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IN BRIEF

CANCER

Neurons and astrocytes can make gliomas

The origins of gliomas are not well understood. Here, oncogenic lentiviral vectors targeting the genes that encode tumour protein 53 (also known as p53) and neurofibromatosis type 1 (which are often mutated in gliomas) were used to transduce stem cells, astrocytes and mature neurons in mouse brains. Transduced cells from all cell populations — not just stem cells, as might have been expected — produced malignant gliomas with high expression of stem cell markers and low expression of markers of differentiated cells. Thus, gliomas can arise by dedifferentiation of mature neurons and astrocytes.

ORIGINAL RESEARCH PAPER Friedmann-Morvinski, D. *et al.* Dedifferentiation of neurons and astrocytes by oncogenes can induce gliomas in mice. *Science* 18 Oct 2012 (doi:10.1126/science.1226929)

NEURODEVELOPMENTAL DISORDERS

Tackling fragile X by curbing translation

In fragile X syndrome (FXS), which causes autism and intellectual disability, silencing of the fragile X mental retardation protein 1 gene is thought to lead to excessive synaptic mRNA translation. Using a mouse model of FXS, the authors showed that reduction in the expression of S6K1 (ribosomal protein S6 kinase-β1) — a protein that initiates translation — decreased the excessive phosphorylation of translation control molecules and enhanced protein synthesis that are seen in these animals. It also prevented anatomical and behavioural phenotypes that are found in this mouse model, suggesting a possible therapeutic approach for FXS.

ORIGINAL RESEARCH PAPER Bhattacharya, A. *et al.* Genetic removal of p70 S6 kinase 1 corrects molecular, synaptic, and behavioral phenotypes in fragile X syndrome mice. *Neuron* **76**, 325–337 (2012)

SENSORY TRANSDUCTION

Photoreceptors get moving

The authors of this study found that light flashes caused rapid contractions of *Drosophila melanogaster* photoreceptor cells, and that such contractions did not occur in cells from flies lacking phospholipase C (PLC). PLC causes these contractions by hydrolysing the membrane phospholipid phosphatidylinositol 4,5-biphosphate (PIP_2) and thereby depleting it from the plasma membrane. The results suggest that these mechanical changes help to gate the light-sensitive channels in these cells.

ORIGINAL RESEARCH PAPER Hardie, R. C. & Franze, K. Photomechanical responses in *Drosophila* photoreceptors. *Science* **338**, 260–263 (2012)

STEM CELLS

What happens to transplanted stem cells?

Transplantation of neural stem or progenitor cells (NSPCs) shows promise for treating neurological conditions, but it is unclear how such cells respond to transplantation. By using various techniques, including RNA sequencing, the authors found that a number of the cellular properties of NSPCs changed after they were implanted into spinal cord injuries in mice. Of note, various genes showed environment-dependent changes in expression or splicing, and overall transcription was suppressed. The effects of the graft environment on NSPCs should be considered in future clinical applications.

ORIGINAL RESEARCH PAPER Kumamaru, H. *et al.* Direct isolation and RNA-seq reveal environment-dependent properties of engrafted neural stem/progenitor cells. *Nature Commun.* **3**, 1140 (2012)