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### EDITORIAL

All together now: how and why scientific communities should develop best practice guidelines  
Connie M. Lee and David G. Drubin  
1707–1708

### PERSPECTIVE

Frizzled to finance: one PhD’s path from a Drosophila lab to Wall Street  
Job Taylor  
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### ARTICLES

#### Biosynthesis and Biodegradation

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<th>Highlights from MBoC Selection</th>
<th>NFκB is a central regulator of protein quality control in response to protein aggregation stresses via autophagy modulation</th>
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<td>Maëleenn Fournier, André-Patrick Amigo, Claudio Hetz, Julie D. Atkin, and Carole Kretz-Remy</td>
<td>NFκB is a master regulator of protein quality control. It helps the cells to survive proteotoxicity by modulating autophagy via up-regulation of BAG3 and HspB8 expression, a molecular mechanism relevant to protein conformational diseases.</td>
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<th>Cell Biology of Disease</th>
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| Staufen1 impairs stress granule formation in skeletal muscle cells from myotonic dystrophy type 1 patients  
Aymeric Ravel-Chapuis, Amanda Klein Gunnewiek, Guy Bélanger, Tara E. Crawford Parks, Jocelyn Côté, and Bernard J. Jasmin  
The formation of stress granules (SGs) in proliferating, quiescent, and differentiated muscle cells is examined. DM1 myoblasts fail to properly form SGs in response to stress, thereby likely contributing to the complex DM1 pathogenesis. Staufen1 participates in the regulation of SG formation in DM1 myoblasts. |

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<th>Cell Cycle</th>
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| Synergistic role of fission yeast Alp16<sup>GCP6</sup> and Mzt1<sup MOZART1</sup> in γ-tubulin complex recruitment to mitotic spindle pole bodies and spindle assembly  
Hirohisa Masuda and Takashi Toda  
Schizosaccharomyces pombe GCP6 promotes MOZART1-dependent γTuRC recruitment to mitotic spindle pole bodies and enhances spindle microtubule assembly in a manner dependent on its expression levels. MOZART1 plays an additional role in the activation of the mitotic γTuRC. GCP6 and MOZART1 act synergistically for efficient spindle assembly and faithful chromosome segregation. |
Sensing a bud in the yeast morphogenesis checkpoint: a role for Elm1
Hui Kang, Denis Tsygankov, and Daniel J. Lew

Yeast cells know whether or not they have a bud. The kinase Elm1 and the septin cytoskeleton are key transducers of cell shape information.

The GTPase SPAG-1 orchestrates meiotic program by dictating meiotic resumption and cytoskeleton architecture in mouse oocytes
Chunjie Huang, Di Wu, Faheem Ahmed Khan, Xiaofei Jiao, Kaifeng Guan, and Lijun Huo

GTPase sperm-associated antigen 1 is studied in the context of mammalian oogenesis and female fertility. It is found to have a role in oocyte meiotic execution via its involvement in AMPK and MAPK signaling pathways.

Cytoskeleton

The negatively charged carboxy-terminal tail of β-tubulin promotes proper chromosome segregation
Colby P. Fees, Jayne Aiken, Eileen T. O’Toole, Thomas H. Giddings, Jr., and Jeffrey K. Moore

Microtubules are essential for chromosome segregation. A study of the mechanistic contributions of tubulin proteins identifies a specific role for the negatively charged carboxy-terminal tail domain of β-tubulin in positioning kinetochores in the mitotic spindle and ensuring efficient and accurate chromosome segregation.

An mDia1-INF2 formin activation cascade facilitated by IQGAP1 regulates stable microtubules in migrating cells
Francesca Bartolini, Laura Andres-Delgado, Xiaoyi Qu, Sara Nik, Nagendra Ramalingam, Lenor Kremer, Miguel A. Alonso, and Gregg G. Gundersen

The formin INF2 is required for stable Glu microtubule formation and inhibition of microtubule dynamics in NIH3T3 cells downstream of mDia1 and LPA. Evidence also shows that the formation of an mDia1/INF2 complex is necessary for microtubule stabilization stimulated by LPA and is regulated by IQGAP1.

Single microfilaments mediate the early steps of microtubule bundling during preprophase band formation in onion cotyledon epidermal cells
Miyuki Takeuchi, Ichirou Karahara, Naoko Kajimura, Akio Takaoka, Kazuyoshi Murata, Kazuyo Misaki, Shigenobu Yonemura, L. Andrew Staehelin, and Yoshinobu Mineyuki

Actin–microtubule interactions have been postulated to play an important role in the formation of the preprophase microtubule band, which predicts the future division site in plants. Electron tomography reveals that microfilaments are used as bridging structures to draw widely spaced microtubules together during microtubule band formation.

The F-actin bundler α-actinin Ain1 is tailored for ring assembly and constriction during cytokinesis in fission yeast
Yujie Li, Jenna R. Christensen, Kaitlin E. Homa, Glen M. Hocky, Alice Fok, Jennifer A. Sees, Gregory A. Voth, and David R. Kovar

The highly dynamic bundling activity of fission yeast α-actinin SpAin1 was biochemically characterized, and its importance for contractile ring formation in vivo was tested. Investigation of a mutant with higher bundling activity, SpAin1(216E), revealed that dynamic SpAin1-mediated bundling is crucial for proper ring assembly and constriction.

Membrane Trafficking

Rab43 regulates the sorting of a subset of membrane protein cargo through the medial Golgi
John V. Cox, Rita Kansal, and Michael A. Whitt

Rab43 differentially regulates the sorting of membrane-spanning cargo in the medial Golgi. Although the trans-Golgi network is the primary site at which cargo is sorted into transport intermediates for delivery to alternative cellular compartments, cargo is also partitioned during its transit through earlier Golgi compartments.

Ezetimibe-sensitive cholesterol uptake by NPC1L1 protein does not require endocytosis
Tory A. Johnson and Suzanne R. Pfeffer

NPC1L1 mediates dietary cholesterol uptake and is the target of the drug ezetimibe. Others have concluded that cholesterol uptake requires sterol-dependent internalization. The present work shows that endocytosis is not required for NPC1L1 function and the drug does not alter endocytosis. Thus NPC1L1 may deliver cholesterol directly into the bilayer.
**Signaling**

**Pax7 is required for establishment of the xanthophore lineage in zebrafish embryos**

Hanna Nord, Nils Dennhag, Joscha Muck, and Jonas von Hofsten

A conceptually novel role for Pax7 is found in zebrafish pigment formation. Absence of Pax7 leads to an expansion of the embryonic and larval melanophore lineage and a depletion of xanthophores, suggesting a model in which Pax7 is involved in early chromatophore specification processes.

**Systems Biology**

**Combined changes in Wnt signaling response and contact inhibition induce altered proliferation in radiation-treated intestinal crypts**

S.-J. Dunn, J. M. Osborne, P. L. Appleton, and I. Näthke

Wnt concentration gradients operate in many tissues. Modeling of proliferation in control and irradiated intestinal crypts shows that the Wnt concentrations that cells experience when they are born set their proliferative fate and cell cycle duration. The simulations also predict the initial proportion of cells damaged by tumor-promoting radiation.