BRIEF REPORTS

Phosphorylation of the RNA-binding protein Dazl by MAPKAP kinase 2 regulates spermatogenesis
Patrick A. Williams, Michael S. Krug, Emily A. McMillan, Jasmine D. Peake, Tara L. Davis, Simon Cocklin, and Todd I. Strochlic

Developing male germ cells are exquisitely sensitive to stress and rely on RNA-binding proteins for posttranscriptional gene expression. Phosphorylation of the germ cell–specific RNA-binding protein deleted in azoospermia-like (Dazl) by the stress-activated protein kinase MK2 is a negative regulator of spermatogenesis.

Nucleus-dependent sarcomere assembly is mediated by the LINC complex
Alexander L. Auld and Eric S. Folker

Although significant progress has been made in understanding the mechanisms of nuclear movement, the functions of nuclear movement have proven more elusive. Properly positioned nuclei are necessary to build a functional sarcomere network during muscle development.

Hyperactivation of ATM upon DNA-PKcs inhibition modulates p53 dynamics and cell fate in response to DNA damage
Ana Finzel, Andrea Grybowski, Jette Strasen, Elena Cristiano, and Alexander Loewer

Time-resolved single-cell analysis and pharmacological perturbations reveal a new regulatory interplay between PI3K-like kinases in response to DNA double-strand breaks: upon loss of DNA-PKcs activity, ATM is hyperactivated and induces an amplified p53 response, which sensitizes cells for damage-induced senescence.

ARTICLES

Lipid droplets maintain lipid homeostasis during anaphase for efficient cell separation in budding yeast
Po-Lin Yang, Tzu-Han Hsu, Chao-Wen Wang, and Rey-Huei Chen

Excess lipids are stored in the form of neutral lipids in lipid droplets. The inability to convert excess lipids into neutral lipids during anaphase creates a lipid imbalance that perturbs the normal dynamics of cytokinesis molecules, causing a delay in cell separation.

Profilin connects actin assembly with microtubule dynamics
Michaela Nejedla, Sara Sadi, Vadym Sulimenko, Francisca Nunes de Almeida, Hans Blom, Pavel Draber, Pontus Aspenström, and Roger Karlsson

Profilin is a well-known regulator of actin filament formation. It indirectly associates with microtubules and influences their growth rate. Formins are the linker molecules, and the turnover of the actin microfilament system balances profilin association with the microtubules.

Tetrahymena Poc1 ensures proper intertriplet microtubule linkages to maintain basal body integrity
Janet B. Meehl, Brian A. Bayless, Thomas H. Giddings, Jr., Chad G. Pearson, and Mark Winey

The symmetric triplet microtubules of basal bodies resist asymmetric forces produced by motile cilia. The Poc1 basal body stability factor promotes the symmetric linkages between triplet microtubules. When Poc1 is absent, basal bodies exhibit the asymmetric loss of specific triplet microtubules.
The role of the dynein light intermediate chain in retrograde IFT and flagellar function in *Chlamydomonas*


D1bLIC is a subunit of the retrograde IFT motor. Knockdown or knockout of D1bLIC has dose-dependent effects on flagellar assembly, length, motility, and signaling. iTRAQ-based proteomics identifies novel proteins altered in d1blic mutant flagella. TIRF microscopy reveals the kinetics and remodeling of the retrograde motor at the flagellar tip.

Membrane Trafficking

Imaging the recruitment and loss of proteins and lipids at single sites of calcium-triggered exocytosis

Adam J. Trexler, Kem A. Sochacki, and Justin W. Taraska

Imaging of exocytic and endocytic proteins shows which are present at exocytic sites before, during, and after exocytosis in living cells. Rab proteins and SNARE modulators are lost, and dynamin, PIP2, and BAR-domain proteins are rapidly and transiently recruited, where they may modulate the nascent fusion pore.

Yeast Vps13 promotes mitochondrial function and is localized at membrane contact sites

Jae-Sook Park, Mary K. Thorsness, Robert Policastro, Luke L. McGoldrick, Nancy M. Hollingsworth, Peter E. Thorsness, and Aaron M. Neiman

Loss of *VPS13* produces multiple phenotypes. This study implicates *VPS13* in the function of membrane contact sites and suggests that different phenotypes of the mutant result from defects in different contact sites. In yeast, mutations found in the VPS13A gene of ChAc patients have specific defects in the mitochondrial aspect of VPS13 function.

Kinesin-related Smy1 enhances the Rab-dependent association of myosin-V with secretory cargo

Kyaw Myo Lwin, Donghao Li, and Anthony Bretscher

Smy1 is a kinesin-related protein that enhances the association of the Myo2 myosin-V motor with its receptor, the Rab Sec4, on secretory vesicles. This function requires Smy1’s head, coiled-coil, and tail domains and is specific for secretory vesicle transport but not for mitochondrial segregation by Myo2, which also uses a Rab protein, Ypt11.

Nuclear Functions

Hsp90 induces increased genomic instability toward DNA-damaging agents by tuning down RAD53 transcription

Nidhi Khurana, Shyamasree Laskar, Mrinal K. Bhattacharyya, and Sunanda Bhattacharyya

The molecular mechanism behind hyperthermia coupled to radiation-induced DNA damage sensitivity is not known. The model organism *Saccharomyces cerevisiae* is used to establish that a transient heat shock and particularly the concomitant induction of Hsp90 lead to increased genomic instability via transcriptional regulation of the major checkpoint kinase Rad53.

Grainyhead-like 2 inhibits the coactivator p300, suppressing tubulogenesis and the epithelial–mesenchymal transition

Phillip M. Pifer, Joshua C. Farris, Alyssa L. Thomas, Peter Stoilov, James Denvir, David M. Smith, and Steven M. Frisch

GRHL2 suppresses EMT to give a default epithelial phenotype. GRHL2 inhibits this process through the histone acetyltransferase coactivator p300, repressing the partial EMT and preventing induction of MMPs. The results demonstrate novel roles for p300 and GRHL2 in promoting or suppressing EMT in morphogenesis and tumor progression.

Signaling

Receptor tyrosine kinase Met promotes cell survival via kinase-independent maintenance of integrin α3β1

Lia Tesfay, Veronique V. Schulz, Sander B. Frank, Laura E. Lamb, and Cindy K. Miranti

This study identifies a new mechanism by which the receptor tyrosine kinase Met promotes cell survival. The ectodomain and transmembrane domain of Met, independently of kinase activity, are required to maintain integrin α3β1 on the cell surface to prevent activation of intrinsic and extrinsic cell death pathways and maintain autophagic flux.
**Systems Biology**

**Adaptation to different types of stress converge on mitochondrial metabolism**

*Petri-Jaan Lahtvee, Rahul Kumar, Björn M. Hallström, and Jens Nielsen*

> Although stress-specific factors increase ATP demand for cellular growth under stressful conditions in yeast, increased ATP demand for cellular maintenance underpins a general stress response and is responsible for the onset of overflow metabolism.

**CORRECTION**

The alternate AP-1 adaptor subunit Apm2 interacts with the Mil1 regulatory protein and confers differential cargo sorting

*Shawn T. Whitfield, Helen E. Burston, Björn D. M. Bean, Nandini Raghuram, Lymarie Maldonado-Báez, Michael Davey, Beverly Wendland, and Elizabeth Conibear*

**RETRACTION**

Lectin-deficient Calreticulin Retains Full Functionality as a Chaperone for Class I Histocompatibility Molecules

*Breanna S. Ireland, Ulf Brockmeier, Christopher M. Howe, Tim Elliott, and David B. Williams*