IN BRIEF

MICROENVIRONMENT

The effects of endotrophin in tumour progression

Endotrophin (ETP) is a soluble proteolytic fragment of the COL6α3 collagen chain that is commonly secreted by various cell types, particularly adipocytes. Park and Scherer found that ETP accumulates in mouse and human tumours, as well as their microenvironments, compared with normal tissue. Forced overexpression of ETP in mouse mammary epithelia had a tumour-promoting effect, especially on the metastatic potential of the resulting tumours. Further experiments *in vitro* and *in vivo* identified roles for ETP in cancer cell epithelial–mesenchymal transition, stromal remodelling and as a chemoattractant for endothelial cells. Importantly, an ETP-targeted antibody controlled the growth of tumours with either forced or endogenous ETP overexpression *in vivo*.

ORIGINAL RESEARCH PAPER Park, J. & Scherer, P. E. Adipocyte-derived endotrophin promotes malignant tumor progression. *J. Clin. Invest.* 8 Oct 2012 (doi:10.1172/JCI63930)

NANOTECHNOLOGY

Tissue penetration of photodynamic therapy

Photodynamic therapy typically uses visible light to locally activate a therapeutic agent, but the tissue-depth penetration of visible light is weak. As a solution, Idris *et al.* prepared a nanoparticle that contained a component able to convert a near-infrared (NIR) light trigger into visible light, in addition to two photosensitizers that generate cytotoxic oxygen radicals in response to visible light. The resultant laser NIR-activated nanoparticles reduced the viability of mouse melanoma cells *in vitro*; furthermore, injection and activation of this agent in melanoma-bearing mice slowed tumour growth *in vivo*.

ORIGINAL RESEARCH PAPER Idris, N. M. *et al. In vivo* photodynamic therapy using upconversion nanoparticles as remote-controlled nanotransducers. *Nature Med.* **18**, 1580–1585 (2012)

THERAPEUTICS

Drug synergies for imatinib-resistant CML

Of the various imatinib-resistant mutations in chronic myeloid leukaemia (CML), BCR–ABL1^{T315I} has been particularly challenging to target using new inhibitors. Winter *et al.* screened combinations of inhibitors for synergistic cytotoxic effects on human and mouse BCR–ABL1^{T315I}-positive cells. They found that the pan-aurora kinase inhibitor danusertib synergized with the dual ABL1 and SRC inhibitor bosutinib. Proteomics and gene-expression analyses suggested that this synergism was due to cumulative off-target inhibition of multiple MAPK proteins, resulting in impaired MYC activity.

ORIGINAL RESEARCH PAPER Winter, G. E. *et al.* Systems-pharmacology dissection of a drug synergy in imatinib-resistant CML. *Nature Chem. Biol.* 30 Sep 2012 (doi:10.1038/nchembio.1085)

IMMUNOTHERAPY

A skin test to predict melanoma vaccine efficacy

Aarntzen *et al.* retrospectively studied 91 skin samples from patients receiving dendritic cell vaccines as therapy for metastatic melanoma. They found that characterizing skin-infiltrating lymphocytes post-treatment was an effective early predictor of long-term patient survival when stringent immunological criteria, such as the presence of tumour-antigen-recognizing CD8$^+$ T cells, were used.

ORIGINAL RESEARCH PAPER Aarntzen, E. H. *et al.* Skin-test infiltrating lymphocytes early predict clinical outcome of dendritic cell based vaccination in metastatic melanoma. *Cancer Res.* 24 Sep 2012 (doi:10.1158/0008-5472.CAN-12-2479)