IN BRIEF

NEUROIMAGING

The maturing architecture of the brain's default network

Fair, D. A. *et al. Proc. Natl Acad. Sci. USA* **105**, 4028–4032 (2008)

The 'default network' consists of brain areas in which activity decreases during goal-oriented tasks. The significance of the 'resting-state' activity in this network is unclear, but it has been suggested to represent, among other things, 'self-projection'. The authors found that functional connectivity between the regions of the default network was fragmented in children, whereas it was strong in adults. These findings indicate that default-network connections mature with age, possibly reflecting improving episodic memory (a component of self-projection) during development.

ADDICTION

Brain chromatin remodeling: a novel mechanism of alcoholism

Pandey, S. C. *et al. J. Neurosci.* **28**, 3729–3737 (2008)

In rats, the anxiolytic effects of acute ethanol exposure were accompanied by increased levels of CREB-binding protein (CBP, which has histone acetylase activity) and neuropeptide Y, increased acetylation of histones H3 and H4, and decreased histone deacetylase (HDAC) activity in the amygdala. Withdrawal from chronic ethanol exposure induced the opposite changes, which — with the exception of the decrease in CBP levels — were prevented by treatment with an HDAC inhibitor. These data indicate that chromatin remodelling in the amygdala might be involved in the anxiolytic and anxiogenic effects of alcohol use and withdrawal, respectively.

CANNABINOIDS

Endocannabinoids mediate neuron-astrocyte communication

Navarrete, M. & Araque, A. *Neuron* **57**, 883–893 (2008)

The authors demonstrated that cannabinoid type 1 receptors (CB1Rs) are present on hippocampal astrocytes. Endocannabinoids released from pyramidal neurons activated these CB1Rs, which induced phospholipase-C-dependent Ca^{2+} mobilization in the astrocytes. This resulted in glutamate release from the astrocytes, which in turn activated NMDA receptors on the pyramidal neurons. Thus, endocannabinoids have a role in bidirectional communication between neurons and astrocytes. The presence of CB1Rs on astrocytes suggests that these cells might be involved in cannabis addiction and endocannabinoid-mediated processes.

OLFACTORY LEARNING

Aversive learning enhances perceptual and cortical discrimination of indiscriminable odor cues

Li, W., *et al. Science* **319**, 41842–1845 (2008)

The authors showed that people were able to tell apart two odours that were initially indistinguishable after exposure to one of the odours was paired with an electric shock. Moreover, spatial activity patterns in the primary olfactory cortex in response to the two odours were initially highly correlated but became less correlated after conditioning. These data indicate that fear conditioning can enhance perceptual discrimination, and that plasticity of the primary olfactory cortex might underlie this capacity.