Collaboration and the Future of Cell Biology

Page 2

The Critical Task of Peer Review

Page 24

Annual Meeting Education Events

Page 26

Inside

President’s Column 2
Annual Meeting Program 8
InCytess from MBC 14
Public Policy Briefing 15
Members in the News 17
In Memoriam 18
Dear Labby 18
ASCB Profile 20
Celldance 2006 22
WICB Column 24
Education Events 26
Grants & Opportunities 27
Member Gifts 27
Calendar 28

ASCB Stem Cell Niches Meeting Successful

Recent advances in our understanding of the environmental control of stem cells from Drosophila, C. elegans, and mammalian systems were highlighted at the ASCB Summer Meeting on Stem Cell Niches. The meeting was held July 15–18 at Boston University and organized by Sean Morrison.

The keynote was presented by Allan Spradling, who reviewed mechanisms that regulate the maintenance of stem cells in Drosophila germline and intestinal epithelium niches. Subsequent speakers addressed recent insights into mechanisms that regulate the behavior of germline stem cells.

See Stem Cell Niches, page 6

HIV-1 and Other Retroviruses Explored

A variety of perspectives on how virus–cell interactions influence retroviral replication were featured at the ASCB Summer Meeting on the Cell Biology of HIV-1 and Other Retroviruses. Co-organized by Eric Freed and Andrew Moulard, the July 20–23 meeting was held at Emory University in Atlanta, Georgia. Most speakers were primary investigators, who presented data noteworthy for their depth and quality. They also provided a larger foundation of background information for discussion. The tone of the meeting was established by an exciting presentation by the keynote speaker, Wesley Sundquist. Sundquist identified another new cellular factor in the endosomal...
**PRESIDENT’S Column**

**Collaboration and the Future of Cell Biology**

Cell biology is by definition a broad field that encompasses fundamental processes such as control of cell growth and cell death, cell adhesion and motility, signal transduction, intracellular trafficking, membrane structure and dynamics, organelle biogenesis, receptor biology, and regulation of gene expression. As our appreciation of the mechanisms underlying these processes has increased, it has been possible to integrate this understanding in the context of physiology, development, and pathogenesis. Technological advances have allowed us to probe cells to achieve unprecedented molecular understanding, appreciation of spatial and temporal relationships, and exciting insight into dynamics of cell processes. With the maturation of the field of cell biology, opportunities abound for interaction with the disciplines of engineering, pharmacology, computer science, medicine, math, chemistry, physics, health policy, and even social sciences.

Indeed, there has been a revolution in cell biology over the past two decades. We have emerged from a period of relatively narrow specialization to embrace an era of connectivity with many fields and ever-higher potential impact. The questions that can be effectively tackled today are much more profound and far-reaching than when I began my career. Forgive me if I sound like a parent talking to a young child about how an 8-ounce Snicker’s bar used to sell for a nickel. The cell biology of two decades ago was probing new frontiers just as it is today, but there is a much more substantive knowledge base and many more tools available now.

**Opportunities at the Interface**

There was a time when a typical cell biologist worked on a problem of cell structure or function through the lens of a single discipline. Some of us took a genetic approach while others employed biochemical, biophysical, molecular, or imaging strategies to tackle the problems that interested us. Cell biologists have evolved and become scientists who utilize a comprehensive toolbox.

Recent advances in cell biology as well as numerous technological developments make collaborations more important than ever in our field. Although cell biologists have become quite diversified in terms of their technical expertise, it is simply not possible for an individual to be the master of the many approaches and intellectual arenas that now interface directly with each question of interest.

To maximize the potential of our research discoveries, collaborations will be ever more important. Collaboration between a cell biologist and a clinician can provide a productive link between basic science observations and unmet medical need. Collaboration between a cell biologist and a mathematician can allow examination of models based on measurable physical properties of cells. Collaboration between a cell biologist and a bioengineer might lead to improved drug delivery mechanisms. Collaboration between a cell biologist and a chemist could lead to development of small molecule inhibitors or better biosensors. And on and on.

**Who Gets the Credit?**

Historically, one of the obstacles to collaboration, particularly for young investigators, has been the issue of establishing independence. Independence used to be judged by number of papers in which an individual was the last (so-
called senior) author and by extramural grants on which the individual was the Principle Investigator. These criteria were widely used by academic institutions for determining whether to promote or award tenure. Even for established investigators, it often seems that grant referees counting papers as a measure of productivity dismiss collaborative work. At the same time that multidisciplinary science is being touted as the key to future advances, the structure of our evaluation processes discourages collaboration by undervaluing it.

Things are changing now. Many institutions are highlighting collaborative activities as a positive measure of faculty effectiveness. Similarly, promotion, retention, and tenure committees are beginning to recognize co-PI status as evidence of independent research success. The NIH, which long had a policy that only one individual could be a PI on a grant, is developing new mechanisms that would allow partners in research to be recognized as such by the funding agency (http://grants.nih.gov/grants/multi_pi/). These changes are designed to encourage scientists to choose their projects based on criteria such as impact rather than achievement of PI status, and to support the implementation of “team science.”

**Best Practices**

Science driven by individuals will continue to be very important, but collaborative efforts are likely to increase significantly. Collaborative science can occur at many levels. Within a single lab group, members may cooperate on a project, bringing key reagents, technical expertise, and scholarly input to the work. Multiple labs within an institution may collaborate, or individuals from multiple institutions may come together based on common interest. Some collaborations are based on the sharing of unpublished information or critical reagents. Others involve ongoing intellectual engagement and experimental contributions by multiple parties. These are, of course, the ones that can be most rewarding and are also the ones that can be more challenging to navigate.

Collaborations seem to work best when the scientists who are coming together bring unique skills, perspectives, or tools to the project. In this way, the interaction truly adds value by integrating novel reagents, diverse approaches, or model systems that are not accessible to a single person.

Direct and frequent communication is also critical in a successful collaboration. Face-to-face meetings, particularly if all group members can get together, are optimal. Videoconferencing can be a very effective means to stay in touch over long distances. File sharing and regular data exchange also enhance communication and promote an atmosphere of trust and a commitment to common objectives.

Generosity is an often-underappreciated feature of a successful collaboration. A simple thing like regular and public acknowledgment of a collaborator’s contribution can make the difference between a relationship that blossoms versus one that sours. As in any relationship, a conscious effort to appreciate and understand the position of the partner is key to success.

One of the stickiest issues to arise in collaboration is authorship position on the joint publications, again a question of who gets the credit. Although I don’t believe in deciding about...
Collaborations seem to work best when the scientists who are coming together bring unique skills, perspectives, or tools to the project.

Authorship until a manuscript is being prepared and it is clear exactly what data will be reported, it is healthy to have early, open, and ongoing discussions with collaborators about how the results of a team effort will be communicated. These discussions can be awkward, particularly when students or postdocs at critical career development stages are involved in the work, and multiple individuals feel a compelling need for priority position. Authorship order can have a significant impact on a person’s career, so it is no small issue. The strategy of noting when individuals made equivalent contributions to a project was developed to address this issue. This approach works to some extent, but in the end, only one name can appear first in a citation. Decisions about the senior author position can also be contentious, and this situation is likely to be exacerbated in times of tight funding. Open discussions and receptive listening to the position of your collaborators will facilitate the development of a solution that is as fair as possible.

If the collaboration is a successful venture with multiple groups fully engaged, then there will likely be discussions about the future of the project after the initial effort is complete. Will the next steps continue as a collaboration, will the pie be divided in some logical way, or will competition follow collaboration? If all goes well, the first publication will represent the culmination of a trusting and cooperative relationship that was well-built, and that will continue as needed to facilitate scientific advances.

Keeping Your Eyes on the Real Prize

If collaborators can collectively keep their focus on the quality of science that can be achieved by working together, a productive working relationship and long-term friendship can ensue. The whole point of collaboration is to achieve a goal that would not be attainable without the interaction, where partners make unique contributions. If collaborations have these attributes, probability for success is high. ■

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

Pipette like a PRO!

With the NEW accu-jet® pro!

The next generation of pipette controller!

- **PROgressive speed control**—New range dial lets you set maximum pipetting speed, but still provides touch-sensitive, continuously adjustable speed control.
- **PROportioned perfectly**—New sculpted grip fits small and large hands.
- **PROlonged battery life**—8 hours full-speed operation on a 4-hour charge, with LED indicator when charge is running low.
- **PROtects cell pellets**—unparalleled soft blow-out control.
- **PROmotional special!** Buy 3, get one free!

Available in dark blue, royal blue, green or magenta accents from leading lab dealers. Ask for the BRAND accu-jet® pro!

