosomal subdomains. Intact higher-order chromatin folding could be a prerequisite for cell cycle progression.



Disulfide Bond–mediated Multimerization of Ask1 and Its Reduction by Thioredoxin-1 Regulate H_2O_2-induced JNK Activation and Apoptosis

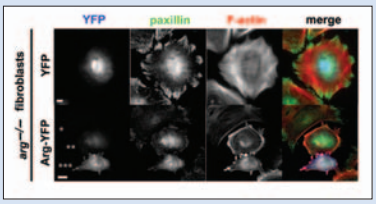
Philippe J. Nadeau, Steve J. Charette, Michel B. Toledano, and Jacques Landry

The apoptosis signal-regulated kinase 1 (Ask1)/Jun N-terminal kinase (JNK) cascade is an important redox-sensitive signaling pathway leading to several biological responses, including apoptosis. In the current model, the oxidative sensor in this pathway is thioredoxin-1 (Trx1). In its reduced form, Trx1 maintains Ask1 in its inactive state by direct association. Oxidation of Trx1 upon stress releases the inhibitory interaction, allowing Ask1 activation. Here the authors provide strong evidence for an alternate model for Ask1 activation. They find that Ask1 itself becomes oxidized during activation by H_2O_2, leading to the formation of intermolecular disulfide bonds between Ask1 molecules. This oxidation is not essential for the activation of Ask1 but is required for downstream signaling, i.e., activation of JNK and induction of apoptosis. In this process, Trx1 was found to directly reduce Ask1. Hence, the authors propose that Trx1 acts as a negative regulator of the Ask1 pathway during oxidative stress in a manner more consistent with its canonical thiol reductase activity. Trx1 keeps Ask1 in its reduced state and thereby prevents its functional interaction with downstream targets.

A Protein Interaction Map of the Mitotic Spindle

Jonathan Wong, Yuko Nakajima, Stefan Westermann, Ching Shang, Jung-seog Kang, Crystal Goodner, Pantea Houshmand, Stanley Fields, Clarence S. M. Chan, David Drubin, Georjana Barnes, and Tony Hazbun

The mitotic spindle consists of an intricate network of proteins that generates the forces responsible for chromosome segregation. These proteins have numerous functions including structural, organizational, regulatory, force-generating, and error-correcting roles that are carefully coordinated to achieve karyotypic fidelity between generations. To gain a more thorough understanding of how these functions are integrated, the authors conducted a focused yeast two-hybrid screen of 94 proteins implicated in *Saccharomyces cerevisiae* spindle function. Over 90% of the interactions detected by the screen were novel, including a pattern of interactions between kinetochore and chromatin-modifying proteins. In addition, the authors analyzed the protein interaction profiles of two mutants of Ndc80/Hec1, a protein implicated in the stable attachment of kinetochores to microtubules, which mimic the phosphorylation/dephosphorylation of four Ipl1p/Aurora B consensus sites. Phosphorylation of Ndc80p/Hec1 by Ipl1p/Aurora B may weaken its interaction with another kinetochore protein (Ydr532c) while promoting an interaction with the kinesin Kar3p.



The Abl-related Gene (Arg) Tyrosine Kinase Acts through p190RhoGAP to Inhibit Actomyosin Contractility and Regulate Focal Adhesion Dynamics upon Adhesion to Fibronectin

Justin G. Peacock, Ann L. Miller, William D. Bradley, Olga C. Rodriguez, Donna J. Webb, and Anthony J. Koleske

