

The Editorial Board of *Molecular Biology of the Cell* has highlighted the following articles from the March 1 and March 15, 2010, 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.

Global Up-Regulation of Microtubule Dynamics and Polarity Reversal during Regeneration of an Axon from a Dendrite

Michelle C. Stone, Michelle M. Nguyen, Juan Tao, Dana L. Allender, and Melissa M. Rolls

The authors look inside neurons in vivo and identify major cytoskeletal rearrangements that allow a dendrite to become a regenerating axon.

Mol. Biol. Cell 21 (5), 767–777

The Late Endosome Is Essential for mTORC1 Signaling

Rory J. Flinn, Ying Yan, Sumanta Goswami, Peter J. Parker, and Jonathan M. Backer

Recent work suggests a link between endocytic trafficking and mTORC1 signaling. This paper demonstrates a specific requirement for the integrity of the late endosomal compartment for amino acid and insulin-stimulated mTORC1 signaling to downstream effectors.

Mol. Biol. Cell 21 (5), 833–841

The RhoA Activator GEF-H1/Lfc Is a Transforming Growth Factor- β Target Gene and Effector That Regulates α -Smooth Muscle Actin Expression and Cell Migration

Anna Tsapara, Phillip Luthert, John Greenwood, Caroline S. Hill, Karl Matter, and Maria S. Balda

TGF- β induces various responses, including Rho signaling. How TGF- β stimulates Rho is poorly understood.

The authors present data that indicate that GEF-H1 is a target and effector of TGF- β to regulate Rho signaling, gene expression, and cell migration, suggesting that it represents a new marker and possible therapeutic target for degenerative and fibrotic diseases.

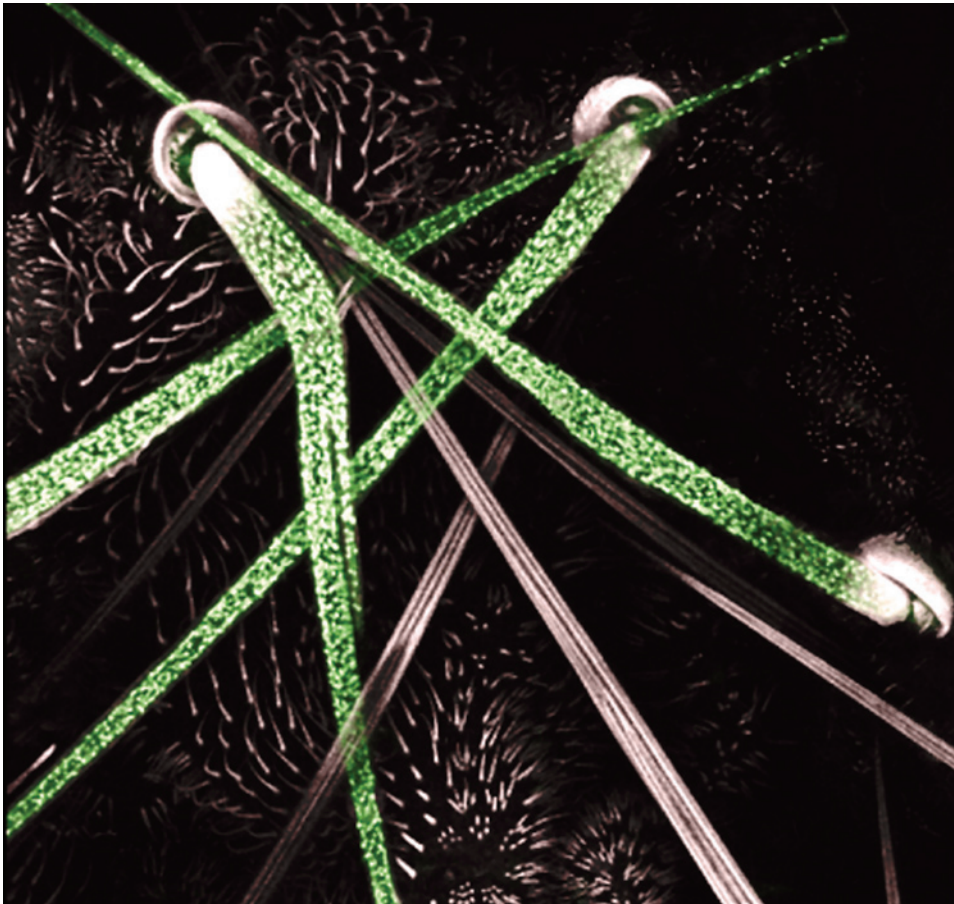
Mol. Biol. Cell 21 (6), 860–870

Mutations in *Caenorhabditis elegans* *him-19* Show Meiotic Defects That Worsen with Age

Lois Tang, Thomas Machacek, Yasmine M. Mamnun, Alexandra Penkner, Jiradet Gloggnitzer, Christina Wegrostek, Robert Konrat, Michael F. Jantsch, Josef Loidl, and Verena Jantsch

Faithful meiotic chromosome segregation requires pairing, synapsis, and recombination of homologous chromosomes. In mammals, chromosomal nondisjunction increases with age. A mutation in *Caenorhabditis elegans* *him-19* mimics these age-dependent chromosome segregation defects and might therefore further our understanding of this phenomenon.

