IN BRIEF

NEUROIMMUNOLOGY

Targeting microglia

Better genetic markers for microglia could aid the study of their physiological roles. Here, the authors generated mice in which transient Cre recombinase activity in cells expressing CX3CR1 (a chemokine receptor present in many myeloid-lineage cells) mediates the deletion of target genes. Four weeks after Cre activation, they observed stable target gene deletion in microglia but not in other CX3CR1-expressing cell populations that have a faster turnover rate. This approach allowed the authors to delete transforming growth factor-β-activated kinase 1 (TAK1; also known as MAP3K7) specifically in microglia and revealed that it acts to promote inflammatory gene expression and immune cell influx in a mouse model of autoimmune inflammation.

ORIGINAL RESEARCH PAPER Goldmann, T. *et al.* A new type of microglia gene targeting shows TAK1 to be pivotal in CNS autoimmune inflammation. *Nature Neurosci.* http://dx.doi.org/10.1038/nn.3531 (2013)

NEURAL DEVELOPMENT

Bone-to-brain signalling

The brain influences bone mass, but the effects of signals from bones to the brain are unknown. Here, the authors show that the hormone osteocalcin binds to neurons in the brainstem, midbrain and hippocampus in mice. Loss of osteocalcin altered the expression of genes involved in neurotransmitter synthesis and led to increased anxiety- and depression-like behaviour and memory deficits. Furthermore, they showed that osteocalcin crosses the placenta, and the absence of maternal osteocalcin increased neuronal apoptosis and resulted in learning deficits in the adult offspring. Thus, osteocalcin signalling mediates several important functions in the brain.

ORIGINAL RESEARCH PAPER Oury, F. *et al.* Maternal and offspring pools of osteocalcin influence brain development and functions. *Cell* **155**, 228–241 (2013)

SENSORY SYSTEMS

Juvenile pheromone stops sexual advances

Mice display different social behaviours towards juveniles and adults, but the underlying mechanisms are unknown. The authors identified a pheromone, ESP22, in juvenile mouse tears. Adult males demonstrated increased sexual behaviour towards juveniles lacking ESP22, and this behaviour was attenuated when the juveniles were 'painted' with ESP22. ESP22 activated receptors in the vomeronasal organ (VNO) and adults lacking TRPC2 (which is essential for VNO signalling) exhibited increased sexual behaviour towards juveniles, confirming the role of the VNO in mediating the effects of EPS22.

ORIGINAL RESEARCH PAPER Ferrero, D. M. *et al.* A juvenile mouse pheromone inhibits sexual behaviour through the vomeronasal system. *Nature* http://dx.doi.org/10.1038/nature12579 (2013)

AUDITORY SYSTEM

Keeping the beat

The ability to move in synchrony with a beat is crucial for musical performance and is linked to reading ability, but why individuals differ in this ability is unknown. The authors found a correlation between accuracy in tapping to a beat and variability in the electrophysiological response to sound in the inferior colliculus (IC). These findings suggest that consistency in the timing of the IC response to sound may underlie beat synchronization ability.

ORIGINAL RESEARCH PAPER Tierney, A. & Kraus, N. The ability to move to a beat is linked to the consistency of neural responses to sound. *J. Neurosci.* **33**, 14981–14988 (2013)