Abl family kinases promote F-actin–dependent protrusions of the cell periphery during adhesion, but paradoxically they inhibit cell migration on adhesive surfaces. Here the authors show that cells lacking the **A**bl-**r**elated **g**ene (Arg/Abl2) kinase migrate faster than wild-type cells and that Arg re-expression in these cells slows migration. Surprisingly, *arg*$^{-/-}$ fibroblasts have more prominent F-actin stress fibers and focal adhesions and exhibit increased actomyosin contractility relative to wild-type cells. By examining *arg*$^{-/-}$ cells complemented with different Arg mutants, the authors demonstrate that Arg kinase activity acts via the RhoA inhibitor p190RhoGAP to attenuate stress fiber formation and cell contractility, but that both Arg kinase activity and the cytoskeletal-binding Arg C-terminus are required to inhibit focal adhesions. Focal adhesions do not turn over in the trailing edge of *arg*$^{-/-}$ cells, but their increased contractility tears adhesions in the rear of the cell from the substrate, allowing for the observed faster migration. Thus, Arg inhibits cell migration by restricting actomyosin contractility and regulating its coupling to the substrate through focal adhesions. ■

MEMBERS in the News

Rex Chisholm of Northwestern University Feinberg School of Medicine, an ASCB member since 1982 and Chair of the Public Information Committee, has been named Dean for Research of the Feinberg School of Medicine.

Amber Dance of the University of California, San Diego, an ASCB member since 2003, was awarded an AAAS Mass Media Fellowship to work as a science reporter for *The Los Angeles Times.*

Susan Gilbert of the University of Pittsburgh, an ASCB member since 1983, joined Rensselaer Polytechnic Institute as the head of the Biology Department.

Torsten N. Wiesel of Rockefeller University, an ASCB member since 1996, was presented the National Science Foundation's National Medal of Science in a White House ceremony.

DEAR Labby

Dear Labby,

I have gotten into a tussle with the intellectual property officials at my institution. I came to this state medical school as a Full Professor two years ago. At my previous institution (a private, engineering-based university) I did some work that led to patent filings (still pending), but I no longer work in that field (nano-fabrication technology for optimizing cell culture surfaces). My current funding is for studies of angiogenesis in zebrafish. Recently, I was approached by a company that would like me to consult in the nano-fabrication field. Naturally, the company wants me to agree to convey to them any invention rights that arise in my consulting. My institution refuses to go along with this. Since I'm no longer working in the field in question, how can my institution block this proposed consulting agreement? I am not getting helpful advice from people in the hallways. What does Labby think?

—Puzzled

Dear Puzzled,

Labby understands your frustration, but there are some basic ground rules at play here. First, most academic institutions allow their faculty members to consult under terms in which the company is granted invention rights, when the invention made during the consulting doesn't directly evolve from work carried out at the faculty member's lab. Did your institution indicate that even this condition would be unacceptable? Some institutions address this concern by presenting a company with a detailed codex that defines what would versus would not be so covered; you might ask your office of technology management to show the institution's policy to the company if this hasn't occurred already.

On some occasions, institutions have been known to request a "Let's wait and see" clause. This requires both parties to agree that an invention made by or with the consultant will be dissected at the time to determine its roots inside or outside the faculty member's lab. This sounds draconian to some faculty members and has generally been perceived as a deal breaker by companies. However, from the university's point of view, this approach is based on two presumptions: (1) that an invention made while consulting might not be linked explicitly to research in the consultant's academic lab, and (2) that at the same time, it could well have originated from the collective knowledge, technical skill, and know-how that a faculty member accrued during years of scholarly endeavors at the academic institution. Such a clause can be problematic, however, given that tracing the intellectual origins of an invention is sometimes not straightforward.

You mention that you are at a state medical school. Does your institution promote faculty entrepreneurship in its mission statement and public relations outreach? Most academic institutions want to work with industry. State institutions, in particular, endeavor to do so to gain political favor (i.e., by claiming to be empowering the state's economic development). Sometimes, amazingly enough, institutions do so just because they believe it is the right thing to do.

If this is true of your institution, in discussing the opportunity further with its officials, you might tactfully turn the conversation to the overall institutional mission. I also suggest directly asking them, "Can we find a way to do this that works for everyone?" Administrators like to be seen as solving complex problems; and they often have the will, the experience, and the temperament to do so.

