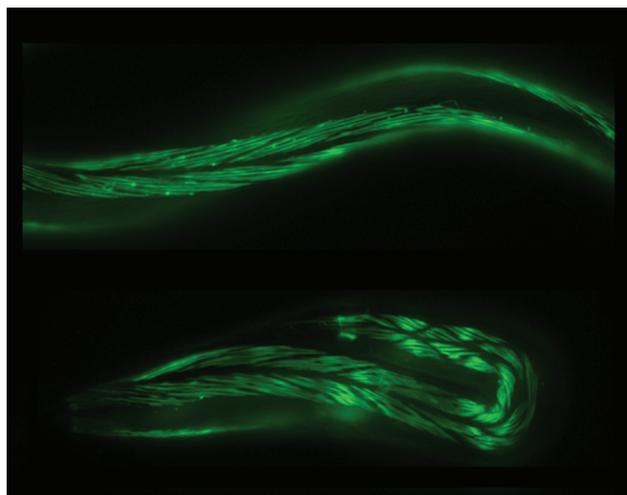


The Editorial Board of *Molecular Biology of the Cell* has highlighted the following articles from the February 2012 issues. From among the many fine articles in the journal, the Board selects for these Highlights articles that are of broad interest and significantly advance knowledge or provide new concepts or approaches that extend our understanding.



Wild-type (top) and LEM-domain-null (bottom) *Caenorhabditis elegans* expressing a GFP-fused myosin heavy chain (MYO-3) in the body wall muscles. The body wall muscles of mutant animals show mis-oriented fibers, and the muscle cells are 15% shorter. See *Mol. Biol. Cell* 23 (4), 543–552. (Image: Rachel Barkan, Department of Genetics, Institute of Life Sciences, Hebrew University of Jerusalem, Jerusalem, Israel)

Three-dimensional ultrastructure of the septin filament network in *Saccharomyces cerevisiae*

A. Bertin, M. A. McMurray, J. Pierson, L. Thai, K. L. McDonald, E. A. Zehr, G. García III, P. Peters, J. Thorner, and E. Nogales

Septins are essential for membrane compartmentalization and remodeling. Electron tomography of yeast bud necks shows filaments perpendicular and parallel to the mother–bud axis that resemble *in vitro* septin arrays. Filaments are still present, although disordered, in mutants lacking a single septin, underscoring the importance of septin assembly.

Mol. Biol. Cell 23 (3), 423–432

Protein disulfide isomerases contribute differentially to the endoplasmic reticulum-associated degradation of apolipoprotein B and other substrates

S. Grubb, L. Guo, E. A. Fisher, and J. L. Brodsky

Protein disulfide isomerases (PDIs) are conserved chaperone-like proteins that play an essential role during protein folding and in some cases during degradation. Substrate-specific effects of PDI family members occur during the ER-associated degradation of diverse substrates in yeast and mammalian cells.

Mol. Biol. Cell 23 (4), 520–532

Ce-emerin and LEM-2 : essential roles in *Caenorhabditis elegans* development, muscle function, and mitosis

R. Barkan, A. J. Zahand, K. Sharabi, A. T. Lamm, N. Feinstein, E. Haithcock, K. L. Wilson, J. Liu, and Y. Gruenbaum

Caenorhabditis elegans lacking both Ce-emerin and LEM-2 show that these proteins are essential for development of specific lineages, mitosis in somatic cells, and smooth muscle activity. Reduced life span and smooth muscle activity of LEM-2–null worms predicts human LEM2 gene links to diseases more severe than Emery-Dreifuss muscular dystrophy.

Mol. Biol. Cell 23 (4), 543–552

Zonula occludens-1 and -2 regulate apical cell structure and the zonula adherens cytoskeleton in polarized epithelia

A. S. Fanning, C. M. Van Itallie, and J. M. Anderson

Our study reveals that ZO proteins in fully polarized cells regulate the assembly and contractility of the perijunctional actomyosin ring associated with the adherens junction.

Mol. Biol. Cell 23 (4), 577–590

Choosing orientation: influence of cargo geometry and ActA polarization on actin comet tails

C. I. Lacayo, P. A. G. Soneral, J. Zhu, M. A. Tsuchida, M. J. Footer, F. S. Soo, Y. Lu, Y. Xia, A. Mogilner, and J. A. Theriot

We reconstitute actin-based motility using ellipsoidal particles mimicking the rod shape of *Listeria monocytogenes* and systematically analyze bead motile behaviors. By combining features of elastic propulsion and tethered-ratchet actin-polymerization models, we can explain our observations with a comprehensive new biophysical model.

Mol. Biol. Cell 23 (4), 614–629 ■