IN BRIEF

MUTAGENESIS

PiggyBac transposon mutatgenesis: a tool for cancer gene discovery in mice

Rad, R. *et al. Science*, 14 Oct 2010 (doi:10.1126/science.1193004)

Transposons are naturally occurring mobile DNA elements that can cut and paste themselves into areas of the DNA in a traceable way. The *PiggyBac* transposon can induce mutagenesis in multiple tissue types by varying the regulatory elements carried by the transposon. Analyses of haematopoietic tumours that were generated in mice by activation of *PiggyBac* indicated that it inserts throughout the genome at sites that differ from those of another transposon, Sleeping Beauty. The generation of 20 mouse lines that express either transposon in several different tissues should further facilitate the use of transposons to identify new cancer-causing genes.

SIGNALLING

ATM activation by oxidative stress

Guo, Z. *et al. Science* **330**, 517–521 (2010)

Cells that are deficient for the tumour-suppressive kinase ataxia-telangiectasia mutated (ATM) are sensitive to oxidative-induced stress and DNA double-strand breaks (DSBs). This paper shows that oxidation of ATM results in the formation of a disulphide cross-linked ATM dimer that is active. This activation of ATM does not require components of the DNA-damage response to DSBs that are known to phosphorylate and activate ATM. This suggests that ATM is an important sensor of reactive oxygen species, as well as DNA DSBs.

ONCOGENES

Hippo pathway effector YAP is an ovarian cancer oncogene

Hall, C. A. *et al. Cancer Res.* **70**, 8517–8525 (2010)

The transcriptional co-activator YAP shuttles between the cytoplasm and the nucleus and is part of the Hippo tumour suppressor pathway. Recent data have implied that the activation of YAP is oncogenic, and Chad Hall and colleagues show that increased nuclear localization of YAP and low levels of cytoplasmic phosphorylated YAP in ovarian cancer cells strongly associate with a poor prognosis — an approximate 50% reduction in the 5-year survival rate. This assessment of YAP provides an independent prognostic marker for survival.

THERAPEUTICS

Monoclonal antibody targeting of N-cadherin inhibits prostate cancer growth, metastasis and castration resistance

Tanaka, H. *et al. Nature Med.* 7 Oct 2010 (doi:10.1038/nm.2236)

These authors compared gene expression signatures from isogenic xenografts of androgen-dependent and castration-resistant prostate cancer. They identified increased expression of N-cadherin in castration-resistant xenografts and this was also evident in primary and metastatic tumours from patients with castration-resistant disease. Further analyses showed that the expression of N-cadherin in androgen-dependent cells induced castration resistance, and that blocking of N-cadherin using an antibody targeted to its ectodomain slowed the growth of castration-resistant xenografts and reduced metastasis.