IN BRIEF

CHROMOSOMES

Finding your pair

The pairing and recombination of homologous chromosomes is crucial for their reductional segregation during meiosis I, but until now it has been unclear how chromosomes recognize their homologous partners. Ding *et al.* observed that fluorescently tagged *sme2* loci, located on *Schizosaccharomyces pombe* chromosome 2, paired frequently in early meiotic prophase. When the *sme2* locus was translocated to another region, robust pairing was seen at this ectopic site, indicating that *sme2* is sufficient to induce robust homologous pairing. Furthermore, when two copies of *sme2* were present on non-homologous chromosomes, the two loci associated transiently, suggesting that *sme2* loci can recognize each other. Importantly, *sme2* non-coding RNA transcripts, transcribed from both homologous chromosomes, accumulated at their respective gene loci and were found to be essential for pairing. Whether other pairing sites also exist on chromosome 2 remains to be determined.

ORIGINAL RESEARCH PAPER Ding, D.-Q. *et al.* Meiosis-specific noncoding RNA mediates robust pairing of homologous chromosomes in meiosis. *Science* **336**, 732–736 (2012)

CELL ADHESION

Cell–cell contacts with talin

Talin has a key role in integrin-dependent adhesion of cells to the extracellular matrix, and Kashina and colleagues now report that talin also mediates cell–cell adhesion. A 70 kDa carboxy-terminal fragment (termed VAD) of talin was seen in several cell types and localized at cadherin-containing cell–cell adhesion sites. This fragment was generated through cleavage of talin by the protease calpain 2, and cleavage was dependent on arginylation of VAD. Importantly, arginylation-deficient mutant cells that lacked the VAD fragment formed fewer and smaller cell–cell adhesions, indicating a role for VAD in cell–cell contacts. Furthermore, arginylation was integral in the regulation of VAD function, as arginylated VAD was more efficient in forming cell–cell contacts than its non-arginylated counterpart. Thus, this work uncovers a new role of talin in cadherin-dependent cell–cell adhesion and highlights arginylation as an important post-translational modification.

ORIGINAL RESEARCH PAPER Zhang, F. *et al.* Arginylation-dependent regulation of a proteolytic product of talin is essential for cell–cell adhesion. *J. Cell Biol.* 4 Jun 2012 (doi:10.1083/jcb.201112129)

CELL SIGNALLING

Breaking down cilia

The disassembly of non-motile cilia (the antenna-like structures that transduce extracellular signals) prior to mitosis has been shown to be mediated by the interaction of the scaffold protein HEF1 with Aurora A kinase, but how these proteins are activated had remained unclear. Here, Lee *et al.* reveal key roles for Polo-like kinase 1 (PLK1) and the WNT signalling mediator Dishevelled 2 upstream of HEF1 and Aurora A. The authors observed that, following activation by the non-canonical WNT ligand WNT5A, casein kinase 1δ (CK1δ) or CK1ε phosphorylated Dishevelled 2 at Ser143 and Thr224, inducing the formation of a Dishevelled 2–PLK1 complex. Further analysis showed that the Dishevelled 2–PLK1 complex induced by CK1ε is important for the stabilization of HEF1 (in a manner dependent on the kinase activity of PLK1) and thus for the interaction of HEF1 with Aurora A, ultimately leading to cilium disassembly.

ORIGINAL RESEARCH PAPER Lee, K. H. *et al.* Identification of a novel WNT5A–CK1ε–DVL2–PLK1-mediated primary cilia disassembly pathway. *EMBO J.* 18 May 2012 (doi:10.1038/emboj.2012.144)