This sounds like a situation that can be resolved with further effort. ■

—Labby

Direct your questions to labby@ascb.org. Authors of questions chosen for publication may indicate whether or not they wish to be identified. Submissions may be edited for space and style.

Erratum

The member profile of Cheng-Ming Chuong that appeared in the August 2007 issue of the *ASCB Newsletter* misspelled the name of Chuong's collaborator on their paper in the journal *Autonomous Robots.* Chuong's coauthor was USC information scientist Wei Min Shen. ■

Small Business Bill Would Further Restrict NIH Budget

Limited research funding at the National Institutes of Health (NIH) could be further restricted if a bill recently introduced in the U.S. Senate were to become law.

Currently, federal agencies with extramural research and development budgets over $100 million are required to administer the Small Business Innovation Research (SBIR) program. The agencies are required to set aside 2.5% of their annual budgets for contracts with small companies to conduct innovative research or research and development that has the potential for commercialization and public benefit. A similar program, the Small Business Technology Transfer program (STTR), requires federal agencies with extramural R&D budgets over $1 billion to set aside 0.3% of their budgets for STTR programs.

S.1932, a bill introduced by Sen. Evan Bayh (D-IN), would double the current set-asides for both the SBIR and STTR programs. At the NIH, the SBIR set-aside would be doubled from the current 2.5%, to 5% of the budget in 2013. That same year, NIH would also have to double the allotment for STTR activities from 0.3% to 0.6%.

An increase in the current set-asides would be welcomed by the small business community, a powerful lobbying force on Capitol Hill. However, an increase would further limit already scarce funding for academic and independent research institution investigators. It would also place added pressure on some NIH institutes with research portfolios that are not conducive to small business collaboration.

... an increase [in small-business set asides] would further limit already scarce funding for academic and independent research institution investigators.

S.1932 is currently cosponsored by Senators John Kerry (D-MA), chair of the Senate Small Business Committee; Olympia Snowe (R-ME), ranking Republican on the Small Business Committee; Mary Landrieu (D-LA), and David Vitter (R-LA). Landrieu and Vitter are also members of the Small Business Committee. ■

—Kevin M. Wilson

JSC Congressional Biomedical Research Caucus

Left to right: Harry Dietz of Johns Hopkins School of Medicine/Howard Hughes Medical Institute spoke at a Congressional Biomedical Research Caucus on A Therapy for Marfan's Syndrome; *JSC Education Liaison Peter Kyros listens, as do attendees at the briefing.*

The ASCB Public Policy Committee Needs You!

See www.ascb.org/public policy/project50/index.cfm or email kwilson@ascb.org for more information.

Tell Your Policy Advocacy Story

Have you ever written or called your federal, state, or local representatives about an important science policy issue? Have you ever met with your government leaders to share your thoughts? Have you ever come to Washington, DC, as part of an ASCB Hill Day? What do you think was your impact? How have you followed up? Please take a moment and share your story.

Send your account to Kevin Wilson, ASCB Public Policy Director, at kwilson@ascb.org. Your name will not be used without your permission. ■

Women in Cell Biology

Succeeding in Science at a Liberal Arts College

I'm dragging because I was up until 2:00 am on ebay. It was worth it, though; I won the used Afga X-ray developer for only $1,200. I spent the first part of the morning trying to order lab supplies. I just got off the phone with Fisher, trying to order pipette tips and microcentrifuge tubes. I had to scrounge up a P.O. for them and couldn't find the paper with my account number on it. I struggled to figure out whether I have money in my jumbled grant budget to pay for the supplies. I think I've done some math incorrectly and may have found an extra $200 (or maybe I've done the math correctly and am $200 short, not sure...) I've now got 15 minutes left of the hour before my biochemistry lecture to set up a restriction digest and load a gel. Alas, it's not to be, for as soon as I step outside my office I spot two students from my immunology class approaching me. Those precious 15 minutes are disappearing...

