



## ASCB Scientists Teach Cell Biology in Ghana

During the last two weeks of July 2012, seven U.S.-based cell biologists joined several faculty members from the Department of Biochemistry, Cell, and Molecular Biology of the University of Ghana—Legon to conduct an intensive, two-week workshop titled *Cell Biology of Infectious Pathogens*. This workshop represented the seventh in a series of ASCB-organized African workshops sponsored by the Carnegie Corporation of New York with additional support from the Porter Endowment.

This year's installment highlighted both protozoan and bacterial pathogens, focusing on malaria parasites and species of mycobacteria that cause tuberculosis and Buruli ulcer (a severe skin infection indigenous to tropical regions, including Ghana). Past courses have emphasized diverse topics, including trypanosomes (which cause African sleeping sickness), toxoplasma, and cancer. Although the workshops have highlighted different organisms, the overriding theme has always been an understanding of the basic concepts of cell biology that unify all aspects of modern biology.

### Faculty

The American faculty who took part in the July workshop included several veterans from previous courses: Martha Cyert (Stanford University), Kirk Deitsch (Weill Cornell Medical College), J. Richard (Dick) McIntosh (University of Colorado), and Joy Power (University of Colorado). They were joined by Robert Husson (Children's Hospital and Harvard Medical School) and by two graduate student teaching assistants, Selasi Dankwa (Harvard School of Public Health) and Lena Pernas (Stanford University).

In addition to faculty from the United States, the workshop also relied heavily on faculty from the Department of Biochemistry, Cell, and Molecular Biology at the host institution. Lydia Mosi provided specific expertise on

*Mycobacterium ulcerans* (the cause of Buruli ulcer), and Gordon Awandare served as a source of knowledge regarding the biology of malaria parasites. Awandare also handled the local arrangements for hosting the event, including all logistical and technical requirements. His preparations were extensive, and thanks to his efforts, the course was conducted in a smooth and efficient fashion.



Kirk W. Deitsch

### Workshop Format

This year's workshop followed a basic structure developed over previous years. Morning lectures on important

topics in cell biology included the following:

- The Organization of the Cell
  - Cell Growth and Division
  - Protein Folding and Assembly into Complexes
  - Regulation of Transcription in Bacteria and Eukaryotes
  - The Cytoskeleton
  - Signaling in Bacteria and Eukaryotes
- Additional lectures were given on more specific topics:
- Introduction to Tuberculosis
  - Other Mycobacteria
  - The Cell Biology of *Plasmodium*
  - Model Organisms
  - What Is Systems Biology?

These lectures were augmented by more informal "Tool Talks" that covered technical topics as diverse as basic tools for molecular biology (PCR and DNA sequencing) and various aspects of light, fluorescence, and electron microscopy. Workshop faculty encouraged students to participate actively in lectures and tool talks through questions and discussion, and this year's class proved to be a very active group. Sessions included frequent breaks to answer questions, clarify concepts, and diverge into informal discussions.

Beyond formal classroom lectures and seminars, the workshop also included small-group sessions organized as either journal clubs or tutorials intended to help students

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design and present research proposals. For the journal clubs, faculty chose recent research articles to illustrate specific aspects of cell biology and experimental design. The journal clubs also offered examples of concepts delivered in preceding lectures. These sessions exposed students to critical reading of the primary literature, a skill that all young research scientists must develop.

Proposal-development sessions gave students a chance to get feedback on their personal research projects from the faculty and other students. Students learned to develop their ideas into hypothesis-driven research proposals, culminating in formal oral presentations delivered on the last day of the workshop in a student symposium. With strong encouragement from their peers, the energy and enthusiasm of the students for their research projects shined through, providing an enjoyable and rewarding conclusion to the intense two-week gathering.

## Participant Diversity and Background

The 25 students at this year's workshop were particularly diverse, arriving from eight West African countries: Burkina Faso, Cameroon, Congo, Côte d'Ivoire, Ghana, Mali, Nigeria, and Senegal. All either were pursuing advanced degrees in biological sciences or were early-stage faculty members seeking insights into advanced cell biology concepts and techniques. Most were also researching infectious diseases endemic to West Africa, including malaria, Buruli ulcer, tuberculosis, and HIV. Several faculty with expertise in these topics gave students advice and information specific to their chosen field of research.

