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BRIEF REPORTS

Mouse genetic background contributes to hepatocyte susceptibility to Fas-mediated apoptosis
Sujith V. W. Weerasinghe, Min-Jung Park, Daniel A. Portney, and M. Bishr Omary

Mouse strain–dependent selective loss of apoptosis enzymes, with consequent decrease in susceptibility to apoptosis, occurs upon short-term hepatocyte culture and in vivo. These susceptibility differences likely reflect genetic modifiers that provide resistance or predisposition to hepatocyte death.

Xenopus TACC2 is a microtubule plus end–tracking protein that can promote microtubule polymerization during embryonic development
Erin L. Rutherford, Leslie Carandang, Patrick T. Ebbert, Alexandra N. Mills, Jackson T. Bowers, and Laura Anne Lowery

Xenopus TACC2 is a microtubule plus end–tracking protein that localizes in front of EB1 and overlaps with TACC1 and TACC3 in cultured embryonic mesenchymal cells and neuronal growth cones. TACC2 OE can promote increased microtubule polymerization in mesenchymal cells but not growth cones, suggesting cell-type specificity to its function.

Spatial regulation of astral microtubule dynamics by Kif18B in PtK cells
Claire E. Walczak, Hailing Zong, Sachin Jain, and Jane R. Stout

Spatial and temporal control of MT dynamics is important for proper spindle assembly and chromosome segregation. The kinesin-8 Kif18B spatially regulates astral MT dynamics. Not all members of a single kinesin superfamily control MT dynamics in a similar fashion.

ARTICLES

Biosynthesis and Biodegradation

Proteomic profiling of the mitochondrial ribosome identifies Atp25 as a composite mitochondrial precursor protein
Michael W. Woellhaf, Frederik Sommer, Michael Schroda, and Johannes M. Herrmann

Atp25 is a complex mitochondrial precursor that is cleaved three times by the matrix processing peptidase, resulting in two mature proteins. One of these, the ribosome-silencing factor Rsf, binds mitochondrial ribosomes. Cytosolic expression of Rsf alone (in yeast) is toxic and is prevented by the unconventional processing of Atp25.

Cell Biology of Disease

C9orf72 binds SMCR8, localizes to lysosomes, and regulates mTORC1 signaling
Joseph Arnick, Agnes Roczniak-Ferguson, and Shawn M. Ferguson

C9orf72 interacts strongly with SMCR8 and depends on this interaction for its stability. Lysosomes are major sites of C9orf72 subcellular localization, and abnormal lysosome morphology is seen in its absence. Defects are found in the regulation of the lysosome-localized mTORC1 signaling pathway in C9orf72 KO cells.

Cell Cycle

The RNA-binding protein ATX-2 regulates cytokinesis through PAR-5 and ZEN-4
Megan M. Gnazzo, Eva-Maria E. Uhlemann, Alex R. Villarreal, Masaki Shirayama, Eddie G. Dominguez, and Ahna R. Skop

The mechanisms that mediate the temporal and spatial recruitment of cell division factors to the spindle midzone and midbody remain unclear. Cell division is regulated by the conserved RNA-binding protein, ATX-2/Ataxin-2, which facilitates the targeting of ZEN-4 to the spindle midzone by mediating PAR-5.
Transcriptome analysis of tetraploid cells identifies cyclin D2 as a facilitator of adaptation to genome doubling in the presence of p53
Tamara A. Potapova, Christopher W. Seidel, Andrew C. Box, Giulia Rancati, and Rong Li

Gene expression analysis indicates that p53-mediated suppression of proliferation of polyploid cells can be averted by increased levels of oncogenes such as cyclin D2. Tetraploid cells can adapt and continue to proliferate despite having increased genome content and a wild-type p53 signaling cascade.

Cell Motility

MenaINV mediates synergistic cross-talk between signaling pathways driving chemotaxis and haptotaxis
Madeleine J. Oudin, Miles A. Miller, Joelle A. Z. Klazen, Tatsiana Kosciuk, Alisha Lussiez, Shannon K. Hughes, Jenny Tadros, James E. Bear, Douglas A. Lauffenburger, and Frank B. Gertler

MenaINV, an actin-regulatory protein known to promote metastasis, has roles in driving cross-talk between extracellular matrix, growth factor cues, and their downstream pathways during tumor cell invasion. MenaINV is a shared component of the signaling pathway driving both EGF chemotaxis and fibronectin haptotaxis.