If you can imagine funding your entire laboratory on a $2,000 research grant, you will begin to comprehend my joy at finding used lab equipment for sale on ebay.

Dictionaries define fragmented as broken into pieces. There is no better adjective to describe what it is like to be a scientist at an undergraduate liberal arts college, in my case at Simmons College where the undergraduates are women. On any given day, I am called upon to be a PI, a lab manager, a lab technician, a grants administrator, a teacher, a career advisor, and sometimes a soft place to land for an unhappy 18-year-old. Imagine for a moment, your lab with no technician, no postdocs, and no grad students. Who's available to do the experiments? YOU. You would be making the plates, purifying the plasmids, lysing the cells, running the gels, washing the blots, and so on. Calculate the number of productive hours your postdocs, techs, and graduate students spend at the bench performing experiments. Now imagine that it is only you and maybe a few junior undergraduates. It's a frightening thought.

Collaboration and Fragmentation

At the moment, my lab is working on three very different projects. I'm collaborating with one colleague who is characterizing an *E. coli* protein possibly involved in transcriptional silencing. I'm collaborating with another colleague who is exploring the evolution of a murine mutation involved in patterning in the mouse. And finally, my lab's own project is characterizing the functional relevance of a mammalian B cell receptor protein and its downstream protein partner. This means that I'm a molecular, developmental, and cellular biologist, with a dash of biochemistry and immunology thrown in. Talk about "fragmented!" I am truly never bored, but I face a Sisyphean task trying to keep up with all the literature.

By definition, liberal arts colleges, and hence their departments, are small. Consequently, I am the sole representative of several fields in my department. I am the only biochemist in the chemistry department and the only immunologist in the biology department. My office sits between those of an inorganic chemist and a physical chemist. They have become versed at determining if there really is a band on the Western blot I just ran, and I have become an expert at analyzing their MALDI-TOF mass spectra. Hence, collaboration is essential; it is impossible to do research in a vacuum.

Where else could I collaborate with some great researchers in my field, without the fear of losing my funding and the pressure to churn out publication after publication?

Teacher-Scientist or Scientist-Teacher

I teach three courses in an average semester. I have about 30 advisees each semester, and there are usually two to three students doing independent research in my laboratory each year.

This translates into about 15-20 student contact hours per week. My students have constant access to me, and my door is always open for conversation and a cup of tea. I mentor these students, and counsel them, and, hopefully, serve as a role model so that they will go on to become scientists themselves. But first I have to teach them biochemistry and immunology—without a TA to run the labs, go

over homework problems, or grade the 10-page take-home exams I'm fond of giving.

So, am I a teacher-scientist or scientist-teacher? Does it matter? Does the fact I'm a teacher-scholar make me less of a "real scientist" in the perception of the larger research community? Will researchers at major research institutions take me seriously?

Will major grant programs consider me "worthy" of receiving funding? If you can imagine funding your entire laboratory on a $2,000 research grant, you will begin to comprehend my joy at finding used lab equipment for sale on ebay.

Why would I choose this path? I get to dabble in many scientific disciplines daily.

Where else could I apply my training in molecular biology to learning how to run a MALDI-TOF mass spec? Where else could I watch the epiphany of understanding dawn on the face of a junior when she finally appreciates that cell biology and biochemistry are actually related? Where else could I write, be awarded, and control my own grants, and still manage to wield a pipette? Where else could I collaborate with some great researchers in my field, without the fear of losing my funding and the pressure to churn out publication after publication?

Am I exhausted at the end of the day? Without question, but so is anyone who is passionate about his or her work. I am excited when a manuscript is accepted for publication, but I am equally excited when my students are accepted into graduate school.