The Department of Biochemistry, Cell, and Molecular Biology at the University of Ghana–Legon has ongoing, externally funded research projects on both malaria and mycobacteria, thus providing additional expertise. Funds from the Carnegie Corporation and the Porter Endowment provided several pieces of laboratory equipment, which were left

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*Gordon Awandare (far right) mentors students during a journal club session at this year's ASCB-organized Cell Biology of Infectious Pathogens workshop.*



*Students conducting experiments during a laboratory practical exercise. Students had daily laboratory sessions that exposed them to many modern techniques in molecular and cell biology.*

at the site of the workshop and will help to improve the research capacity of the host department.

## Former Students and Career Pathways

In addition to the July 16–27 workshop, a reunion of students from past courses took place on Saturday, July 28. This gathering not only allowed former students to reconnect and interact but also enabled the organizing faculty to witness the career trajectories of former students.

The afternoon was devoted to giving students time to present research talks describing their current work, to describe how their careers had progressed since attending the workshop, and to share their immediate and long-term goals. The faculty were particularly gratified to hear many success stories, including those of students enrolled in doctoral programs throughout the world as well as those who continue to conduct research

at academic institutions in West Africa. All students expressed strong feelings regarding the benefits of attending the ASCB-sponsored workshops and mentioned how attending the course had influenced their careers. Their comments and suggestions were collected and will be incorporated into the design of future workshops held in West Africa and other parts of the world.

### Course Organization and Financial Support

This year's course also witnessed a transition in the recent history of ASCB-sponsored workshops in Africa. The financial support for this workshop series was primarily from the Carnegie Corporation through a grant to ASCB, with Dick McIntosh as PI. Dick not only served as the primary organizer of the previous workshops but also guided the organization and scientific foundation of each

course. Each year, he assembled the talented team of faculty who donated their time to make the courses a success. This year Dick stepped down as organizer and asked me to continue this outstanding scientific tradition. Everyone associated with the African education initiative extends thanks to Dick for his years of service.

The grant from the Carnegie Corporation is also now completed, so organizers of future workshops will seek new sources of financial support. Through the efforts of Judith Kimble, the incoming chair of the ASCB International Affairs Committee, funds to support next year's workshop have been obtained from the Howard Hughes Medical Institute. With the continued support of the ASCB membership and administration, the organizers anticipate continuing this series of educational endeavors well into the future. ■

—Kirk W. Deitsch, Weill Cornell Medical College

## Did You Know...?

- The 2013 ASCB membership renewal reminder was sent out recently. If you did not see the email and aren't sure if you have renewed your membership for 2013, please contact us at [ascbinfo@ascb.org](mailto:ascbinfo@ascb.org) today.
- Regular members can renew for two years or three years at special *discounted rates!*
- Renew now to ensure you don't miss an issue of the *ASCB Newsletter* or *Molecular Biology of the Cell*.
- You can also renew your subscriptions to the following journals at *discounted rates* when you renew your ASCB membership:
  - The latest volumes of *Annual Review of Cell & Developmental Biology*
  - *Biology of the Cell*
  - *Development*
  - *Journal of Cell Science*
  - *Journal of Experimental Biology*
- Renewal is easy—go to [www.ascb.org](http://www.ascb.org) and click on “Membership.” ■

## NIGMS Hosting Online Cell Day for Young Students



The National Institute of General Medical Sciences (NIGMS) is hosting an interactive Web chatroom about cells on Friday, November 2, 2012, from 10:00 am–3:00 pm EDT.

Called “Cell Day,” the chat will be an online Q & A. Middle and high school students can post questions about cell biology or scientific careers, and NIGMS staff scientists will provide written answers. Members of the ASCB are welcome to log on and view the chatroom live or access the transcript, which will be available shortly after the chat is over.

More information about Cell Day, including how students and teachers can register to participate, is available at <http://publications.nigms.nih.gov/cellday2012/index.html>. The event is one of the ways that NIGMS is marking its 50th anniversary. For other anniversary-related activities, see [www.nigms.nih.gov/About/50Anniversary](http://www.nigms.nih.gov/About/50Anniversary). ■