Conformational plasticity of JRAB/MICAL-L2 provides “law and order” in collective cell migration
Ayuko Sakane, Shin Yoshizawa, Masaomi Nishimura, Yoko Tsuchiya, Natsuki Matsushita, Kazuhiza Miyake, Kazuki Horikawa, Issie Imoto, Chiharu Mizuguchi, Hiroyuki Saito, Takato Ueno, Sachis Matisushita, Hisashi Haga, Shinji Deguchi, Kenji Mizuguchi, Hideko Yokota, and Takuya Sasaki

A multidisciplinary approach reveals key insights into the principles of collective cell migration, which is involved in fundamental biological processes. The conformational plasticity of a single molecule, JRAB/MICAL-L2, provides “law and order” in collective cell migration.

Cytoskeleton

Actin filaments as dynamic reservoirs for Drp1 recruitment
Anna L. Hatch, Wei-Ke Ji, Ronald A. Merrill, Stefan Strack, and Henry N. Higgs

Actin stimulates oligomerization and mitochondrial accumulation of Drp1, a mitochondrial fission protein. Drp1 binds actin filaments in an unusually dynamic manner that is strongly influenced by guanine nucleotide.

Assembly of Caenorhabditis elegans acentrosomal spindles occurs without evident microtubule-organizing centers and requires microtubule sorting by KLP-18/kinesin-12 and MESP-1
Ian D. Wolff, Michael V. Tran, Timothy J. Mullen, Anne M. Villeneuve, and Sarah M. Wignall

Female reproductive cells of most species lack centrosomes, but how spindles form in their absence is poorly understood. Study of oocytes in Caenorhabditis elegans uncovers new steps in this process and reveals mechanisms required for acentrosomal spindle bipolarity via studies of two proteins, KLP-18/kinesin-12 and MESP-1.

Membrane Trafficking

The Ccz1-Mon1-Rab7 module and Rab5 control distinct steps of autophagy
Kristzina Hegedüs, Szabolcs Takáts, Attila Boda, András Jipa, Péter Nagy, Kata Varga, Attila L. Kovács, and Gábor Juhász

The endocytic Rab5 effectors Ccz1-Mon1 complex and Rab7 promote autophagosome-lysosome fusion independent of Rab5, which facilitates a later step of autophagy: degradation of cargo within lysosomes.

The Arf GAP Asap promotes Arf1 function at the Golgi for cleavage furrow biosynthesis in Drosophila
Francisco F. Rodrigues, Wei Shao, and Tony J. C. Harris

Drosophila embryo cleavage requires the conserved Arf GAP Asap. Asap seems to recycle Arf1 to the Golgi from post-Golgi membranes for optimal Golgi output and cleavage furrow biosynthesis.

Comparative analysis of adaptor-mediated clathrin assembly reveals general principles for adaptor clustering
Thomas J. Pucadyil and Sachin S. Holkar

Clathrin-mediated endocytosis sorts the bulk of membrane proteins and is a process that starts with adaptor-induced clathrin assembly. Real-time fluorescence analysis shows that adaptor sorting is determined not by the extent of clathrin recruited or the degree of clathrin clustered but instead by the rate of clathrin assembly.
**Nuclear Functions**

Decoding the principles underlying the frequency of association with nucleoli for RNA polymerase III–transcribed genes in budding yeast

Praveen Belagal, Christophe Normand, Ashutosh Shukla, Renjie Wang, Isabelle Léger-Silvestre, Christophe Dez, Purnima Bhargava, and Olivier Gadal

In budding yeast, RNA polymerase III–transcribed genes preferentially associate with the nucleolar and nuclear periphery when permitted by the Rabl-like orientation of interphase chromosomes.

**CORRECTIONS**

The glucose metabolite methylglyoxal inhibits expression of the glucose transporter genes by inactivating the cell surface glucose sensors Rgt2 and Snf3 in yeast

Adhiraj Roy, Salman Hashmi, Zerui Li, Angela D. Dement, Kyu Hong Cho, and Jeong-Ho Kim

The Seckel syndrome and centrosomal protein Ninein localizes asymmetrically to stem cell centrosomes but is not required for normal development, behavior, or DNA damage response in *Drosophila*

Yiming Zheng, Vito Mennella, Steven Marks, Jill Wildonger, Esraa Elnagdi, David A. Agard, and Timothy L. Megraw