IN BRIEF

GENOMIC INSTABILITY

Histone mismanagement

The alternative lengthening of telomeres (ALT) pathway is a mechanism of maintaining telomere length and is activated in 10–15% of cancers. However, the mechanism of ALT activation is poorly understood. O'Sullivan and colleagues show that knockdown of both ASF1A and ASF1B (histone chaperones that are involved in histone management) in several human cell lines induced phenotypic markers of ALT pathway activity. After further analyses, the authors propose that the ALT pathway may be activated by defects in histone management.

ORIGINAL RESEARCH PAPER O'Sullivan, R. J. *et al.* Rapid induction of alternative lengthening of telomeres by depletion of the histone chaperone ASF1. *Nature Struct. Mol. Biol.* **21**, 167–174 (2014)

BREAST CANCER

Breast cancer classification

Phenotypic similarities between haematological tumour cells and normal haematopoiesis are key to classifying haematological malignancies, and this requires characterization of cells during normal haematopoiesis. Santagata *et al.* set about characterizing the cell types in normal breast epithelium to see whether they could use this information to classify breast tumours. Using 15,000 normal breast cells and breast epithelial markers, they identified 11 differentiation states, which were used to classify breast tumours into four subtypes based on the expression of certain receptors. These subtypes were distinct from standard molecular subtyping and they could be used to refine the classification system.

ORIGINAL RESEARCH PAPER Santagata, S. *et al.* Taxonomy of breast cancer based on normal cell phenotype predicts outcome. *J. Clin. Invest.* **124**, 859–870 (2014)

NEUROBLASTOMA

A new gene that promotes NMYC activity

Suenaga *et al.* found that a *cis*-antisense gene of *MYCN*, called *NCYM*, encodes a protein that, like NMYC, is involved in the pathogenesis of neuroblastoma. They found that *NCYM* is co-amplified with *MYCN* in primary human neuroblastoma samples. Also, unlike *Mycn* transgenic mice, *Mycn*;*Ncym* transgenic mice developed metastatic neuroblastoma, which is reminiscent of human neuroblastoma with *NMYC* amplification. The authors showed that NCYM inhibits the activity of glycogen synthase kinase 3β (GSK3β), which targets NMYC for degradation, suggesting that NCYM promotes tumorigenesis by stabilizing NMYC.

ORIGINAL RESEARCH PAPER Suenaga, Y. *et al. NCYM*, a *cis*-antisense gene of *MYCN*, encodes a *de novo* evolved protein that inhibits GSK3β resulting in the stabilization of MYCN in human neuroblastomas. *PLoS Genet.* **10**, e1003996 (2014)

ALTERNATIVE SPLICING

Driving too much wound healing in the skin

Jensen *et al.* generated a conditional transgenic mouse that expressed the alternative splicing factor serine/arginine-rich splicing factor 6 (SRSF6) in the skin. They found that *SRSF6* induction caused substantial hyperplasia and skin thickening, which was enhanced by epidermal injury. *SRSF6* induction also caused the activation of genes that are involved in wound healing. The authors found that SRSF6 is overexpressed in several types of skin cancer. Together, these data indicate that *SRSF6* is a proto-oncogene that drives wound healing and hyperplasia.

ORIGINAL RESEARCH PAPER Jensen, M. A. *et al.* Splicing factor SRSF6 promotes hyperplasia of sensitized skin. *Nature Struct. Mol. Biol.* **21**, 189–197 (2014)