My very first student will shortly defend her Ph.D. thesis at MIT. So the next time you have particularly skilled graduate students join your lab, think about where they came from. Think about the scientists who trained them at the undergraduate level and inspired them to continue. I am a scientist and I am a teacher.

It doesn't matter in which order you write the words, because on any given day I am equally both. And I would not have it any other way. ■

—Jennifer Roecklein-Canfield
for the Women in Cell Biology Committee

Dinner Meet-Up

At the ASCB Annual Meeting by yourself? Tired of eating alone or grabbing a sandwich at Starbucks? Drop by the Meet-Up poster in the Grand Foyer (lobby) of the Washington, DC, Convention Center at 6:00 pm each evening to find potential dining companions. A list of interesting restaurants will be posted; you figure out with whom and where to go. *(Sponsored by the Women in Cell Biology Committee)* ■

MEMBER Gifts

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

Nina Stromgren Allen
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Jeremy W. Thorner
Henry G. Tomasiewicz
Lydia Villa-Komaroff
Zena Werb
Christiane Wiese
Robin L. Wright
Kenneth M. Yamada

Annual Meeting Activities for Students & Postdocs

New This Year: Postdocs and students can take advantage of special question and answer sessions with Symposia speakers, scheduled after each Symposium in Room 304.

Saturday, December 1

9:00 am–5:00 pm—MAC Mentoring Symposium

- 9:00–10:15 am—Opening Plenary, *Elma Gonzalez,* cell biologist and MARC Director at UCLA, shares her story of perseverance to inspire and motivate students to believe that they can succeed in the scientific research field.
- 10:30 am–2:30 pm—Workshop: Writing for Biomedical Publication (waitlisted)
- 10:00 am–2:00 pm—Meeting of Minority Undergrads and Early Grads
- 2:30–5:00 pm—MAC Poster Session and Reception

3:00–5:30 pm—Undergraduate Program

- 3:00–3:30 pm—Poster setup
- 3:30–4:30 pm—Seeing in the Dark: How Fluorescent Proteins Are Shaping Biology
  Jennifer Lippincott-Schwartz, National Institute of Child Health and Human Development/NIH
- 4:30–5:30 pm—Undergraduate Poster Presentations and light refreshments

6:00 pm—Keynote Symposium: New Biologists for the New Biology
William Bialek, Princeton University, and *Shirley Ann Jackson*, Rensselaer Polytechnic Institute

7:30–9:30 pm—Opening Night Reception

Sunday, December 2

9:45–10:15 am—Bruce Alberts Award Presentation
Catalyzing Changes in Undergraduate Science Education
Patricia J. Pukkila, University of North Carolina at Chapel Hill

12:00–2:00 pm—Postdoc Workshop: Getting Out of the Box: Transitioning to a Career Beyond Academic Research

2:30–3:30 pm—Women in Cell Biology (WICB) Network Reception

12:30–4:00 pm—High School Program
Getting in Shape: New Clues from the Fly Embryo
Jennifer Zallen, Sloan-Kettering Institute

2:00-2:45 pm—Education Resources/MAC Booth Presentation
Incorporating New Technology into Online Learning: Applications and Student Satisfaction
Kristina Obom and *Pat Cummings*, Johns Hopkins University

3:00–3:30 pm—Education Resources/MAC Booth Presentation
Teaching Science at a Community College
Maria Niswonger, York County Community College

7:00–8:00 pm—Public Service Award Presentation and Address
U.S. Representative Michael Castle (R-DE)

Monday, December 3

9:30–10:30 am—Congress 101: A Case Study on How to be an Advocate for Science

9:45–10:15 am—Education Initiative Forum
Integrating Quantitative Modeling into Cell Biology
Raquell M. Holmes, Boston University and University of Connecticut Health Center, and *Leslie M. Loew*, University of Connecticut Health Center

10:00–11:00 am—SCOPT Meeting
All postdocs are invited to attend the first hour of the meeting of the Subcommittee on Postdoctoral Training (SCOPT). Committee members are interested in feedback from postdocs.