Toll Free (888) 522-2726

Product & promotion details at www.brandtech.com
SNAP-tag™ Versatility Empowers You!

Don’t be limited to one color—with SNAP-tag™ you can easily change labels on your target protein and perform a comprehensive set of experiments without recloning.

- Choose from a variety of labels: fluorophores from blue to infrared, biotin, and resin beads
- Use in a broad range of environments, including live cells, fixed cells, cell lysates, and SDS gels
- Free commercial license

“...SNAP-tag” allows us for the first time to do pulse-chase imaging of a cellular protein labeled at different times with two different dyes, or choose the dye with the best properties for a fluorescence resonance energy transfer (FRET) experiment.”

Jan Ellenberg
EMBL

Why experiment when you can discover?

SNAP-tag™ is a trademark of CovaLyx Biosciences AG

Open Biosystems
Toll Free 888.412.2225
www.openbiosystems.com
during development, regeneration, and aging. Leanne Jones and Yukiko Yamashita discussed changes in the *Drosophila* testis with age and the potential role of changes in signaling molecules and centrosome checkpoints in the loss of stem cells with age.

Other talks addressed mechanisms that germline niches employ to regulate stem cell numbers, including regulation of primordial germ cell divisions by somatic cells (Lilach Gilboa) and the ability of committed germline cells to repopulate depleted stem cell niches (Erika Matunis). Finally, Judith Kimble addressed the formation of the *C. elegans* germline stem cell niche.

Multiple speakers also addressed the nature of the mammalian hematopoietic stem cell (HSC) niche. Several speakers discussed recent results identifying growth factors that regulate the maintenance of HSCs (Chengcheng Zhang, David Scadden, and Kateri Moore), and the mechanisms that regulate the mobilization of HSCs into circulation (Irving Weissman, Thomas Schreiber), including a critical role played by the nervous system (Paul Frenette). Recent advances have begun to identify the signals that induce stress responses in HSCs, including reactive oxygen species (Toshio Suda) and nucleic acid release (David Scadden). Brian Keith introduced the idea that HSCs might be regulated by oxygen tension in vivo, a possibility also supported by some posters. Sean Morrison, Kateri Moore, and Linheng Li discussed new markers that improve the identification and tracking of HSCs. These talks, as well as presentations that identified vascular niches for HSCs (Shahin Rafii, Hanna Mikkola, Sean Morrison), led to a rousing debate about the relative importance of the vascular versus endosteal niches for HSCs. Group discussion supported the concept that HSC niches may be complex, combining endosteal, vascular, and neural components.

A final group of speakers addressed other mammalian niches. Andrew Wurmser discussed evidence that neural stem cells can create their own niche by forming vascular endothelial cells. Fiona Doetsch discussed the nature of the subventricular zone niche for neural stem cells, and the role of microRNAs in the regulation of these cells. Shin-ichi Nishikawa and David Fisher discussed mechanisms that regulate the function of melanocyte stem cells in hair follicles. Overall, the meeting emphasized the strong parallels between the mechanisms employed by stem cell niches from invertebrates to mammals, and the need for ongoing meetings that focus on this area of stem cell biology.

The ASCB gratefully acknowledges the support of the following Stem Cell Niches meeting sponsors: AbCam; Biospherix, Ltd.; Fisher Scientific International, Inc.; Miltenyi Biotec; National Heart, Lung, and Blood Institute/NIH; National Institute of Neurological Disorders and Stroke/NIH; R&D Systems; StemCell Technologies, Inc.; and WiCell Research Institute.

—Heather Fleming, Yukiko Yamashita, and Sean Morrison

---

**StreamPix:**

**Digital video recording to disk**

StreamPix software turns your computer into a digital video recorder.

- High resolution, high speed, multiple cameras, GPIO
- Supports wide array of cameras and frame grabbers.
- Easy to use GUI.
- Record to AVI or StreamPix sequence file.
- Use StreamNet server to capture multiple video sequences simultaneously from multiple cameras.
- Options include time lapse recording, continuous looping, time stamping, audio, compression codecs, triggering and more.

For further information
visit www.norpix.com or email sales@norpix.com
Sales: 514 907-1588
More Modes

Molecular Devices is the leading supplier of benchtop microplate readers. Now we’re giving you more modes in one compact instrument by introducing SpectraMax® M5®, a tunable benchtop reader that gives you superior results in five modes.

- Widest spectrum of absorbance and fluorescence applications in microplates or cuvettes
- Sensitive luminescence at one or multiple wavelengths
- FP performance that is unparalleled by any monochromator-based instrument
- TRF, HTRF®, IMAP® TR-FRET, and other TR-FRET assay capabilities
- Complete hardware and software validation tools

Whether you’re screening at high throughput or developing assays in cuvettes or 6- to 384-well microplates, SpectraMax M5® is the only reader you’ll need. Expect more. We’ll do our very best to exceed your expectations.

SoftMax Pro 5 software

SoftMax® Pro 5 from Molecular Devices is the only microplate analysis software that enables you to control instruments and quickly analyze data on both Mac® OS X and Windows® platforms.

Analysis: 5-parameter logistic function, parallelism (PLA) with observation weighting for bioassay assay validation

Integration: XML export for seamless data communication with LIMS/SDMS/robotics systems

Protocols: Over 120 ready-to-run assay templates for instant results generation and summarization (e.g., IC_{50}, Michaelis-Menten, ADME, ELISA, nucleic acids and protein quantification, cell growth, viability, and migration, reporter gene, endotoxin testing, SNP detection, pipettor validation, etc.)

Compliance: Enhanced GxP & FDA 21 CFR Part 11 support with SoftMax Pro 5 GxP

Usability: Dozens of user interface enhancements make SoftMax Pro 5 very easy to use. SoftMax Pro 5 simplifies data collection and significantly reduces the time required for analysis and reporting. Call +1-800-635-5577 or visit www.moleculardevices.com/softmaxpro.
### Keynote Symposium

**Saturday, December 9**  
**Frontiers in Cell Biology—6:00 pm**  
Bruce Alberts, University of California, San Francisco  
Thomas R. Cech, Howard Hughes Medical Institute

### Symposia

**Sunday, December 10**  
**Coordination of Adhesion and Migration—8:00 am**  
Denise Montell, Johns Hopkins School of Medicine  
Clare Waterman-Storer, The Scripps Research Institute  
Kenneth Yamada, National Institute of Dental & Craniofacial Research/NIH

**Deciphering Evolution—10:30 am**  
Sean Carroll, University of Wisconsin–Madison/HHMI  
Erich Jarvis, Duke University Medical Center  
David Kingsley, Stanford University School of Medicine/HHMI

**Monday, December 11**  
**Mechanisms in Mitosis—8:00 am**  
Rebecca Heald, University of California, Berkeley  
Lucille Shapiro, Stanford University School of Medicine  
Ronald D. Vale, University of California, San Francisco/HHMI

**Developmental Decisions—10:30 am**  
Hans Clevers, Netherlands Institute for Developmental Biology  
Elliot Meyerowitz, California Institute of Technology  
Susan Strome, Indiana University

**Tuesday, December 12**  
**Membrane Assembly and Dynamics—8:00 am**  
Gillian Griffiths, University of Oxford  
Janet Shaw, University of Utah  
Marino Zerial, Max Planck Institute of Molecular Cell Biology & Genetics

**From Cellular Mechanisms to Therapeutic Intervention—10:30 am**  
Susan Lindquist, Whitehead Institute for Biomedical Research  
Christine Seidelman, Harvard Medical School/HHMI  
Xiaodong Wang, University of Texas  
Southwestern Medical Center/HHMI

**Wednesday, December 13**  
**Functional Networks—8:00 am**  
Susan Mango, Huntsman Cancer Institute  
Kevin Shokat, Stanford University, San Francisco  
Tsun Xu, Yale University School of Medicine/HHMI

**Stem Cell Biology—10:30 am**  
George Q. Daley, Children’s Hospital Boston  
Elaine Fuchs, Rockefeller University/HHMI  
Margaret Fuller, Stanford National University School of Medicine

### Minisymposia

**Sunday, December 10**  
**Cell Migration**  
Diane L. Barber, University of California, San Francisco  
Gregg G. Gundersen, Columbia University College of Physicians & Surgeons  

**Computational Applications in Cell Biology**  
Douglas A. Lauffenburger, Massachusetts Institute of Technology  
Alex Mogilner, University of California, Davis

**Epigenetics and Chromatin Remodeling**  
Peggy Farharn, University of California, Davis  
Andrew Feinberg, Johns Hopkins University School of Medicine

