IN BRIEF

THERAPY

PDX trials

Gao *et al.* established 1,075 patient-derived xenograft (PDX) models from a range of human solid tumour samples and carried out a PDX clinical trial with 62 treatments. Their analysis correlated genomic alterations with responses to therapy, confirming relationships that have already been established and thus validating the approach. The authors also found some novel combinations that could be explored in more focused trials. Therefore, PDX models may offer more translational reproducibility than traditional preclincial approaches that use cell lines.

ORIGINAL RESEARCH PAPER Gao, H. *et al.* High-throughput screening using patient-derived tumor xenografts to predict clinical trial drug response. *Nat. Med.* **21**, 1318–1325 (2015)

IMMUNOTHERAPY

Skipping out epitopes

B cell acute lymphoblastic leukaemias (B-ALLs) often express CD19, which is the target of chimeric antigen receptor-engineered T cells (CART-19 cells) that can be used therapeutically through adoptive transplantation into patients with B-ALL. However, ~30% of patients with B-ALL receiving CART-19 cells relapse. Sotillo *et al.* found that resistance to CART-19 cells occurred through epitope loss that was mediated by exon 2 mutations and alternative splicing. Exon skipping resulted in the expression of a CD19 variant in which exon 2 is no longer expressed and CART-19 cells are no longer activated.

ORIGINAL RESEARCH PAPER Sotillo, E. *et al.* Convergence of acquired mutations and alternative splicing of CD19 enables resistance to CART-19 immunotherapy. *Cancer Discov.* (http://dx.doi.org/10.1158/2159-8290.CD-15-1020)

WILDLIFE CANCER

Size isn't everything

How susceptible is wildlife to cancer? Abegglen *et al.* analysed 644 necropsy samples from 36 mammalian species, which included 8 elephants. The authors calculated the cancer mortality rates for each species and found that these did not increase with body size or lifespan. Elephants had a particularly low cancer mortality rate despite their size. African elephants have at least 40 alleles of the gene that encodes p53, and elephant peripheral lymphocytes more readily underwent apoptosis after treatment with ionizing radiation than human lymphocytes, which might explain their resistance to cancer.

ORIGINAL RESEARCH PAPER Abegglen, L. M. *et al.* Potential mechanisms for cancer resistance in elephants and comparative cellular response to DNA damage in humans. *JAMA* **314**, 1850–1860 (2015)

TUMORIGENESIS

Tapeworm tumours

Pathogen-associated tumorigenesis is a fascinating area of cancer biology. A case study by Muehlenbachs *et al.* reports a patient with HIV who developed multiple 'tumours', including in the lungs and lymph nodes. Analyses of biopsies from some of these tumours revealed that the cells had similar features to tumour cells, but that they were derived from the common tapeworm *Hymenolepis nana*. This raises the possibility that some individuals may be misdiagnosed with cancer when they have tapeworm tumours and also raises interesting questions about tumorigenesis.

ORIGINAL RESEARCH PAPER Muehlenbachs, A. *et al.* Malignant transformation of *Hymenolepis nana* in a human host. *N. Engl. J. Med.* **373**, 1845–1852 (2015)