Mol. Biol. Cell 21 (6), 885–896



Mechanosensory bristles of the *Drosophila* thorax expressing Sanpodo-GFP (green) in a mosaic clone. (Image: Fabrice Roegiers)

Emi2 Inhibition of the Anaphase-promoting Complex/Cyclosome Absolutely Requires Emi2 Binding via the C-Terminal RL Tail

Munemichi Ohe, Yoshiko Kawamura, Hiroyuki Ueno, Daigo Inoue, Yoshinori Kanemori, Chiharu Senoo, Michitaka Isoda, Nobushige Nakajo, and Noriyuki Sagata

Both the D-box and the zinc-binding region (ZBR) of Emi2 are implicated in APC/C inhibition. This article shows that Emi2 binds the APC/C via the C-terminal tail, termed here the RL tail. The RL tail apparently promotes the inhibitory interactions of the D-box and the ZBR with the APC/C. The RL tail thus serves as a docking site for the APC/C.

Mol. Biol. Cell 21 (6), 905–913

Requirements and Reasons for Effective Inhibition of the Anaphase Promoting Complex Activator Cdh1

Jonathan A. Robbins and Frederick R. Cross

Inhibitory phosphorylation of Cdh1 by CDK and Polo kinase has been proposed to inactivate APC-Cdh1. Through an exact gene replacement approach, we find CDK, but not Polo, phosphorylation of Cdh1 to be a critical regulatory mechanism. APC-Cdh1 inhibits multiple aspects of spindle morphogenesis, and its activity is modulated by endogenous ACM1.

Mol. Biol. Cell 21 (6), 914–925

Rad17 Plays a Central Role in Establishment of the Interaction between TopBP1 and the Rad9-Hus1-Rad1 Complex at Stalled Replication Forks

Joon Lee and William G. Dunphy

This work provides novel mechanistic insights into how TopBP1 and the Rad9-Hus1-Rad1 (9-1-1) complex dock with one another at stalled replication forks. This step is necessary for the ATR-dependent activation of Chk1 during checkpoint responses.

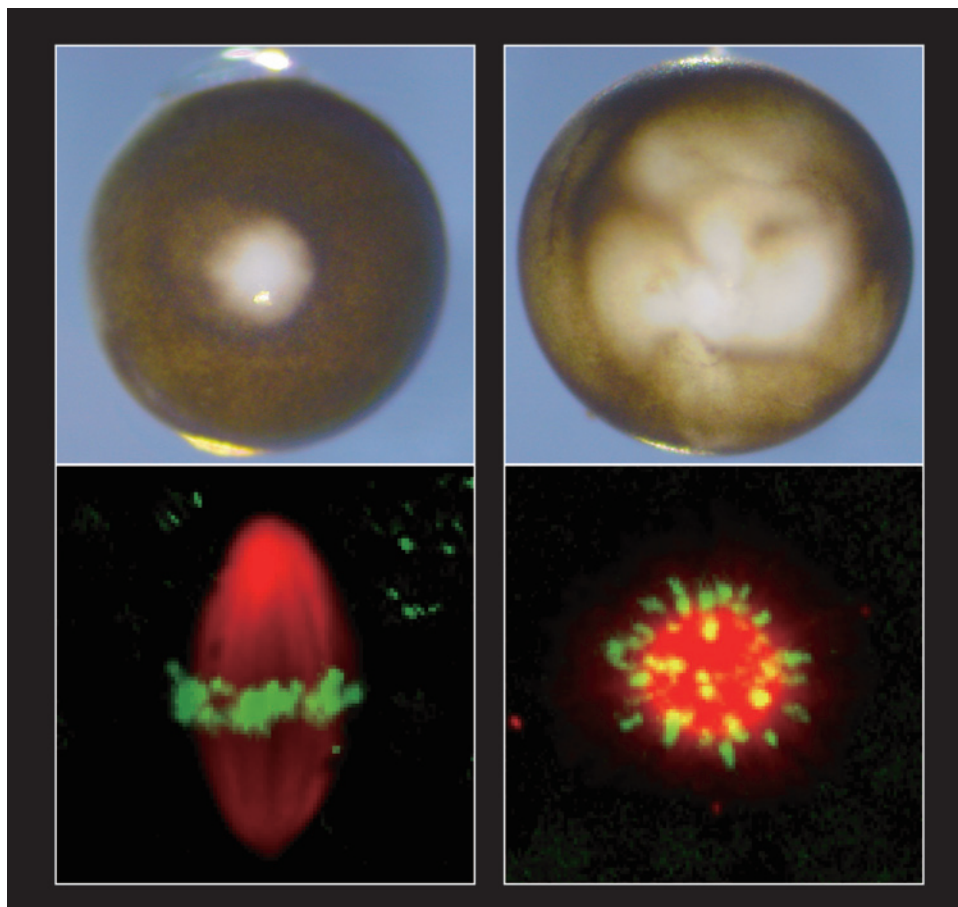
Mol. Biol. Cell 21 (6), 926–935

Compartmentalized Cyclic Adenosine 3',5'-Monophosphate at the Plasma Membrane Clusters PDE3A and Cystic Fibrosis Transmembrane Conductance Regulator into Microdomains

Himabindu Penmatsa, Weiqiang Zhang, Sunitha Yarlagadda, Chunying Li, Veronica G. Conoley, Junming Yue, Suleiman W. Bahouth, Randal K. Buddington, Guangping Zhang, Deborah J. Nelson, Monal D. Sonecha, Vincent Manganiello, Jeffrey J. Wine, and Anjaparavanda P. Naren

PDE3A functionally and physically interacts with CFTR. Inhibition of PDE3A generates compartmentalized cAMP, which further clusters PDE3A and CFTR into microdomains at the plasma membrane of epithelial cells and potentiates CFTR channel function. The authors' findings provide insights into the important role of PDE3A in compartmentalized cAMP signaling.

Mol. Biol. Cell 21 (6), 1097–1110 ■



A normal *Xenopus* egg (left panels) and one in which Emi2 binding to the anaphase-promoting complex/cyclosome has been inhibited (right panels). (Image: Munemichi Ohe and Noriyuki Sagata)