12:00 Noon–2:00 pm—WICB Career Discussion Lunch

1:00–2:00 pm—Education Resources/MAC Booth Presentation
Managing Your Undergraduate Classroom: How to Have Fun and Cope with Problems and Challenges
Elisa Koneiczko, Gannon University

2:00–3:00 pm—Congressional Liaison Committee Seminar
Mock Congressional Office Meetings

2:00–3:00 pm—National Science Foundation Grant Opportunities in Biological Sciences and Educational Activities

2:00-2:45 pm—Education Resources/MAC Booth Presentation
The Genomics Education Partnership
Sarah Elgin, Washington University at St. Louis

3:00-3:45 pm—Education Resources/MAC Booth Presentation
Microarrays for the Masses: Pedagogical Resources for High School through College
A. Malcolm Campbell, Davidson College

5:30–6:30 pm—Practice of Science: Challenges and Opportunities for NIH Peer Review

6:30–8:30 pm—WICB Evening Program & Awards Presentation

Tuesday, December 4

9:45–10:15 am—Education Initiative Forum
Encouraging Students to Develop Scientific Thinking Skills: New Methods for Assessing Performance
Elisa Stone, Berkeley High School

3:00–3:45 pm—Education Resources/MAC Booth Presentation
Design Principles for Effective Molecular Animations
Michelle Reinke and *Natalie Greco*, Drake University

1:30–3:00 pm—Conversation with NIH: Scientific Workforce Issues: Nuts and Bolts

6:00 pm–7:00 pm—CellSlam 2007

Wednesday, December 5

9:45–10:15 am—Education Initiative Forum
Yeast and Oxygen: Incorporating Functional Genomics Research into Three Integrated Undergraduate Laboratory Classes
Clare O'Connor, Boston College

GRANTS & OPPORTUNITIES

National Science Foundation. East Asia Pacific Summer Institutes, Summer 2008.The EAPSI program offers U.S. graduate students in science and engineering a unique opportunity to study abroad with foreign researchers. Application deadline: December 12, 2007. More information is available at www.nsf.gov/eapsi, or eapinfo@nsf.gov.

HHMI Postdoctoral Fellowships. HHMI will partner with the Jane Coffin Childs Memorial Fund, the Helen Hay Whitney Foundation, the Damon Runyon Cancer Research Foundation, and the Life Sciences Research Foundation to fund 16 annual fellowships to help advance young scientists. See www.hhmi.org/news/20070604postdoc.html

Office of Research on Women's Health. The NIH/ORWH and other sponsoring centers are accepting applications on funding opportunities that will advance new concepts in women's health research and the study of sex/gender differences. Application deadlines are October 16, 2008 and October 16, 2009. http://grants.nih.gov/grants/guide/pa-files/PAS-07-381.html.

NIAID Biodefense Fellowships. Applications being solicited from biodefense training and development researchers of prevention, detection, diagnosis, and treatment of diseases caused by potential bioterrorism agents. Grants, fellowships, and career development awards. Multiple deadlines. www.niaid.nih.gov/biodefense/research/funding.htm.

NIGMS Grants. The NIH/NIGMS is accepting applications for funding research in which several interdependent projects offer significant advantages over support of these same projects as individual research. Standard NIH application dates apply. http://grants.nih.gov/grants/guide/pa-files/PA-07-030.html.

NIH Director's Bridge Awards. New program to provide certain investigators with continued, but limited, funding to allow additional time to strengthen their revised R01 competing renewal applications. NIH components will nominate investigators to receive this support. More information is available at: http://grants.nih.gov/grants/guide/notice-files/NOT-OD-07-056.html.

NRSA Awards. The NIH Agency for Healthcare Research and Quality is accepting applications for the Ruth L. Kirschstein National Research Service Awards. The predoctoral fellowships promote diversity in health-related research. Application deadlines are May 1 and November 15 through 2009. http://grants1.nih.gov/grants/guide/pa-files/PA-06-481.html#SectionI.

