IN BRIEF

INFLAMMATION

Mutant p53 fans the flames

Mutations in the tumour suppressor protein p53 do not always result in a loss of function; some mutants have a gain of function (GOF). Moshe Oren and colleagues found that expression of the R273H p53 GOF mutant in a pancreatic cancer cell line resulted in the prolonged expression of tumour necrosis factor and the activation of nuclear factor-κB (NF-κB). In mouse models of inflammation-mediated colorectal cancer, expression of R273H p53 in the mouse colon resulted in chronic inflammation and the development of invasive cancer. This progression mimicked that seen in patients with colitis-associated colorectal cancer in which mutation of p53 is an early event.

ORIGINAL RESEARCH PAPER Cooks, T. *et al.* Mutant p53 prolongs NF-κB activation and promotes chronic inflammation and inflammation-associated colorectal cancer. *Cancer Cell* **23**, 634–646 (2013)

THERAPEUTICS

Histone eviction

A paper published in *Nature Communications* reports that the topoisomerase II inhibitors doxorubicin and daunorubicin induce histone eviction from open chromatin. This effect was independent of the induction of DNA damage by these agents and occurred both in cancer cell lines *in vitro* and in acute myeloid leukaemia (AML) cells isolated from patients treated with daunorubicin. AML blasts from one patient did not express detectable levels of topoisomerase IIα, leading the authors to suggest that the cytotoxicity of daunorubicin in these cells might result from apoptosis induced by the presence of free histones as a result of histone eviction.

ORIGINAL RESEARCH PAPER Pang, B. *et al.* Drug-induced histone eviction from open chromatin contributes to the chemotherapeutic effects of doxorubicin. *Nature Commun.* **4**, 1908 (2013)

METABOLISM

Desaturated lipids required for survival

Cells in solid tumours experience various fluctuations in their microenvironment, including changes in the availability of oxygen. Celeste Simon and colleagues have found that, under hypoxic conditions, tumour cells in which mTOR complex 1 (mTORC1) is constitutively active are dependent on exogenous desaturated lipids to maintain cell survival. Thus, targeting lipid metabolism could be a useful therapy in solid tumours in which mTORC1 is deregulated.

ORIGINAL RESEARCH PAPER Young, R. M. *et al.* Dysregulated mTORC1 renders cells critically dependent on desaturated lipids for survival under tumor-like stress. *Genes Dev.* 23 May 2013 (doi:10.1101/gad.198630.112)

TUMOUR DORMANCY

A perivascular niche can promote dormancy

A substantial proportion of patients with breast cancer develop distant metastases after years and sometimes even decades of latency. Mina Bissell and colleagues have found that the expression of thrombospondin 1 by vascular cells that are part of a stable vasculature promotes breast cancer cell quiescence. However, in sprouting neovasculature, this effect is lost and breast cancer cell growth is promoted through the expression of transforming growth factor β1 and periostin by endothelial tip cells.

ORIGINAL RESEARCH PAPER Ghajar, C. M. *et al.* The perivascular niche regulates breast tumour dormancy. *Nature Cell Biol.* 2 Jun 2013 (doi:10.1038/ncb2767)