**Epithelial Organization and Morphogenesis**  
Andrea J. McClatchey, Massachusetts General Hospital  
Center Cancer  
Umberto Puccini, University of Toronto

**Immune Cell Adhesion and Recognition**  
Andrea Shaw, Washington University School of Medicine  
Celin Wat, University of Dundee

**Motile and Sensory Cilia**  
Kathryn Anderson, Memorial Sloan-Kettering Cancer Center  
Elizabeth F. Smith, Dartmouth College

**Organelle Inheritance and Maintenance**  
Lisa A. Plo, Columbia University College of Physicians & Surgeons  
Michael Schroder, University of Marburg

**Signaling in Development**  
Marcel Gonzalez-Gaitan, Max Planck Institute of Molecular Cell Biology & Genetics  
Alexandra Joyce, New York University School of Medicine/HHMI

**Monday, December 11**  
**Cancer Mechanisms**  
Lisa Maria Causer, University of California, San Francisco  
Mary J. C. Hendrix, Children’s Memorial Research Center/  
Northwestern University Feinberg School of Medicine

**Cell Cycle**  
Mary Davis, National Institute of Child Health & Human Development/NIH  
Jonathan Pines, The Wellcome Trust/Cancer Research UK

**ECM and Cell Signaling**  
Joan A. Schwartzbauer, Princeton University  
Christopher Turner, SUNY Upstate Medical University

**GTPases in Cellular Traffic**  
Francis Barr, Max Planck Institute of Biochemistry  
Shou-ou Shan, California Institute of Technology

**Microtubule Motors**  
Erika L. F. Holzbaur, University of Pennsylvania  
Claire E. Welcsh, Indiana University

**Regulation of the Cytoskeleton**  
Keith W T. Burridge, University of North Carolina at Chapel Hill  
Anne J. Ridley, Ludwig Institute for Cancer Research

**RNA and Development**  
Oliver Hobert, Columbia University College of Physicians & Surgeons/HHMI  
Roy Parker, University of Arizona/HHMI

**Synapse Assembly and Plasticity**  
Ann Marie Craig, University of British Columbia  
Nancy Y. Ip, Hong Kong University of Science & Technology

**Tuesday, December 12**  
**Apoptosis**  
Eileen White, Rutgers University  
Junying Yuan, Harvard Medical School

**Applications of Biosensors**  
Atsushi Miyawaki, RIKEN Brain Science Institute  
Alice Ting, Massachusetts Institute of Technology

**Cytoskeleton, Adhesion and Disease**  
Ruth J. Green, Northwestern University Feinberg School of Medicine  
Alpha S.K. Yip, University of Queensland

**Host Pathogen Interactions**  
Jorge Galan, Yale University School of Medicine  
Piaouer Guam van der Gucht, Ecole Polytechnique Federale de Lausanne

**Kinetochores and Centrosomes**  
Michel L. E. Bornens, Institute Curie, Paris  
Peter Todd Stenkamp, University of Virginia School of Medicine

**Mechanisms of Actin Dynamics**  
Bruce Lane Gone, Brandeis University  
Davit Hanes, The Burnham Institute

**Membrane Traffic in Disease**  
Esteren Carlos DelAngelica, University of California, Los Angeles  
School of Medicine  
Daniel Klumb, University of Michigan

**Nuclear Pore and Traffic**  
Michael P. Rout, Rockefeller University  
Katharine S. Ullman, Huntsman Cancer Institute

**Wednesday, December 13**  
**Endo- and Exocytosis**  
Todd Graham, Vanderbilt University  
Margaret Scott Robinson, University of Cambridge

**Imaging**  
J. Richard McIntosh, University of Colorado  
Eva Nagler, University of California, Berkeley/HHMI

**Intermediate Filaments and Disease**  
Don W. Cleveland, University of California, San Diego  
Colin Stewart, National Cancer Institute–Frederick

**Life at the Microtubule Plus End**  
Anna Akhmanova, Eramus Medical Center  
Kevin Vaughan, University of Notre Dame

**Mechanisms of Cell Polarity**  
Patrick Brennwald, University of North Carolina at Chapel Hill  
Chris Q. Doe, University of Oregon/HHMI

**Myosin-based Movement**  
Polina Bun, Cambridge University  
Arturo DeLozanne, University of Texas, Austin

**Neural Degeneration and Regeneration**  
Zhegang He, Harvard University  
Stephen Strittmatter, Yale University School of Medicine

**Stem Cells**  
M. Kathryn Barton, Carnegie Institution of Washington

---

For more information, contact the ASCB at (301) 347-9300, ascbinfo@ascb.org, or www.ascb.org.
Imaging Unlocked!

Total Internal Reflectance Fluorescence (TIRF) imaging is refined and simplified with the new Leica AM TIRF system. You can now see more than ever before with a TIRF field-of-view at least 45% larger than competitive systems. The Leica AM TIRF offers auto-alignment of the laser and a dynamic scanner that can define penetration depths, guide the direction of the evanescent field and confirm TIRF visualization, which makes the system extremely easy to use.

Starting a new lab? Beginning a new research project? Contact your local Leica representative to take advantage of big savings with Leica’s New Investigator Program!

Unlock optical brilliance and ease-of-use with complete imaging solutions from Leica Microsystems. Visit: www.leica-microsystems.com/tirf

Intelligent Automation

Leica Microsystems, Inc., 2345 Waukegan Road, Bannockburn, IL 60015
Tel. 847-405-0123, 800-248-0123, Fax 847-405-0164, In Canada call 800-205-3422
©2006 Leica Microsystems Inc., ENAR546
HIV-1 and Other Retroviruses, continued from page 1

...al sorting pathway that is essential for HIV-1 replication.

Many presentations illustrated how cell–cell transmission is perhaps a predominant means by which HIV-1 and other retroviruses efficiently spread to neighboring cells, evade immune responses, and promote their own infectivity by manipulation of cellular components. This was highlighted by a live cell demonstration of the unidirectional transmission of virus along cytonemes to uninfected cells. New cellular factors were also identified that are incorporated into the viral envelope from infected lymphocytes and enhance the infectivity of released virions. Many of the obstacles in retrovirus replication encountered in developing rodent and primate models are now being overcome by studying resistance mechanisms against specific postentry restriction factors. For example, a new HIV chimera that contains only minimal alterations was developed to achieve efficient virus replication in monkey cells.

Studies on virus–cell interactions in the nucleus illustrated that HIV-1 DNA seems to favor active sites of transcription, which may be stimulated by posttranslational modifications of integrase and chromatin-bound forms of LEDGF. Other retroviruses seem to target different regions or lack any specificity at all. The RNAse H domain of reverse transcriptase was shown as a potentially effective candidate for inhibition of retroviral replication. Factors required for proper transcription and the fate of retroviral RNAs—including splicing and polyadenylation, nuclear export, translation, cellular localization, and stability—were all discussed and remain suitable antiviral targets.

Traffic of Gag and sites of assembly in various cell types remain controversial issues, but many new insights were presented at the meeting. Knowledge of membrane-binding properties of Gag is now being further refined, using liposomes that can mimic specific microdomains of plasma or endosomal membranes. Key virus assembly intermediates in the cytoplasm, in association with cellular factors, may be the crossroads for membrane binding and targeting of final virus assembly and release. Gag protein can localize to cellular endosomes. However, Gag protein also recruits previously segregated late endosome markers, potentially forming new virus-specific compartments. Targeting of essential viral and endosomal proteins to tetraspanin-enriched lipid microdomains at the plasma membrane allows for systemic spread of infection to uninfected cells. Dominant negative cellular factors may become inhibited by interactions with Vpu to enhance HIV-1 release in some cell types. Novel manipulation of one endogenous endosomal sorting factor that is structurally autoinhibited in its native state was activated into a potent inhibitor of virus release.

Overall, the extremely high quality of the meeting and its informal atmosphere allowed for pleasant, well-informed discussions on the cell biology of retroviruses.

The ASCB gratefully acknowledges the support of the following meeting sponsors: Boehringer Ingelheim (Canada) Ltd.; Carl Zeiss Canada, Ltd.; Emory Center for AIDS Research; Gilead Sciences; and the Office of AIDS Research/National Institutes of Health.

—Benjamin Lutge
There’s a collaborative new journal that’s linking community and content...

- **Ask the Expert.** A forum for scientists to ask questions of leading researchers in the field
- **WIKI.** An online discussion that allows the community to discuss topics and define terms
- **Serving scientists** at all levels of their career
- **Bringing together an international audience** to transform the way cellular processes are examined
- **News features** that digest and place the scientific content in a broader perspective
- **A dynamic website** designed to link scientific content and community discussions

The Community Pages are FREE – Join Today!

