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BRIEF REPORT

A Highlights from MBoC Selection

The poly(ADP-ribose)-dependent chromatin remodeler Alc1 induces local chromatin relaxation upon DNA damage

Hafida Sellou, Théo Lebeaupin, Catherine Chapuis, Rebecca Smith, Anna Hegele, Hari R. Singh, Marek Kozlowski, Sebastian Bultmann, Andreas G. Ladurner, Gyula Timinszky, and Sébastien Huet

3791–3799

ARTICLES

Biosynthesis and Biodegradation

Regulation of GPCR expression through an interaction with CCT7, a subunit of the CCT/TRiC complex

Samuel Génier, Jade Degrandmaison, Pierrick Moreau, Pascale Labrecque, Terence E. Hébert, and Jean-Luc Parent

A direct and functional interaction between a subunit of the CCT/TCP-1 ring complex (TRiC) chaperonin complex and G protein–coupled receptor (GPCRs) is shown. Evidence is provided that distinct nascent GPCRs can undergo alternative folding pathways and that CCT/TRiC is critical in preventing aggregation of some GPCRs and in promoting their proper maturation and expression.

3800–3812

Cell Biology of Disease

Tay–Sachs disease mutations in HEXA target the α chain of hexosaminidase A to endoplasmic reticulum–associated degradation

Devin Dersh, Yuichiro Iwamoto, and Yair Argon

In Tay–Sachs disease, mutations in HEXA can lead to aberrant α subunits of the HexA enzyme. Two such mutants have folding defects and are cleared by endoplasmic reticulum-associated degradation. Toward the pursuit of therapeutic treatments, it was found that manipulating endoplasmic reticulum quality control can impair mutant α degradation and improve cellular Hex activity.

3813–3827

Cell Motility

GOLPH3 drives cell migration by promoting Golgi reorientation and directional trafficking to the leading edge

Mengke Xing, Marshall C. Peterman, Robert L. Davis, Karen Oegema, Andrew K. Shiau, and Seth J. Field

The GOLPH3 oncogene functions in Golgi trafficking. GOLPH3 promotes cell migration, which is important in cancer. GOLPH3, by linking the Golgi to F-actin, promotes both Golgi reorientation and forward trafficking, which together drive trafficking to the leading edge. These findings provide insight into how GOLPH3 drives cell migration.

3828–3840
**Cell Physiology**

The cAMP pathway regulates mRNA decay through phosphorylation of the RNA-binding protein TIS11b/BRF1

_Felicitas Rataj, Séverine Planel, Agnès Desroches-Castan, Juliette Le Douce, Khadija Lamribet, Josiane Denis, Jean-Jacques Feige, and Nadia Cherradi_

TIS11b belongs to the tristetraprolin family of zinc-finger proteins, which target short-lived mRNA for degradation. This study shows that the cAMP pathway up-regulates TIS11b expression and modulates its function in mRNA decay through PKA-dependent phosphorylation of two highly conserved phosphosites.

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**Cytoskeleton**

A novel function for the MAP kinase SMA-5 in intestinal tube stability

_Florian Geisler, Harald Gerhardus, Katrin Carberry, Wayne Davis, Erik Jorgensen, Christine Richardson, Olaf Bossinger, and Rudolf E. Leube_

In vivo evidence links SMA-5 to the maintenance of the apical domain in the _Caenorhabditis elegans_ intestine. _sma-5_ mutations induce morphological and biochemical changes of the intermediate filament system, demonstrating the close relationship between posttranslational modification and structural integrity of the evolutionarily conserved intestinal cytoskeleton.

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**Membrane Trafficking**

The phospholipid flippase ATP9A is required for the recycling pathway from the endosomes to the plasma membrane

_Yoshiki Tanaka, Natsuki Ono, Takahiro Shima, Gaku Tanaka, Yohei Katoh, Kazuhisa Nakayama, Hiroyuki Takatsu, and Hye-Won Shin_

ATP9A is localized to phosphatidylserine-positive early and recycling endosomes, but not late endosomes, in HeLa cells. ATP9A plays a crucial role in recycling of transferrin and glucose transporter 1 from endosomes to the plasma membrane.

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**Nuclear Functions**

Identification of novel nesprin-1 binding partners and cytoplasmic matrin-3 in processing bodies

_Dipen Rajgor, Jonathan G. Hanley, and Catherine M. Shanahan_

Several new nesprin-1 binding partners were identified, of which many are well-characterized RNA-binding proteins involved in various forms of nuclear RNA-processing events. Matrin-3 was one such protein identified, and a new cytoplasmic localization for matrin-3 is shown.

An _NXF1_ mRNA with a retained intron is expressed in hippocampal and neocortical neurons and is translated into a protein that functions as an _Nxf1_ cofactor

_Ying Li, Yeou-cherng Bor, Mark P. Fitzgerald, Kevin S. Lee, David Rekosh, and Marie-Louise Hammarskjöld_

A small _Nxf1_ protein, expressed from an _NXF1_ mRNA with a retained intron is highly expressed in rodent hippocampal and neocortical neurons, colocalizes with Staufen2 proteins in neuronal RNA granules, is present in polysomes, and replaces _Nxt1_ as an _Nxf1_ cofactor in export and expression of mRNA with retained introns.

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**Signaling**

Glutathione depletion activates the yeast vacuolar transient receptor potential channel, Yvc1p, by reversible glutathionylation of specific cysteines

_Avinash Chandel, Krishna K. Das, and Anand K. Bachhawat_

Glutathione depletion leads to calcium influx in yeast cells via plasma membrane Cch1p and the vacuolar Yvc1p channels. Yvc1p, a yeast vacuolar transient receptor potential channel, is activated by glutathionylation carried out by the glutathione S-transferase Gtt1p, and this mechanism is reversible with deglutathionylation being mediated by the thioredoxin Trx2p.
A Highlights from MBoC Selection

The residue at position 5 of the N-terminal region of Src and Fyn modulates their myristoylation, palmitoylation, and membrane interactions
Efrat Gottlieb-Abraham, Orit Gutman, Govind M. Pai, Ignacio Rubio, and Yoav I. Henis

Using biophysical methods in live cells and palmitoylation mutants of Src and Fyn, we show that palmitoylation stabilizes the interactions of SFKs with the plasma membrane. Moreover, we show that the amino acid at position 5 regulates the myristoylation and palmitoylation of these proteins, and thereby their targeting to raft domains.

Theory

Analysis of diffusion in curved surfaces and its application to tubular membranes
Colin James Stockdale Klaus, Krishnan Raghunathan, Emmanuele DiBenedetto, and Anne K. Kenworthy

The effects of curvature on the diffusion of membrane-associated molecules are poorly understood. Here a generalizable theoretical framework for modeling diffusion on curved surfaces is derived and used to study how geometry modulates diffusion of molecules along tubular membrane surfaces.