National Cancer Institute Multidisciplinary Fellowships in Cancer Nanotechnology Research. The National Cancer Institute is accepting applications to fund multidisciplinary training of postdoctoral (F32) and senior fellows (F33) pursuing research towards the development and application of nanotechnology to the prevention, detection, diagnosis, and/or treatment of cancer. Application deadline is December 20, 2007. See http://grants.nih.gov/grants/guide/rfa-files/RFA-CA-08-003.html.

NRSA Research Training Grant. NIH/NIGMS will award MARC U-STAR National Research Service Act grants to minority-serving institutions that support undergraduate biomedical and behavioral research. Application deadlines are May 25, 2008, and May 25, 2009. http://grants.nih.gov/grants/guide/pa-files/PAR-07-337.html.

SCORE Awards. The NIH/NIGMS is accepting applications for its Support of Competitive Research (SCORE) developmental awards designed to increase faculty research competitiveness at minority-serving institutions. The program announcement, as well as three other program announcements (PAR-06-491, PAR-06-492, PAR-06-493), can be found at http://grants1.nih.gov/grants/guide/pa-files/PAR-06-490.html#PartI. ■

MEETINGS Calendar

ASCB Annual Meetings

2007
Washington, DC
December 1–5

2008
San Francisco
December 13–17

2009
San Diego
December 5–9

2010
Washington, DC
December 11–15

November 11–14. Boston, MA
Annual Meeting of the Society for Glycobiology. www.glycobiology.org/.

November 16–20. Mexico City, Mexico
10 Iberoamerican Congress on Cell Biology. www.ciabc.unam.mx.

November 27–28. Bethesda, MD
National Leadership Workshop on Mentoring Women in Biomedical Careers. Sponsored by the NIH/Office of Research on Women's Health. http://womeninscience.nih.gov/mentoring/index.asp.

January 5–9, 2008. San Diego, CA
Genetics Society of America. "Analysis: Model Organisms to Human Biology." Abstract deadline: November 14, 2007. www.gsa-modelorganisms.org/.

January 9–11, 2008. Bethesda, MD
MitoMini2008: NIH Mitochondria Minisymposium. www.nih.gov/sigs/MM2008.

February 2–6, 2008. Long Beach, CA
Joint Meeting of the Biophysical Society (52nd Annual Meeting) and 16th International Biophysics Congress. www.biophysics.org/meetings/2008.

February 2–6, 2008. Miami, FL
The Miami Winter Symposium, "Regulatory RNA in Biology and Human Health." www.miami.edu/mws.

March 4–5, 2008. Bethesda, MD
Women in Biomedical Research: Best Practices for Sustaining Career Success. Sponsored by the NIH. http://womeninscience.nih.gov/bestpractices/index.asp.

March 12–16, 2008. Lake Tahoe, CA
4th International Conference on Structural Analysis of Supramolecular Assemblies by Hybrid Methods. www.hybridmethods2008.com/.

April 27–May 1, 2008. Fort Lauderdale, FL
ARVO 2008 Annual Meeting, "Eyes on Innovation." www.arvo.org.

June 28–July 3, 2008. Athens, Greece
33rd Congress of the Federation of European Biochemical Societies and 11th Conference of the International Union of Biochemistry and Molecular Biology, "Biochemistry of Cell Regulation." www.febs-iubmb-2008.org.

September 28–October 2, 2008. Basel, Switzerland
XXII International Complement Workshop, sponsored by the International Complement Society. www.akm.ch/ICW2008/.

June 7–11, 2009. Zürich, Switzerland
VIII European Symposium of The Protein Society www.proteinsociety.org. ■

August 22–27, 2010. Kobe, Japan
14th International Congress of Immunology. www.ici2010.org/. ■

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