



nature publishing group



► **COVER:** 'Dancing chromosomes' by Vicky Summersby, inspired by the Review on p91. During prometaphase, chromosomes exhibit a complex pattern of movement that is often described as 'the dance of chromosomes'.



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Life is complex, even for a eukaryotic cell. For example, whenever a cell divides and gives rise to two daughter cells, it must faithfully duplicate its genome, ensure that the two resulting genome copies are correctly distributed to the daughter cells and then complete the cell cycle by dividing the cytoplasm through cytokinesis. Cells have evolved several strategies to regulate these steps. One such strategy is the ability to sense DNA damage, activate cell cycle checkpoints and initiate DNA repair. Michael S. Y. Huen, Shirley M. H. Sy and Junjie Chen (page [138](#)) review the emerging role of the breast and ovarian cancer type 1 susceptibility protein (BRCA1) as a master regulator of genome integrity with distinct functions in the DNA damage response. Furthermore, Claire E. Walczak, Shang Cai and Alexey Khodjakov (page [91](#)) describe how highly regulated chromosome–spindle microtubule interactions govern the accurate segregation of chromosomes and the maintenance of genome fidelity during mitosis. Finally, Thomas D. Pollard and Jian-Qiu Wu (page [149](#)) discuss how studies in fission yeast have increased our understanding of the mechanisms of cytokinesis, which are likely to be conserved in other organisms.

This issue also features additions to our Article Series on Post-transcriptional control and on Cytoskeletal motors. Richard J. Jackson, Christopher U. T. Hellen and Tatyana V. Pestova (page [113](#)) describe the regulation of mRNA translation initiation, and James A. Spudich and Sivaraj Sivaramakrishnan (page [128](#)) discuss how myosin VI achieves a larger step size along actin filaments than its structure seems to allow.

We hope that researchers will continue taking increasingly larger steps towards understanding the complex behaviour of cells!

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