IN BRIEF

CHROMOSOMES

Transgenerational remodelling of sperm DNA

The chromosomes supplied by sperm and egg undergo different chromatin reorganization events in the embryo. The paternal chromosomes transition from a highly compacted protamine-rich state to a mitosis-competent histone-rich state. This process involves several maternally-deposited proteins, but the paternal contribution to paternal genome remodelling is unclear. A study in *Drosophila melanogaster* now reveals that the testis-specific heterochromatin protein 1e (HP1e) is essential for priming the paternal genome to enter embryonic mitosis in synchrony with the maternal genome. Sperm from HP1e-depleted males fertilized eggs, but the post-fertilization condensation of paternal chromosomes (in particular of heterochromatin-rich sex chromosomes) in these embryos was delayed, leading to mitotic catastrophe and embryonic lethality. HP1e was not inherited: it was expressed late in spermatogenesis but disappeared in mature sperm.

ORIGINAL RESEARCH PAPER Levine, M. T. *et al.* Mitotic fidelity requires transgenerational action of a testis-restricted HP1. *eLife* **4**, e07378 (2015)

EXOSOMES

Apoptotic beads on a string

During apoptosis, cells can disassemble into smaller membrane-bound extracellular vesicles that promote apoptotic cell clearance and mediate intercellular communication. Previous work by Poon and colleagues showed that the generation of such apoptotic bodies in T cells is a highly regulated, multistep process that involves string-like membrane protrusions known as apoptopodia. This study describes the presence of 'beaded' apoptopodia in primary human monocytes and in a monocytic cell line undergoing apoptosis, from which apoptotic bodies termed 'beads' can be cleaved. Nuclear DNA and proteins are excluded from the beaded apoptopodia, which indicates that intracellular contents can be actively sorted into the beads. Using a flow cytometry-based screen, the authors identified the antidepressant drug sertraline as inhibiting bead formation without affecting the formation of membrane blebs or overall apoptosis. Sertraline is thought to inhibit beaded apoptopodia through effects on vesicle trafficking.

ORIGINAL RESEARCH PAPER Atkin-Smith, G. K. *et al.* A novel mechanism of generating extracellular vesicles during apoptosis via a beads-on-a-string membrane structure. *Nat. Commun.* **6**, 7439 (2015)

CYTOSKELETON

Degrading proteins at the primary cilium

As mutations in the gene encoding the ciliary protein RPGRIP1L cause ciliopathies, Gerhardt *et al.* characterized this protein further. They confirmed its presence at the ciliary transition zone of cilia in mouse embryonic fibroblasts (MEFs) and in the limbs of mouse embryos; cilia were longer in the absence of RPGRIP1L in both systems. The authors asked whether RPGRIP1L influenced ciliary signalling to control cilia length and found that a component of the sonic hedgehog pathway was inefficiently processed in *Rpgrip1l*-null MEFs and that a phosphorylated form of β-catenin (a mediator of WNT signalling) accumulated at the ciliary base in these cells. These data suggest that RPGRIP1L promotes proteasomal activity at the ciliary base. Indeed, RPGRIP1L promoted protein degradation specifically in primary cilia by interacting with PSMD2, a component of the 19S proteasomal subunit, at the transition zone.

ORIGINAL RESEARCH PAPER Gerhardt, C. *et al.* The transition zone protein Rpgrip1l regulates proteasomal activity at the primary cilium. *J. Cell Biol.* **210**, 115–133 (2015)