Join the growing community of scientists who are now publishing their research in *ACS Chemical Biology*. Submit your original research or review and participate in one of the journal’s FREE interactive community forums!
With our antibodies you too can follow the regulations!

AbD Serotec has dozens of antibodies to human, mouse and rat regulatory T cell markers including the following key specificities:

<table>
<thead>
<tr>
<th>Specificity</th>
<th>Target</th>
<th>Host</th>
<th>Clone</th>
<th>Applications</th>
<th>Product Code</th>
<th>Formats Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD4</td>
<td>Human</td>
<td>Mouse</td>
<td>RPA-T4</td>
<td>C, F</td>
<td>MCA1267</td>
<td>Purified, Alexa Fluor® 405, Alexa Fluor® 488, Alexa Fluor® 647, APC, Azide Free, Biotin, FITC, Low Endotoxin, Pacific Blue™, RPE, RPE-Alexa Fluor® 647, RPE-Alexa Fluor® 750</td>
</tr>
<tr>
<td>CD8 alpha</td>
<td>Rat</td>
<td>Mouse</td>
<td>OX-8</td>
<td>C, F, P</td>
<td>MCA48R</td>
<td>Purified, Alexa Fluor® 488, Alexa Fluor® 647, Azide Free, Biotin, FITC, RPE, RPE-Cy5</td>
</tr>
<tr>
<td>CD25</td>
<td>Human</td>
<td>Mouse</td>
<td>MEM-181</td>
<td>F</td>
<td>MCA2127</td>
<td>Purified, Alexa Fluor® 488, Alexa Fluor® 647, Biotin, FITC, RPE</td>
</tr>
<tr>
<td>CD28</td>
<td>Human</td>
<td>Rat</td>
<td>YTH 913.12</td>
<td>C, F</td>
<td>MCA709</td>
<td>Purified, Alexa Fluor® 647, Biotin, FITC, Low Endotoxin, RPE</td>
</tr>
<tr>
<td>CD152 (CTLA-4)</td>
<td>Rat</td>
<td>Mouse</td>
<td>WKH203</td>
<td>E, F, WB</td>
<td>MCA2092</td>
<td>Purified, Azide Free, Biotin, FITC, RPE</td>
</tr>
<tr>
<td>CD223 (LAG-3)</td>
<td>Mouse</td>
<td>Rat</td>
<td>C9B7W</td>
<td>F</td>
<td>MCA2366</td>
<td>Purified, Alexa Fluor® 488, Alexa Fluor® 647, Low Endotoxin, RPE</td>
</tr>
<tr>
<td>FOXP3</td>
<td>Human</td>
<td>Mouse</td>
<td>236A/E7</td>
<td>C, P</td>
<td>MCA2376</td>
<td>Purified, Alexa Fluor® 488, Alexa Fluor® 647</td>
</tr>
<tr>
<td>GITR</td>
<td>Mouse</td>
<td>Rat</td>
<td>YGITR765</td>
<td>F</td>
<td>MCA2416</td>
<td>Purified, Alexa Fluor® 488, Alexa Fluor® 647, Low Endotoxin</td>
</tr>
</tbody>
</table>

C = Cryostat sections, E = ELISA, F = Flow cytometry, P = Paraffin sections, WB = Western blots

Visit us at www.ab-direct.com/ascb to see our full Treg marker range.
Imaging Unlocked!

Laser microdissection of cells for highly specific molecular analysis is faster and easier with the **NEW Leica LMD6000 laser microdissection system**. Leica’s unique method of automatic cell selection (AVC), dissection, and isolation increases laboratory throughput. Even thick specimens are quickly cut with the LMD6000’s powerful diode laser.

Visit: [www.leica-microsystems.com/speed1](http://www.leica-microsystems.com/speed1) for more information on the Leica LMD6000 and…

To find out more about how you can save up to 40% with our **Upgrade to LMD** offer, call 800-248-0123 and press 2!

*Intelligent Automation*

Leica Microsystems, Inc., 2345 Waukegan Road, Bannockburn, IL 60015
Tel. 847-405-0123, 800-248-0123, Fax 847-405-0164, In Canada call 800-205-3422
©2006 Leica Microsystems Inc., BMAF917
A Global, MLCK-Dependent Increase in Myosin II Contractility Accompanies the Metaphase–Anaphase Transition in Sea Urchin Eggs

Amy Lucero, Christianna Stack, Anne R. Bresnick, and Charles B. Shuster

Cytokinesis is mediated by myosin II–driven constriction of an actin-based contractile ring that assembles at the cleavage plane and generates a cleavage furrow between postmitotic nuclei to partition the cytoplasm between dividing cells. Simultaneous live-cell imaging of chromosome segregation or mitotic spindle formation in large, fertilized sea urchin eggs compressed under fluorocarbon oil provides a simple means of visualizing myosin II–mediated contractile events during mitosis and cytokinesis. Two phases of myosin II–dependent contractility were observed: An initial and transient global increase in cortical contractility occurred concomitant with the metaphase–anaphase transition and was followed by a brief period of relaxation before the onset of furrowing. The data provide new insight into the order of early events in cytokinesis and lead to a model in which Ca2+-dependent signaling mediates the global activation of myosin II before determination of the cleavage plane, followed by Rho-dependent signaling to focus contractility at the cleavage plane.

The Intraflagellar Transport Protein IFT20 Is Associated with the Golgi Complex and Is Required for Cilia Assembly

John A. Follit, Richard A. Tuff, Kevin E. Fogarty, and Gregory J. Pazour

Virtually every vertebrate cell has a solitary nonmotile primary cilium thought to function as a sensory organelle. Its specialized function requires that the ciliary membrane, although continuous with the plasma membrane of the cell, have a unique complement of integral plasma membrane proteins, e.g., receptors and channels. Cilia are assembled by a process called intraflagellar transport (IFT), which involves the assembly of large protein complexes (IFT particles) at the base of the cilium near the basal body and their transport via molecular motors along the axonemal microtubules into the cilium. How ciliary membrane proteins are transported is not known. Here the authors report that IFT20, a component of IFT particles, is associated both with assembling IFT particles in the peri–basal body region and with the Golgi apparatus. GFP-IFT20 is highly dynamic and moves between the Golgi and the cilium, as well as along ciliary microtubules. Its unique localization among IFT components together with the results of siRNA knockdown experiments suggests a role for IFT20 in trafficking ciliary membrane proteins to the cilium.

The Plug Domain of Yeast Sec61p Is Important for Efficient Protein Translocation but Is Not Essential for Cell Viability

Tina Junne, Torsten Schwede, Veit Goder, and Martin Spiess

Proteins are translocated across and/or inserted into the endoplasmic reticulum (ER) membrane through the Sec61 translocon complex, which in yeast consists of the 10 transmembrane domain–containing Sec61p and the single spanning proteins Sbh1p and Sss1p. The crystal structure of the homologous archaeabacterial translocon reveals a compact transmembrane helical bundle surrounding a potential hydrophilic channel. A lumenal plug domain derived from the Sec61p homologue, which blocks the channel, was suggested to be involved in gating the translocon and sealing the channel when idle. Thus, the authors were surprised to find that introduction of destabilizing point mutations or even complete deletion of the Sec61p plug domain had no effect on cell viability or growth. Rather, the mutant lacking the plug domain is impaired in signal sequence orientation and exhibits a minor defect in cotranslational translocation and a significant defect in posttranslational translocation. The mutant protein’s reduced ability to coassemble with the other subunits suggests that rather than sealing the translocon in yeast, the plug domain plays a role in stabilizing Sec61p for translocon formation.

Guaneryl Cyclase Protein and cGMP Product Independently Control Front and Back of Chemotaxing Dictyostelium Cells

Douwe M. Veltman and Peter J. M. Van Haastert

Dictyostelium cells sense both temporal and spatial aspects of a chemoattractant gradient consisting of waves of cAMP secreted by starving cells. Chemotaxis is driven by the extension of actin filaments in the leading pseudopodia and the contraction of actin-myosin filaments in the rear. Soluble guaneryl cyclase (sGC) and cGMP are involved in cAMP sensory transduction. sGC is a large, multidomain protein that is recruited to the leading edge of chemotactic cells; such recruitment is dependent on sequences encoded within its N-terminus. Analysis of guaneryl cyclase–null cells reconstituted with either a delocalized N-terminal truncation mutant that retains its catalytic activity or a catalytically inactive mutant that retains its localization to the leading edge has revealed opposite functions for the sGC protein and its product. The diffusely distributed cGMP stimulates myosin incorporation in the rear and inhibits pseudopod formation, whereas sGC at the leading edge promotes localized pseudopod formation independent of its catalytic activity. cGMP senses temporal aspects of the cAMP gradient, while sGC responds to spatial aspects of the cAMP gradient.
PETA Official Applies for NIH Post

People for the Ethical Treatment of Animals (PETA) has announced that its senior vice president and director of research and investigations, Mary Beth Sweetland, has applied to be the director of the National Institute of Health’s (NIH) Office of Laboratory Animal Welfare (OLAW).

