IN BRIEF

THERAPEUTICS

First STAT forward

Jennifer Grandis and colleagues have reported a Phase 0, first-in-human trial of a signal transducer and activator of transcription 3 (STAT3) decoy oligonucleotide. The decoy was injected directly into head and neck squamous cell carcinomas (HNSCCs) while patients were under anaesthesia ahead of resection of the tumour. Levels of STAT3-target genes were reduced in the injected tumours compared with saline controls. A chemically modified cyclic STAT3 decoy, which is more stable and can be injected intravenously, showed anticancer activity and inhibition of STAT3-target genes in mice.

ORIGINAL RESEARCH PAPER Sen, M. *et al.* First-in-human trial of a STAT3 decoy oligonucleotide abrogates target gene expression in head and neck tumors: implications for cancer therapy. *Cancer Discov.* 20 Jun 2012 (doi:10.1158/2159-8290.CD-12-0191)

GENOMIC INSTABILITY

Divide and conquer

Tumours that have lost *BRCA2* are characterized by alterations in whole chromosome numbers and by chromosomal structural defects. This paper highlights a function of BRCA2 in cytokinesis. BRCA2 localizes to the midbody through its interaction with filamin A, and recruits ALIX and TSG101, which are endosomal sorting complex required for transport (ESCRT)-associated proteins. This enables the formation of CEP55–ALIX and CEP55–TSG101 complexes involved in abscission. Cancer-relevant *BRCA2* mutations prevent the formation of these complexes and result in aberrant cytokinesis, and so might explain aneuploidy in BRCA2-mutant tumours.

ORIGINAL RESEARCH PAPER Mondal, G. *et al.* BRCA2 localization to the midbody by filamin A regulates CEP55 signaling and completion of cytokinesis. *Dev. Cell* 5 Jul 2012 (doi:10.1016/j.devcel.2012.05.008)

THERAPEUTICS

Therapy targets ribosomal reliance

Upregulated transcription of ribosomal RNA genes by RNA polymerase I (Pol I) is a common feature of cancers, so Ross Hannan and colleagues tested an inhibitor of Pol I in a mouse model of lymphoma. The resultant reduction in tumour burden and increased survival in the absence of overt normal cell toxicity suggested that cancer cells might selectively rely on Pol I. Inhibition of Pol I caused a p53-dependent apoptotic response; accordingly, the cytotoxic effects on mouse and human lymphoma and leukaemia cells *in vitro* was greatest in p53 wild-type settings.

ORIGINAL RESEARCH PAPER Bywater, M. J. *et al.* Inhibition of RNA polymerase I as a therapeutic strategy to promote cancer-specific activation of p53. *Cancer Cell* **22**, 51–65 (2012)

TUMOUR EVOLUTION

Mutable markers

Lindström *et al.* scored hundreds of breast cancer relapse samples for oestrogen receptor (ER), progesterone receptor (PR) and ERRB2 (also known as HER2) status. They compared these scores with the status of each protein recorded at diagnosis and found status changes for ER and PR in one-third of cases, and for ERBB2 in 15% of cases, with some of these correlating with poor survival. Thus, repeat biopsies would be useful to optimize treatment decisions.

ORIGINAL RESEARCH PAPER Lindström, L. S. *et al.* Clinically used breast cancer markers such as estrogen receptor, progesterone receptor, and human epidermal growth factor receptor 2 are unstable throughout tumor progression. *J. Clin. Oncol.* 2 Jul 2012 (doi:10.1200/JCO.2011.37.2482)