IN BRIEF

CANCER

A new target in Burkitt's lymphoma

This study identified a new pathway involved in the pathogenesis of Burkitt's lymphoma that is amenable to therapeutic targeting. Using RNA sequencing of patient biopsy samples and Burkitt's lymphoma cell lines, together with re-analysis of published sequence data, the authors identified recurrent mutations in the transcription factor *TCF3* and its negative regulator *ID3*. TCF3 activated the pro-survival phosphatidylinositol 3-kinase pathway in Burkitt's lymphoma cells, in part by augmenting tonic B cell receptor signalling. Inhibitors of the TCF3 pathway inhibited growth of Burkitt's lymphoma cells and tumour xenografts.

ORIGINAL RESEARCH PAPER Schmitz, R. *et al.* Burkitt lymphoma pathogenesis and therapeutic targets from structural and functional genomics. *Nature* 12 Aug 2012 (doi:10.1038/nature11378)

EPIGENETIC TARGETS

Towards a male contraceptive?

Matzuk *et al.* investigated the spermatogenic actions of a small-molecule inhibitor (JQ1) of the testis-specific bromodomain-containing protein BRDT, which is essential for chromatin remodelling during spermatogenesis. Treatment of mice with JQ1 — via intraperitoneal injection — reduced seminiferous tubule area and testis size as well as the number and motility of spermatozoa without affecting hormone levels. Furthermore, JQ1 caused a complete yet reversible contraceptive effect in treated mice. This suggests that BRDT modulators such as JQ1 (which also binds BRD4) could serve as contraceptive agents.

ORIGINAL RESEARCH PAPER Matzuk, M. M. *et al.* Small-molecule inhibition of BRDT for male contraception. *Cell* **150**, 673–684 (2012)

ANTICANCER DRUGS

Tumour delivery of RNA interference

RNA interference is a potentially useful way to study cancer targets *in vivo*, but is hampered by delivery issues. Using the *ID4* oncogene in ovarian cancer as an example, Ren *et al.* developed a tumour-penetrating nanocomplex made up of small interfering RNA (siRNA) complexed with a tumour-penetrating and membrane-translocating peptide, which enabled the specific delivery of siRNA deep into the ovarian tumour parenchyma. Treatment of ovarian tumour-bearing mice with the ID4-specific nanocomplex suppressed tumour growth and improved survival.

ORIGINAL RESEARCH PAPER Ren Y. *et al.* Targeted tumor-penetrating siRNA nanocomplexes for credentialing the ovarian cancer oncogene *ID4*. *Sci. Transl. Med.* **4**, 147ra112 (2012)

ANTIVIRAL DRUGS

Protection against influenza B infection

This study reported the identification of three human monoclonal antibodies that protected mice against lethal challenge from two antigenically distinct lineages of influenza B viruses that are responsible for a large part of the annual flu burden. The authors showed that two antibodies (CR8033 and CR8071) recognized distinct conserved epitopes in the head region of influenza B haemagglutinin, whereas CR9114 bound to a conserved epitope in the haemagglutinin stem and protected mice against both influenza A and B viruses.

ORIGINAL RESEARCH PAPER Dreyfus, C. *et al.* Highly conserved protective epitopes on influenza B viruses. *Science* 9 Aug 2012 (doi:10.1126/science.1222908)