A PETA press release says that Sweetland would change the agency’s reputation from being “so impotent that its useless” to a force on behalf of animals. In her application letter, Sweetland outlined an eight point plan to change OLAW. According to the news release, her plan includes:

- Levy hefty fines against laboratories that do not operate under the minimum guidelines for humane treatment of animals in laboratories.
- Introduce new policies that would prohibit cruel and archaic practices such as amputating animals’ toes as a means of identifying them and breaking animals’ necks in order to kill them.
- Open doors of communication between the committees that validate non-animal test methods in the European Union and the U.S. so that high-tech methods developed in Europe or the U.S. would automatically be recognized by both regulatory agencies.
- Offer job counseling to those who would like to get out of animal laboratories and into more meaningful, high-tech research.

In addition, Sweetland has offered to work at a reduced salary. Until the OLAW position is filled, the NIH has announced that Patricia A. Brown, V.M.D., will temporarily be assigned to the position of acting director of OLAW.

New NCI Director

The White House announced its intention to appoint John E. Niederhuber to be the next director of the National Cancer Institute. Niederhuber currently serves at the National Cancer Institute as both acting director and deputy director for Translational and Clinical Services. He previously served as professor in the Department of Surgery and Department of Oncology at the University of Wisconsin.

Niederhuber replaces Andrew C. von Eschenbach, who currently serves as acting commissioner of the Food and Drug Administration (FDA). Von Eschenbach replaced Lester Crawford, who only served as FDA commissioner for two months.

Join the ASCB Public Policy Advocacy Team

- Are you interested in public policy advocacy?
- Concerned about federal funding for biomedical research in America?
- Worried about Intelligent Design being taught in America’s science classrooms?
- Interested in educating your elected representatives about the importance of biomedical research?

The ASCB Public Policy Committee Needs You!

We need representatives in each of the 50 states to work with their colleagues to support biomedical research.

We need you to organize and lead meetings with your representatives and write letters and Op/Eds to your local papers.

See www.ascb.org/publicpolicy/project50/index.cfm or email kwilson@ascb.org for more information.
Creationism Monitor

Arkansas—Several candidates for statewide office have told the Arkansas Democrat-Gazette that information on intelligent design (ID) should be available to students as part of the state science curriculum. “I believe in intelligent design and I don’t think intelligent design and evolution are mutually exclusive,” said Democratic gubernatorial candidate Mike Beebe. Republican candidates for governor, lieutenant governor, and attorney general think teachers should have the option to teach ID.

Ohio—Supporters of teaching evolution in Ohio schools have formed Help Ohio Public Education (HOPE) and are working to defeat state School Board of Education member Owens Fink. Fink has supported altering state science education standards to “critically analyze” different areas of science, including evolution. Former U.S. Representative Tom Sawyer has announced that he will run against Fink.

Wisconsin—A retired University of Wisconsin-Oshkosh physics professor is leading an effort to petition the Oshkosh School Board to place a referendum on the November ballot with the following resolution: Be it resolved that when evolution is taught in the Oshkosh public schools, it shall not be taught as fact but rather with evidence, pro and con, and with an analysis of its testability.

Pope Held Seminar on Evolution

Examining Darwin’s theory of evolution and its impact on Catholicism’s teaching of creationism was the subject of a September weekend seminar held by Pope Benedict XVI. The seminar, an annual event attended by the Pope’s former theology students, discusses a different topic each year. About 30 people—including students, invited guests, and invited speakers—attend the weekend-long sessions.

The opening remarks this year were made by Vienna Archbishop Christoph, Cardinal Schonborn, and Peter Schuster, president of the Austrian Academy of Sciences. Other speakers included the Rev. Paul Erbach, a German scholar, and German philosopher Robert Spaemann.

Cardinal Schonborn made news in 2005 when he published an Op-Ed in The New York Times. In his Op-Ed, Schonborn questioned evolution and described a statement by the late Pope John Paul II that acknowledged the case for evolution as “vague and unimportant.” The Cardinal’s remarks were viewed by many as a trial balloon launched by the Vatican to determine reaction to a potential change in the Catholic Church’s position on evolution.

Soon after the Cardinal’s Op-Ed was published, Father George Coyne—head of the Vatican Observatory—criticized the Cardinal’s remarks and later said that “intelligent design isn’t science, even if it pretends to be.”

The Vatican recently announced that Father Coyne, an American, has been replaced by Father Jose Gabriel Funes, from Argentina. Coyne had served as director of the Observatory for more than 25 years.

The Vatican Observatory was established in 1891 to advance astronomical knowledge and to demonstrate the Church’s support for the physical sciences. The Observatory is one of the oldest institutions of its type in the world. The Vatican continues to provide almost $1 million in annual support for ongoing research.
MEMBERS in the News

Bill R. Brinkley of Baylor College of Medicine, an ASCB member since 1964 and 1979-80 ASCB President, has been selected by The Australian Society for Medical Research (ASMR) as its 2006 Medalist for his contribution to the promotion of health and medical research.

Mary Beckerle, an ASCB member since 1980 and 2006 ASCB President, has been appointed director of the Huntsman Cancer Institute. She was previously the institute’s deputy director and senior director of laboratory research.

Jack Dixon of the University of California, San Diego/Howard Hughes Medical Institute (HHMI), an ASCB member since 1992, was elected by HHMI’s trustees to be HHMI Vice President and Chief Scientific Officer, effective February 1, 2007.

A. Malcolm Campbell of Davidson College, an ASCB member since 1992, was co-recipient of the Pirelli INTERNETional Award in Education (Section 2a). The animation entitled MicroArrays MediaBook was awarded first place for “Best work for educational institutions.”

Dan Flynn of the West Virginia University School of Medicine, an ASCB member since 1998, has been named deputy director of the school’s Mary Babb Randolph Cancer Center.

Haifan Lin, an ASCB member since 1995, has been appointed director of the Stem Cell Program at Yale School of Medicine. Lin, a former cell biology professor and co-director and co-founder of the Duke University Stem Cell Program, began his position on September 1.

Mary Beckerle, an ASCB member since 1980 and 2006 ASCB President, has been appointed director of the Huntsman Cancer Institute. She was previously the institute’s deputy director and senior director of laboratory research.

Mary Beckerle, an ASCB member since 1980 and 2006 ASCB President, has been appointed director of the Huntsman Cancer Institute. She was previously the institute’s deputy director and senior director of laboratory research.

Mary Beckerle, an ASCB member since 1980 and 2006 ASCB President, has been appointed director of the Huntsman Cancer Institute. She was previously the institute’s deputy director and senior director of laboratory research.

Upgrade To The Future

One 10 second measurement with a CASY Cell Counter yields:

- Cell debris
- Viable cells
- Dead cells
- Cell aggregates
- Total cell volume (Biomass)

- Measuring Range: 0.7 to 160μm (dependent on capillary used).
- Reproducible data from instrument to instrument and from lab to lab.
- Factory certified non-changeable calibration. ● Easy to operate.
- Conformity with all GLP/GMP and 21 CFR Part 11 regulations.

Contact:
RJM sales inc. sales@rjmsales.com
www.rjmsales.com/casy.htm

454 Park Avenue, Scotch Plains, NJ 07076
PH 800-752-9055  •  FX 800-488-3859

SEPTEMBER 2006 ASCB NEWSLETTER 17
Dear Labby,

Eighteen months ago I was one of three junior faculty recruited to my university cell biology department in the same year. We all get along beautifully with one another as well as with the established faculty. I have two graduate students and a research assistant, and I just learned that my initial NSF grant application will be funded. My teaching has also gone well, and the student evaluations of my lectures have come out between excellent and outstanding. So things are going very nicely for me all around. But I have one problem.

My department chair treats us three new faculty members in very different ways. In both departmental meetings and at various informal gatherings, he always seems to single out one particular junior faculty member. He typically calls on him first at departmental meetings, and often talks about this faculty member in the third person (as in “Well, Dave thinks …”). The other day at our campus athletic faculty, I saw my chair and this junior faculty member playing racquetball, adding to my sense of exclusion.

I have considered the possibility that I am not seeing this situation objectively, so I asked the people in my lab if they have picked up on this apparently differential treatment. They all said they had. I should emphasize that my chair seems very fair-minded in general, and is always available to me and the two other junior faculty members. But his overt favoritism has gotten me feeling depressed. Am I being too sensitive?

