Nature Reviews Neuroscience | AOP, published online 17 June 2015

IN BRIEF

DEPRESSION

A receptor for resilience

The role of metabotropic glutamate receptor 5 (mGluR5) in depression-like behaviour is unclear, as pro-depressive and antidepressive functions for this receptor have been described. Shin *et al.* found that mice lacking mGluR5 were more susceptible to depression-like behaviour after stress. Targeted re-expression of mGluR5 in the nucleus accumbens (NAc) reversed this phenotype, and in wild-type mice, mGluR5 levels in the NAc correlated with resilience. These findings suggest that NAc mGluR5 promotes resilience to stress-induced depression.

ORIGINAL RESEARCH PAPER Shin, S. *et al.* mGluR5 in the nucleus accumbens is critical for promoting resilience to chronic stress. *Nat. Neurosci.* http://dx.doi.org/10.1038/nn.4028 (2015)

PAIN

Essential gene for nociceptors

Here, the authors identified a new gene associated with congenital insensitivity to pain in humans. The gene, *PRDM12*, encodes an epigenetic regulator that is involved in neural specification and neurogenesis. Individuals homozygous for mutations in *PRDM12* were insensitive to pain and had fewer nociceptive neurons than did healthy controls. *PRDM12* was expressed during differentiation of human nociceptors *in vitro*, and disrupting the expression of the *Xenopus PRDM12* orthologue impaired sensory neurogenesis. *PRDM12* may therefore be required for nociceptor development and, as a result, normal pain perception.

ORIGINAL RESEARCH PAPER Chen, Y.-C. *et al.* Transcriptional regulator PRDM12 is essential for human pain perception. *Nat. Genet.* http://dx.doi.org/10.1038/ng.3308 (2015)

GLIA

Feeling the pressure

Astroctyes are thought to regulate cerebral vasoconstriction, but how astrocytes sense haemodynamic stimuli is not known. A new study found that, in rats and mice, astrocytes associated with parenchymal arterioles were activated by fluctuations in blood flow and pressure, and astrocyte activation was required for the vasoconstriction response. The calcium-permeable non-selective cation channel TRPV4, which can be activated by physical stimuli, was required for astrocyte activation in response to haemodynamic stimuli. These findings indicate that TRPV4 is a sensor for haemodynamic stimuli in parenchymal arterioles and helps to regulate arteriole tone and blood flow.

ORIGINAL RESEARCH PAPER Kim, K. J. *et al.* Astrocyte contributions to flow/pressure-evoked parenchymal arteriole vasoconstriction. *J. Neurosci.* **35**, 8245–8257 (2015)

NEUROPHYSIOLOGY

Coding motor plans

In primates, the posterior parietal cortex (PPC) is implicated in planning and imagining motor tasks. Here, by recording from this region in a tetraplegic volunteer, the authors showed that the PPC has a similar role in humans. Imagining a movement regulated the activity of a single cell, and the patient could control cell firing by imagining different motor tasks. Cell activity was recorded and used to move a cursor on a screen. PPC neuronal activity coded both the goal and the trajectory of the intended movement when the patient was asked to imagine moving the cursor towards a target. The PPC may therefore be a promising target for neuroprosthetic development.

ORIGINAL RESEARCH PAPER Aflalo, T. *et al.* Decoding motor imagery from the posterior parietal cortex of a tetraplegic human. *Science* **348**, 906–910 (2015)