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Harvey Lodish

## PRESIDENT'S COLUMN

# The ASCB Web-based Image and Video Library

"Seeing is believing" is true of many of the sciences, but nowhere more so than cell biology. Our research and teaching revolves around images—of proteins and macromolecular assemblies and subcellular organelles; of cells crawling or undergoing apoptosis or rolling along an endothelium; of cells stained with a green fluorescent-tagged protein or a fixed cell stained with a fluorescent antibody; of sectioned cells stained with a gold-coupled antibody and viewed in an electron microscope or of virus immobilized in ice and viewed unfixed.

Two images stand out as pivotal in my early career: a time-lapse movie of early frog development illustrated the complexities of early embryology far better than any textbook, and the cover photo of François Jacob's and Elie Wollman's classic book, *Sexuality and the Genetics of Bacteria*. Its copulating bacteria taught me more about the active sex life of *E. coli* than did papers filled with many tables of genetic experiments.

Yet finding the "perfect" image of a particular cell or tissue for teaching or research can be elusive. When we want to illustrate a specific tissue or activity—multiple types of epithelia to illustrate their commonalities and differences; ER to Golgi traffic in living cells; endocytosis of particles; the morphological differences between cancer cells and their normal counterparts; plasmodesmata; or gap junctions—we are often left frustrated and end up settling for a poor substitute.

The ambitious idea for the American Society for Cell Biology to develop a comprehensive collection of still and dynamic images did not just come from me. Rather, it percolated to the surface from many ASCB constituents – from Council, the Education and Public Information Committees, the editors of *Cell Biology Education*, and from members who commented about the need for such a resource. Seemingly all at once, everyone realized that the explosion in digital images and electronic publishing in the past decade has provided a wealth of

opportunity for cell biologists to create and share spectacular cellular images through readily accessible and searchable web-based electronic databases. At the same time, we found that there is overwhelming demand to create a state-of-the-art web-based collection of cell images, both at light- and electron-microscope levels, to be used for education at all levels, in research, for public information, and as a resource to journalists.

The collection will include videos of cells, especially cell movement, division, and differentiation, and provide understanding of dynamic processes that are difficult to convey by static images.

It will also include images of diseased cells – including cancers, degenerative diseases, and genetic diseases. How better to illustrate the consequences of a mutation in dystrophin or dystroglycan than to show a micrograph of a muscle from a patient or a gene-altered mouse with muscular dystrophy?

The Library will serve as a repository for the most high-tech new images available. The ASCB's members, meeting speakers, and contributors to *Molecular Biology of the Cell* and *Cell Biology Education* provide a unique source of images. Modern images will be solicited for their scientific, historic and educational significance, resolution, and aesthetic value. These will eventually form a complete collection of cells that demonstrate a broad range of healthy and diseased states, as well as cellular processes.

The collection will also include an important archival component. Many of the most revealing and highest quality electron micrographs were taken decades ago by the founders and leaders of cell biology, including George Palade, Marilyn Farquhar, Hewson Swift, Keith Porter, and Don Fawcett. Their striking collections of micrographs are extremely useful for education and public information, yet are at risk of being abandoned or destroyed. The Library will preserve these important materials.

Importantly, the entire Library will be made available free of charge for research and teaching. Commercial use may require payment of a modest fee, but we do not envisage the Library as generating revenue for the ASCB.

To launch the Library early next year, as we hope to do, has required a lot of behind-the-scenes work by a dedicated committee chaired by Kathryn Howell. The membership includes Council members Tony Bretscher, Pietro De Camilli, Rick Horwitz, and Daphne Preuss. They are working in close partnership with ASCB staff and the Society's archivists at the University of Maryland, Baltimore County to determine how best to catalog, select, and preserve historically important images.

To guide the launch of The ASCB Image and Video Library will require a full-time curator, ideally a broad-based, skilled, and dedicated cell biologist with expertise in microscopy and commitment to building the Library. A main responsibility will be to oversee the recruitment, selection, and an-

notation of all images and videos, maintain the collection, and oversee user support. We also envisage hiring a librarian who will handle copyright issues, meta data, and image indexing, as well as a part-time information technology specialist who will handle day-to-day image scanning, image transfer to the web site, and user interfaces.

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The ASCB's members, meeting speakers, and contributors to *Molecular Biology of the Cell* and *Cell Biology Education* provide a unique source of images.

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A Scientific Advisory Board will be appointed from among the ASCB membership to serve a function similar to the editorial board of a journal, insuring the quality, relevance, and proper annotation of every image in the collection.

Notwithstanding the financial health of the Society (see page 12) this project will require a substantial infusion of money. An External Advisory Board composed of senior representatives of the scientific, biopharmaceutical, and investment communities with interest in scientific imaging or utilization of scientific images will also be appointed. The Board

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will provide the ASCB with guidance during the design of the Library, and support ongoing efforts to raise funds. A large gift would name the Library itself; collections within the Library can also be named, perhaps by students and colleagues who wish to honor or memorialize a colleague.

Success of the Library will require participation by Society members—contributing images, fundraising, and advice. ■

Comments are welcome and should be sent to [president@ascb.org](mailto:president@ascb.org).

## LETTER TO THE EDITOR

### Should Cell Biologists Study Human Disease?



To The Editor:

In response to the question, "Should Cell Biologists Study Human Disease?" (President's Column, *ASCB Newsletter*, September, 2004), many cell biologists would answer, "yes", although there is a great deal of basic research that has no clear or obvious relation to human disease that is worthy.

Particularly important is the question of what we should be doing with/for our current generation of PhD pre- and post-docs to prepare those whose research careers may lead them to the study of human disease.

Throughout my career at Northwestern, I have taught human histology, a subject that has fallen by the wayside in PhD education. While I agree with the suggestion that we offer "mini-courses" in Physiology or Pathobiology, both of these disciplines rest very solidly on a clear and good understanding of histology. No one can understand the kidney (or any other organ) and its many disease states without understanding its cellular composition and organization.

Many of the founders of the ASCB were expert histologists and made major contributions to that discipline, including Keith Porter, George Palade, George Pappas, Hewson Swift and Don Fawcett, among others. Their contributions to our current understanding of ultrastructure was typically pure histology (recall the debate over "Palade granules"). In fact, I suspect many original ASCB members were actively using histology as a research topic or tool as well as teaching the subject and even writing textbooks and atlases of histology. ■

—Al Telsner

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