

# HIGHLIGHTS from MBoC

The Editorial Board of *Molecular Biology of the Cell* has highlighted the following articles from the May 1 and May 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.

## The Hydrophobic Core of the Sec61 Translocon Defines the Hydrophobicity Threshold for Membrane Integration

Tina Junne, Lucyna Kocik, and Martin Spiess

Mutation of the apolar constriction of the yeast Sec61 translocon to polar or charged residues, while retaining functionality, affected the integration of potential transmembrane segments into the lipid bilayer. This indicates that the translocon plays an active role in setting the hydrophobicity threshold for membrane integration.

**Mol. Biol. Cell 21 (10), 1662–1670**

## Polarization of the Yeast Pheromone Receptor Requires Its Internalization but Not Actin-dependent Secretion

Dmitry V. Suchkov, Reagan DeFlorio, Edward Draper, Amber Ismael, Madhushalini Sukumar, Robert Arkowitz, and David E. Stone

The data presented in this paper suggest that pheromone-induced receptor phosphorylation and internalization, but not actin-dependent directed secretion, are required to establish receptor polarity.

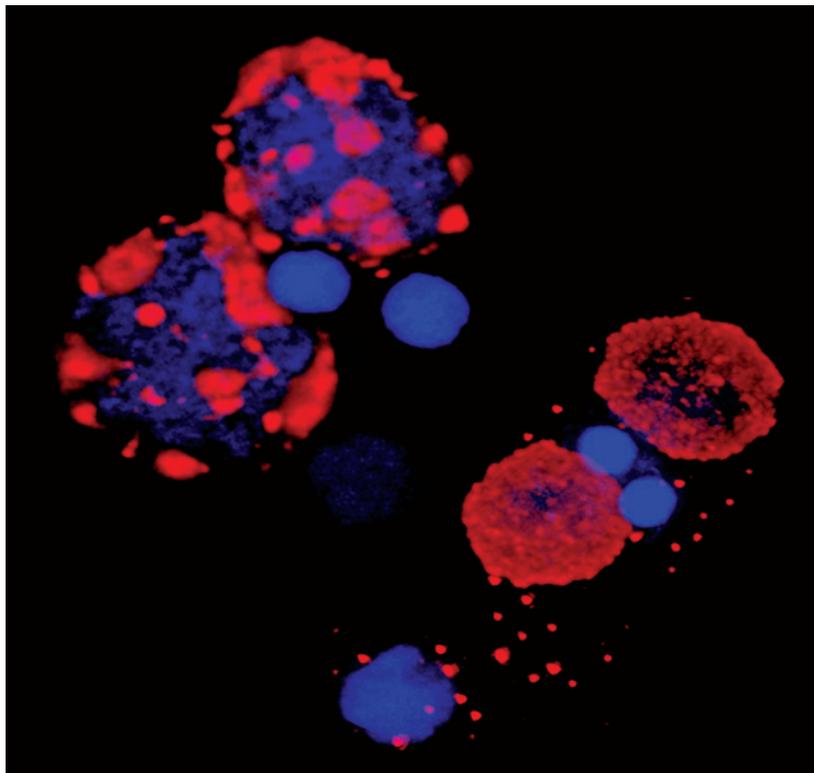
**Mol. Biol. Cell 21 (10), 1737–1752**

## A Domesticated *piggyBac* Transposase Plays Key Roles in Heterochromatin Dynamics and DNA Cleavage during Programmed DNA Deletion in *Tetrahymena thermophila*

Chao-Yin Cheng, Alexander Vogt, Kazufumi Mochizuki, and Meng-Chao Yao

This study suggests that a *TPB2 piggyBac* transposase has evolved to facilitate heterochromatin assembly and carry out the final DNA excision step of programmed DNA deletion in *Tetrahymena thermophila*. *TPB2* appears to have gone through a domestication process to become a host gene and be maintained in the macronuclear genome.

**Mol. Biol. Cell 21 (10), 1753–1762 ■**



RNAi silencing of the *piggyBac* transposase gene in *Tetrahymena* (lower image) disrupts the formation of the large heterochromatin structures that are the site of programmed DNA deletion and causes formation of abnormal Pdd1p aggregates in the cytosol. (Image: Chao-Yin Cheng, Institute of Molecular Biology, Academia Sinica, Taipei, Taiwan)