—On the Outside?

Dear Outside,

Your inquiry will probably strike a responsive chord with many readers as it describes a situation that is not uncommon. Some pairs of people just resonate more than others. But the relationship between a chair and junior faculty is power-based, and thus a chair should rein in any overt displays of favoritism.

It is possible that your chair is unaware of this preferential treatment. Your report that he is generally supportive of all three junior faculty is encouraging. As for playing racquetball, this is a degree of proximity that almost certainly fuels a pleasant interpersonal relationship, as the “playing fields” typically do. While not frankly inappropriate, it is a basis for concern and suggests that your chair’s preferential treatment of your faculty colleague is now extending beyond the confines of the department.

You mentioned that you had asked your lab members about this. Have you also asked the third junior faculty member? Her/his take on this would be very important for calibrating the overall gravitas. If he or she feels excluded or demoralized, Labby suggests that the two of you take this concern to your chair. Express it as a mild concern, i.e., “Please feel free to call on one of us more often at meetings.” The issue is not “can my chair be my best friend?” (She/he never should be.) The issue is simply that your well-intentioned chair may not be aware of how demoralizing his actions may be. If your chair is as reasonable as you suggest, he will take these expressed concerns very constructively.

—Labby

DEAR Labby

In Memoriam

ASCB lost a loyal and active member on July 31, when Mark Nathanson died from a sudden heart attack. Nathanson, an associate professor in the Departments of Cell Biology and Molecular Medicine and Pediatrics at New Jersey Medical School, Newark, was a developmental biologist and an active member of ASCB since 1977. For many years, Mark used his gifted photography skills to document the ASCB meeting events and members. Many people will remember him as the “guy behind the camera at ASCB meetings.” He will be missed.

Mark Nathanson

STEM CELL NICHE MODELING MACHINE

NEW INCUBATION CONCEPT FOR STEM CELLS

Offers unprecedented new ways to help perfect in vitro modeling of the stem cell niche.

Multi-variable. That’s the stem cell niche. Many factors define a niche. If you can control and optimize in vitro all the variables that define a niche in vivo, you can probably learn what really happens to stem cells that: (1) keeps them stem cells, (2) makes them mobilize, (3) homes them into new locations, (4) regulates their proliferation, and (5) guides their differentiation. That’s why everyone is so interested in modeling the stem cell niche. Co-cultures, extracellular matrix, growth factors, cytokines, etc. are a few of the variables that have been successfully used to partially model stem cell niches. However, other variables can only be provided by the incubation environment. Our unique new XIVO Phenotype Incubator provides many new incubation variables that no other incubation system on the planet can match! Check it out:

www.biospherix.com/cbn67
The University of Miami, Nature Publishing Group and Scripps Florida present

INNATE IMMUNITY
AND NOVEL VACCINES

Broader understanding of the central mechanisms underlying innate recognition of microbes and activation of the adaptive immune response is opening new opportunities for vaccine and adjuvant design. The 40th Miami Winter Symposium will examine recent advances in research on innate pattern-recognition receptors and adaptive immune responses and how this research is being translated into the development of new prophylactic and therapeutic approaches.

January 27-31, 2007
Miami Beach Resort & Spa
Miami Beach, Florida, USA

Topics
Innate Immunity and Infectious Disease
Immune Evasion • Vaccine Development
Emerging Approaches

Awardees
Tadatsugu Taniguchi, Feodor Lynen Lecturer
Piet Borst, Distinguished Service Awardee
Kenneth Murray and Pierre Tiofals, Lifetime Achievement Awardees
Rino Rappuoli, Special Achievement Awardee

Speakers
Alan Aderem • Adriano Aguzzi • Peter Andersen
Ralf Bartenschlager • Bruce Beutler • Anne
DeGroot • Genoveffa Franchini • Andrea Gambotto
Warner Greene • William Heath • Ann Hill
Kathrin Jansen • Stefan Kaufmann • Antonio
Lanzavecchia • Grant McFadden • Eckhard Podack
Bali Pulendran • David Raulet • Jos van Strijp

Important Deadlines
The Symposium Travel Fellowship Awards:
October 25, 2006
Short Reports for Posters: November 1, 2006

For more information about the event, registration and exhibits go to www.nature.com/nbt/meetings/miami or www.miami.edu/mws
Lynne Quarmby

Lab lineage is terribly important in cell biology. Fly people come from fly labs. Worm runners train in the *C. elegans* world. People who work with the single-celled green alga, *Chlamydomonas*, can usually trace their descent from a lab hooked into the worldwide “Chlamy Clan.” Not so Lynne Quarmby. Now an associate professor at Simon Fraser University in British Columbia, Quarmby is a pillar of the worldwide “Chlamy” community. Yet she cheerfully admits that she never trained in a *Chlamydomonas* lab and didn’t belong to a “real” Chlamy lab until she started her own. “I like to say that I had wonderful ‘telephone mentorship’ from the *Chlamydomonas* community, but for many years I was at institutions where no one else used *Chlamydomonas*,” Quarmby explains.

Quarmby recruited herself soon after she entered the biochemistry graduate program at the University of Connecticut (UConn), Storrs, in 1985. Her advisor was Richard Crain, a lipid biochemist. Crain had an interest in whether inositol phospholates were involved in the IP3-mediated calcium-signaling pathway in large tropical plants. Quarmby suggested that the work might be easier in one-celled algae. Quarmby, who grew up exploring the lakes and tide pools of Vancouver Island, came to Storrs with a master’s in Oceanography from the University of British Columbia. She knew something about algae, at least in the wild. Crain left her to the algal lab literature and then the telephone, where Quarmby stumbled into the helpful arms of the *Chlamydomonas* community.

**Making the Cilial Connection**

The *Chlamydomonas* community exists largely because there is no better model on earth for studying cilia and flagella. Secondary cilia and flagella are the tiny hair-like motile structures that drive so many of life’s basic processes, from sweeping the respiratory tract to powering sperm. Within the last five years, Chlamy labs working on defects in primary cilia—non-motile structures found on virtually every eukaryotic cell—have turned up startling links to polycystic kidney disease (PKD) and other human disorders. These new “ciliopathies” affect everything from the human eye to the human embryo. All this has made cilia a hot field and *Chlamydomonas* a hot organism.

Back in the late 1980s when Quarmby began teaching herself *Chlamydomonas*, it was a “niche” lab organism with a small if dedicated following. Yet Quarmby made a small discovery in her first Chlamy experiments. Calcium signaling was involved in one distinctive behavior, deflagellation. This shedding of waving arms, either under stress or shortly before cell division, was well-known behavior. The mechanism was a black box. Over a dozen years, and in several non-Chlamy labs, Quarmby struggled to develop deflagellation as a genetic assay. That work is now paying off handsomely, says Yale’s Joel Rosenbaum, a senior figure in the *Chlamydomonas* community.

“There are lots of people now jumping on the cilium and flagellum bandwagon, but in my estimation, one of those already doing the most exciting work is Lynne Quarmby,” says Rosenbaum.

Quarmby’s contribution to the recent excitement has been her use of mutants defective in deflagellation to uncover yet another novel role for ciliary proteins—as regulators of the cell cycle. Rosenbaum explains, “It’s long been known that every time the cell divides, the cilia reabsorb prior to division. It’s never been known whether that’s a cause or an effect.” The mechanism is still not understood, he adds. However, new evidence from Quarmby and others points to the ciliary-based basal body, which emanates from the centriole and duplicates during mitosis to become part of the spindle apparatus. If Quarmby’s defective deflagellation proteins affect such a fundamental organelle, they could well have an impact on cell cycle timing, notes Rosenbaum.

**Inside the Chlamy Clan**

Ursula Goodenough is another senior member of the *Chlamydomonas* community and one of Quarmby’s “telephone mentors.” Now at Washington University in St. Louis, Goodenough remembers hearing the young, un-
known researcher speak for the first time at a Chlamydomonas meeting. “It was instantly obvious to me that Lynne was extremely smart and extremely imaginative. I went out of my way to get to know her,” says Goodenough. They became friends and Goodenough has seen Quarmby in her lab, at meetings of the ASCB’s Women in Cell Biology Committee, and at the lecture podium, many times since. “It’s been a joy to watch Lynne develop,” says Goodenough.

