IN BRIEF

CELL DEATH

Critical role for mitochondrial oxidative phosphorylation in the activation of tumour suppressors Bax and Bak

Tomiyama, A. *et al. J. Natl Cancer Inst.* **20**, 1462–1473 (2006)

The BCL2 family proteins BAX and BAK have a crucial role in controlling cell death by altering the permeability of the outer mitochondrial membrane. To explore the mechanisms of BAX and BAK activation, Chifumi Kitanaka and colleagues used pharmacological inhibitors of various cell processes to identify crucial cellular events in cell death. They found that oxidative phosphorylation is required for BAX and BAK activation, shedding light on the way cancer cells evade apoptosis.

TUMOUR SUPPRESSION

The BRCA1/BARD1 heterodimer modulates Ran-dependent mitotic spindle assembly

Joukov, V. *et al. Cell* **127**, 539–552 (2006)

The BRCA1–BARD1 complex is known to be a tumour suppressor, and has a role in controlling chromosome stability. David Livingston and colleagues show that BRCA1–BARD1 is essential for assembly of the mitotic spindle. Furthermore, they show that the complex is also necessary for the accumulation of the spindle organizer and target of RAN, TPX2, on mitotic-spindle poles. The accurate formation of these poles reduces the risk of aneuploidy, so this could be a new pathway of BRCA1-mediated tumour suppression.

TUMOUR DEVELOPMENT

Isoform-specific Ras activation and oncogene dependence during MYC- and Wnt-induced mammary tumorigenesis

Jang, J. *et al. Mol. Cell. Biol.* **21**, 8109–8121(2006)

Both the MYC transcription factor and the Wnt protein family induce mammary tumorigenesis through modifications of gene expression. Lewis Chodosh and colleagues investigated the specific pathways by which this occurs. Using a bitransgenic mouse model, the authors show that MYC-induced tumorigenesis follows a KRAS2-related pathway, and that Wnt-induced tumorigenesis takes place through a pathway that activates HRAS1. Furthermore, tumours associated with HRAS1 mutations remain oncogene dependent, whereas the KRAS-bearing tumours become oncogene independent.

SIGNALLING

Human cancer cells require ATR for cell cycle progression following exposure to ionizing radiation

Hurley, P. J. *et al. Oncogene* 16 October 2006 (doi: 1038/sj.onc. 1210049)

Signalling by the protein kinase ataxia telangiectasia and RAD3-related (ATR) can be triggered by DNA damage as a result of ionizing radiation. It occurs downstream of the ataxia telangiectasia mutated (ATM) response, which is linked to defective S-phase checkpoints. Fred Bunz and colleagues find that cells that express mutated ATR are unable to progress beyond a specific point at the beginning of the S-phase of the cancer cell cycle, thereby halting DNA replication. This shows that ATR is required for S-phase entry, rather than the S-phase checkpoint.