

## IN BRIEF

## ➤ NEURAL DEVELOPMENT

**Epigenetic regulation of asymmetry**

The brains of many species demonstrate structural and functional bilateral asymmetry, yet the underlying molecular mechanisms are mostly unknown. In the *Caenorhabditis elegans* nervous system, the lineages arising from the two daughter cells of a particular blastomere known as ABarap produce a different cell on each side of the body: a motor neuron on the right and an epithelial cell on the left. Here, the authors show that the CAF-1 (chromatin assembly factor-1) protein complex, a histone chaperone that deposits histone H3 and H4 proteins onto replicating DNA, is required to establish this asymmetry, suggesting a role for epigenetic regulation in the generation of nervous system asymmetry.

**ORIGINAL RESEARCH PAPER** Nakano, S. *et al.* Replication-coupled chromatin assembly generates a neuronal bilateral asymmetry in *C. elegans*. *Cell* **147**, 1525–1536 (2011)

## ➤ LEARNING AND MEMORY

**Becoming a habit: a role for NMDA receptors**

The actions of dopamine in the basal ganglia are important for the transformation of a repeated action into an automated habit; however, the precise mechanisms by which dopamine is modulated during habit learning are unclear. Here, the authors show that mice in which NMDAR1 is deleted from dopamine neurons are impaired in several habit-learning tasks, suggesting that the modulation of dopamine neurons by glutamate via NMDA receptors makes a crucial contribution to habit learning.

**ORIGINAL RESEARCH PAPER** Wang, L. P. *et al.* NMDA receptors in dopaminergic neurons are crucial for habit learning. *Neuron* **72**, 1055–1066 (2011)

## ➤ SOCIAL NEUROSCIENCE

**Oxytocin boosts social awareness**

Sensitivity to the experiences of others contributes to many social behaviours including empathy and cooperation. Here, the authors show that oxytocin influences social behaviour in rhesus macaques in a context-dependent manner. When the monkeys had to choose whether to deliver a reward to another monkey or to no one, inhaled oxytocin increased the number of prosocial choices. By contrast, when monkeys had to choose between rewarding themselves or others, oxytocin enhanced selfish behaviour. Thus, as in humans, oxytocin enhances social information processing in situations in which sensitivity to another's experience is important.

**ORIGINAL RESEARCH PAPER** Chang, S. W. C. *et al.* Inhaled oxytocin amplifies both vicarious reinforcement and self reinforcement in rhesus macaques (*Macaca mulatta*). *Proc. Natl Acad. Sci. USA* 3 Jan 2012 (doi:10.1073/pnas.1114621109)

## ➤ NEURAL DEVELOPMENT

**Emergence of patterned activity in the motor system**

Spontaneous activity bursts contribute to network formation in many parts of the developing nervous system. Warp *et al.* used time-lapse imaging and optical manipulation of activity to investigate the emergence of spontaneous patterned activity in the developing zebrafish motor system. They found that the emergence of correlated activity resulted from the initial formation of small local microcircuits, which then coalesce into a larger network. Importantly, early sporadic activity was shown to be required for the maturation of the spinal network.

**ORIGINAL RESEARCH PAPER** Warp, E. *et al.* Emergence of patterned activity in the developing zebrafish spinal cord. *Curr. Biol.* 22 Dec 2011 (doi:10.1016/j.cub.2011.12.002)