Goodenough says that when Quarmby first made the decision to screen for Chlamy mutants that couldn’t deflagellate, there was nothing obvious about a possible connection to cell cycle control. “Maybe other people suspected it, but it was news from my perspective,” Goodenough says with a laugh. Cells do lose their flagella when they go into mitosis but that happens in part by an independent process where the flagella shorten, rather than pop off. “This idea of calcium-induced popping of cilia and their resorption (in the mitotic spindle) was, at best, a speculation. It was Lynne who pulled this together and took it beyond speculation. Like any good scientist, Lynne followed her nose.”

Lynne Quarmby has always followed her own star. Neither of her parents finished high school. Growing up in the Canadian pulp mill town of Duncan, 50 miles north of Victoria on Vancouver Island, Quarmby sensed her family’s high expectations regarding hard work and integrity. But career expectations for a girl were low. When her high school math teacher told her mother that Lynne was quite bright and should consider medicine, her mom responded, “Oh, I don’t think Lynne would like to be a nurse.” Yet Quarmby says that her family’s lack of expectations liberated her to find her own way. When she left Duncan for the University of British Columbia (UBC), Quarmby fished around for professional programs that involved chemistry and biology. “In pharmacy school, I lasted a week in the starched lab coat. It just wasn’t me.”

Hostile Waters
Her love of the Vancouver coast and her talent for science led her to Oceanography. It was also the first time that Quarmby had her “nose rubbed” in academic misogyny. When Quarmby was appointed the “scientific captain” of a UBC research cruise, the vessel’s captain treated Quarmby with derision, pumping the bilgewater overboard in the middle of a critical sampling run as a “practical joke.” Her prospects in the early 1980s were equally discouraging, Quarmby recalls. A senior faculty member liked to tell departmental gatherings that he never worried about flooding the job market with graduates: “Why do you think I have so many women students? They get their graduate degrees, have babies, and drop out.” Quarmby decided to change course and pursue a biochemistry doctorate at UConn in 1990.

In Connecticut, Quarmby found her own way to Chlamydomonas and to its curious deflagellation behavior. For her first postdoc, Quarmby went to the biochemistry lab of Nobel laureate Alfred Gilman, at the University of Texas Southwestern Medical Center, to study calcium ion channels. There wasn’t an alga in sight. In Texas, Quarmby learned the craft of rigorous research but never stopped thinking about the possibilities of Chlamydomonas.

Two years later, Quarmby steered her career back to Chlamydomonas by convincing a cardiac physiologist who knew nothing about algae to take her on as a postdoc. The physiologist was Criss Hartzell of the Emory University School of Medicine. Quarmby heard Hartzell speak at an ion channel meeting and came up afterwards. The two hit it off immediately. Over coffee, Quarmby sketched out her idea of using an alga to get at calcium ion channel pathologies in mammalian hearts. They emailed back and forth until Hartzell came up with a year’s worth of very soft money at Emory and the offer of bench space.

“I really didn’t know anything about Chlamydomonas at the time,” Hartzell recalls, “but Lynne had this passion and intellectual excitement about her. She was clearly very smart. But I’ve had a lot of smart postdocs in my lab who in the end didn’t succeed. Lynne stuck with it. She was convinced that this weird deflagellation response was important. In addition, Lynne was a huge intellectual stimulus for me and for my lab.”

Follow the Phenotype
“It was brave of Criss to make room for me,” says Quarmby, “and it was foolhardy of me to leave Gilman’s lab, uproot my family, and do a lot of scrambling, but it seems to have worked out.” Quarmby stayed at Emory for eight years, first as a research associate and then as junior faculty in the Cell Biology department. There she finally set up her very own Chlamy lab. Equally novel was the presence of another Chlamy lab just down the hall run by Win Sale. Quarmby says that Sale was an important mentor and resource as she launched her grueling, two-year-long saturation screen for deflagellation mutants. It yielded three oddball...
genes, one of them encoding a Nek-family kinase. The mutant led not to a calcium channel defect phenotype, but to a temporary arrest in the cell cycle at G2.

Rip Finst was Quarmby’s first graduate student and collaborator on the saturation screening. Finst says he entered Emory and Quarmby’s lab with the understanding that his ambitions extended beyond academic science, toward an eventual career in business or law. “Lynne embraced that, letting me pursue my interest in science while knowing full well that I had these other goals,” says Finst, who later added a J.D. to his Ph.D. Finst, who is now an intellectual property litigator with a Bay Area law firm, says Quarmby was the ideal mentor for him—intensely focused on the science but undeterred by conventional expectations. Finst recalls, “Here we were in a medical school setting working on Chlamydomonas, which really didn’t fit the conventional approach to problems like ion channels or cancer genetics. But Lynne had a vision of how you could answer medical-type questions using this basic system. That has paid off massively for Lynne in the work she’s now doing in kidney cells. It’s remarkable how she’s persevered.”

Back in 1999 though, an algae-based lab in a medical school remained a hard sell to prospective graduate students and to funders. One afternoon, Quarmby was leafing through the back pages of Nature. “And there was Simon Fraser looking for me,” she remembers.

Today Quarmby feels very much at home again in British Columbia, at Simon Fraser University (SFU), and in the Canadian research funding system. “The size of our grants is small by U.S. standards,” Quarmby says, “but the funding rates are higher.” SFU has a spectacular setting atop Burnaby Mountain on the east side of Vancouver. It has been known until recently for its undergraduate program, but Quarmby says that is changing. Both the number and quality of graduate students at SFU are steadily increasing, she says. “In graduate programs, you need a critical mass, and we’re just about there now.”

The Alga that Came in from the Cold

The cilia–PKD connection has finally ended the old prejudice that Chlamydomonas is too far removed from human biology to be medically relevant. For the first time last year, Quarmby received a grant from the Kidney Foundation of Canada. Also for the first time, she brought another organism model into her lab and is working with cultured mouse kidney cells. She spent part of last year on sabbatical to learn the etiology of cysts in mouse tissue at the Hospital for Sick Kids in Toronto. “But I’m not switching my lab!” Quarmby declares. “I want to be able to go back and forth with mammalian cells, but Chlamy is always going to be the focus.”

Returning home reawakened her love of the Canadian wilderness and her skills as an avid backpacker. During her recent stay in Toronto, Quarmby took her first extended canoe trip through Ontario’s watery Algonquin Provincial Park. Quarmby’s other great interest is her 19-year-old son, Jacob Sheehy, who after a gap year backpacking through Eastern Europe, has just enrolled in Computer Science at Concordia University in Montreal.

Quarmby is also an artist, a “closet painter,” as she puts it, who after 25 years of painting abstract canvases for personal amusement and close friends, stepped out in public last summer with a show at a Toronto gallery. That led to her first commercial sales. Naturally, Quarmby has never had a painting teacher and belongs in no school of art but her own.

The cilia–PKD connection has finally ended the old prejudice that Chlamydomonas is too far removed from human biology to be medically relevant.
Evolution Takes Time. Sometimes 0.0128 Seconds.

High Speed Dynamic Imaging from Carl Zeiss.

LSM 5 DUO  LSM 5 Live DuoScan  Cell Observer HS  AxioCam HS  TIRF
Approaching the Critical Task of Peer Review

The Value of High-Quality Peer Review

Virtually every published paper has benefited from, and been improved by, peer review. Reviewers help clarify and tighten my arguments. They catch large and small errors that would otherwise cause confusion. They point out worthwhile controls, or suggest new experiments that strengthen, and sometimes correct, initial interpretations. Thus, from my experience, as both author and editor, high-quality peer review is beneficial to the authors. The greatest value of good peer review is, however, to the journal’s readers. Objective and scholarly peer review ensures that the conclusions reported are fully justified by the data. On a more subjective level, well-informed reviewers help editors prioritize and categorize papers, so that published manuscripts match the journal’s scope and objectives. Although the standards for objective peer review should be the same for all journals—specifically, referees should insist that the experiments be rigorously performed, and that the presented evidence is of sufficient quality and quantity to justify the paper’s conclusions—each journal has different goals that referees need to consider when they make their subjective recommendations.

Some journals present scientific vignettes to communicate with interdisciplinary audiences. Others, like Molecular Biology of the Cell (MBC), publish complete and significant advances within a broad discipline. Still others are more focused on subdisciplines. Others function as archives for communicating important stepwise advances.

The subjective nature of peer review helps match the scientific and conceptual advances reported in each paper with the appropriate audience. This is a valuable task that helps readers sift through the plethora of resources listed on PubMed for the kind of information they seek.

How to Review a Paper

The following is a step-by-step guide to reviewing papers, written from the perspectives of an author, who will hopefully benefit from your efforts, and an editor who is seeking your advice before making a publication decision. With regard to the former beneficiary, my advice is to follow the Golden Rule: treat others as you want to be treated, and keep in mind that you are communicating with both your peers and their younger students and postdocs.

Step 1: Accept the Assignment

Before you agree to review a manuscript ask yourself the following questions: Are you knowledgeable in this area of research? Do you have the expertise to assess the methodology and results? Can you be objective in your criticism? Is there a conflict of interest? Lastly, can you meet your commitment to review the manuscript within the allotted time, usually one to two weeks? If you answer “no” to any of these questions, then decline and recommend someone you think might be more appropriate.

Step 2: Consider the Journal

If you are not already familiar with the journal’s scope and philosophy, you can find these on each journal’s home page. Many journals will include specific instructions to the referees regarding the criteria by which they prioritize manuscripts for publication.

Step 3: Read the Paper

As you do, try to take two views: Look for the big picture but also pay close attention to the details. The big picture view should form the basis of your subjective opinion. Ask yourself the following questions: Has this paper taught me something useful and/or interesting? Would my students, postdocs, and colleagues find this information helpful? If the journal is interdisciplinary, then ask, would researchers outside this field benefit from reading these findings?

At MBC we ask our referees to help us prioritize papers by considering the following big questions:

1) Does this study significantly advance our knowledge, and/or provide new concepts or approaches that extend our understanding?

2) Are the advances presented of broad interest and significance to cell biologists?

In general, papers must satisfy both these criteria to meet MBC standards.
As for the details, look carefully at all of the data presented, including the Supplemental Material and any movies, and at how the experiments were performed. Is the approach or procedure appropriate? Are all the necessary controls in place? Is the quality of the data sufficient? Pay attention to the axes of graphs; is the scale chosen to make small differences look large? This is one of my pet peeves. Does the written description of the results match the data presented in the figures? Close inspection of these details will allow you to determine if the conclusions and interpretations are supported by the data.

As you read, you should also assess how effectively the authors have communicated their findings. Again, at MBC, we ask referees to assess whether the title and abstract accurately reflect the content and conclusions of the paper. This is critical given that the title and abstracts available from a PubMed search direct readers to important papers and help them to prioritize their reading. Does the introduction provide sufficient background to understand the significance of the findings that follow? Is it concise and relevant to the subject at hand? Are the results presented in a logical order? Are the experimental rationales established? Are the important conclusions and their significance stated clearly and concisely in the discussion? Are the findings placed in a larger context? Is the work of others considered and incorporated or inappropriately ignored? Is there unnecessary repetition; can the author be more succinct?

**Step 4: Write Your Review**

Adopt a professional and scholarly tone, and avoid inflammatory language; remember the Golden Rule! In an opening paragraph, make a general statement describing the major conclusions of the paper and your overall assessment of their validity and significance. This opening statement should reflect your “big picture” view of the paper. These comments help the editor decide whether the paper’s findings match her or his journal’s scope and objectives—and thus whether to reject a paper or to invite resubmission. Importantly, you should not make a recommendation regarding publication in your comments to the authors; instead reserve this opinion for your confidential remarks to the editor.

Subsequent paragraphs should focus on the details. Generate a list of specific criticisms and concerns (preferably numbered and subdivided into major and minor concerns) that justify your overall assessment of the paper and provide constructive feedback to the authors. If possible, be specific about suggested additional controls or experiments needed to justify the conclusions. Is the suggested experiment doable and, if so, is it worth doing, or will it only add incrementally to the take-home message while unnecessarily delaying publication? If you disagree with an interpretation, be specific about alternatives. Check your work, as mistakes diminish your credibility to the author.

**Step 5: Make Confidential Remarks to the Editor**

Many journals have check boxes for prioritizing publication. Any recommendations regarding publication should be communicated confidentially to the editor and not to the authors. You might also indicate which of your concerns are more or less critical for the authors to address.

Peer review is our most important responsibility. It epitomizes the scholarship and collegiality that attract us to this profession. Although anonymous, it is often the most valuable form of communication. As a frequent beneficiary of peer review, I thank my colleagues for sharing their efforts and advice.

—Sandra Schmid
Annual Meeting Education Events
Not to Be Missed

Scientific Teaching for Scientists
Jo Handelsman, Department of Plant Pathology
University of Wisconsin–Madison

Want to make decisions about teaching based on evidence, that is, teach scientifically? How about engaging students in learning activities that reflect the true nature of science? Jo Handelsman will discuss the tenets of scientific teaching in the classroom (active learning, assessment, and diversity) and how scientific teaching applies to mentoring in the research lab, in December 2006 in San Diego. Participants in this special ASCB Annual Meeting event will focus on designing teaching materials and analyzing case studies.

The workshop will be held on Saturday, December 9, from 1:30–4:30 pm at the San Diego Convention Center. Advance online registration (www.ascb.org) is required; tickets may be available onsite ($10 for all attendees).

Tactile Teaching: Exploring the Molecular World With Physical Models of Proteins
And Other Molecular Structures
Tim Herman, Director, Center for BioMolecular Modeling
Milwaukee School of Engineering

Ever use a physical model of a molecular mechanism to excite your students? This year’s K–12 Science Education Partnership Lunch will familiarize educators with physical modeling materials created for classroom use. Capture the interest of students and stimulate them to learn more with hands-on demonstrations.

This workshop will explore the use of a variety of physical models, from simple models of water to complex models of proteins constructed by rapid prototyping technology. Models tell a variety of three-dimensional molecular stories:

• Emerging insecticide resistance in mosquitoes
• The amazing molecular gymnastics of the influenza hemagglutinin protein that mediates membrane fusion during virus infection
• The ATP synthase molecular motor

The molecular stories that cell biologists like to share with students have become complex, compelling, and three-dimensional. The tools used to communicate these stories to students should possess these same qualities.

This sixth annual ASCB Education Committee-sponsored workshop and lunch will be held on Sunday, December 10, 12:00–3:00 pm at the San Diego Convention Center. Advance online registration for this Annual Meeting event is required. Visit www.ascb.org to register. Tickets may be available onsite ($10 for all attendees).


NIH Grants.


SCORE Awards. The NIH National Institute of General Medical Sciences 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/par-files/PA-06-490.html#PartI.

GRANTS & OPPORTUNITIES

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

Joanna C. Bakowska
J. S. Clegg
Julie G. Donaldson
Stephen Jay Keller
Greg Law
Carolyn Machamer
Hitoshi Sakakibara
William M. Saxton
Ansteo Aris Segura
Julie A. Theriot
Jeremy W. Thorner
Kenneth M. Yamada

Massachusetts Institute of Technology

It takes everyone at MIT to be MIT.

BIOLOGICAL ENGINEERING DIVISION

Assistant Professor

The MIT Biological Engineering Division invites applications for a tenure-track faculty position at the assistant professor level, to begin July 2007 or thereafter. Applicants should hold a Ph.D. in a science or engineering discipline related to biological engineering. In special cases, a more senior faculty appointment might be possible. The candidate is expected to integrate strong expertise in molecular/cellular bioscience with an engineering design perspective; example areas of application might include stem cell technologies, therapeutics development, biomolecular materials, tissue engineering, or synthetic biology. We especially encourage minorities and women to apply, because of MIT’s strong commitment to diversity in engineering education, research and practice.

Interested candidates should send application materials to: be-fac-search@mit.edu. Each application should include: a curriculum vitae; the names and addresses of three or more references; a strategic statement of research interests; and a statement of teaching interests specifically in the context of the Biological Engineering graduate and undergraduate educational programs at MIT. (http://web.mit.edu/be/education/ and http://web.mit.edu/be/education/ugrad.htm)

We request that each candidate arrange for the reference letters to be sent directly to: be-fac-search@mit.edu with a copy mailed or faxed to the following address: Professor Paul Matsudaira, Chair, Faculty Search Committee, Biological Engineering Division Bldg. NE47, Room 223, Massachusetts Institute of Technology, Cambridge, MA 02139; Fax: 617-258-7226

Responses by 1 November 2006 will be given priority.

MIT is an Equal Opportunity/Affirmative Action employer.

http://web.mit.edu
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Date</th>
<th>Location</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td></td>
<td>January 21–28, 2007. Brisbane &amp; Heron Island, Australia</td>
<td>Brisbane &amp; Heron Island, Australia</td>
<td>Workshop on the Cell Biology of the Coral-Dinoflagellate Symbiosis. [<a href="mailto:weisv@science.oregonstate.edu">weisv@science.oregonstate.edu</a> or <a href="mailto:jpringle@stanford.edu">jpringle@stanford.edu</a>](<a href="mailto:weisv@science.oregonstate.edu">mailto:weisv@science.oregonstate.edu</a> or <a href="mailto:jpringle@stanford.edu">jpringle@stanford.edu</a>).</td>
</tr>
</tbody>
</table>