IN BRIEF

ADDICTION

Infralimbic prefrontal cortex is responsible for inhibiting cocaine seeking in extinguished rats

Peters, J., LaLumiere, R. T. & Kalivas, P. W. *J. Neurosci.* **28**, 6046–6053 (2008)

The neural mechanisms that prevent drug seeking are less well-understood than those that underlie craving and relapse. In this study, inhibiting and activating the infralimbic cortex induced and suppressed, respectively, cocaine seeking in rats that had been exposed to cocaine extinction. Inactivation of the shell of the nucleus accumbens, which receives projections from the infralimbic cortex, also induced cocaine seeking. This effect relied on activation of a basolateral amygdala-prelimbic circuit that normally initiates cocaine seeking. The data suggest that the prelimbic and infralimbic cortices are recruited by extinction training to regulate cocaine seeking.

■ NEUROECONOMICS

Serotonin modulates behavioral reactions to unfairness

Crockett, M. J. et al. Science 5 Jun 2008 (doi: 10.1126/science.1155577)

In the ultimatum game, a player decides whether to accept a monetary offer, which he might consider to be fair or unfair, from a second player. In this study, tryptophan depletion increased the number of times that an unfair offer was rejected. Tryptophan depletion did not affect the participants' mood, response inhibition or judgement of what they considered to be a fair offer. These data indicate that serotonin levels modulate responses to unfairness.

MOLECULAR NEUROSCIENCE

The microRNA miR-1 regulates a MEF-2-dependent retrograde signal at neuromuscular junctions

Simon, D. J. et al. Cell 133, 903-915 (2008)

MicroRNAs seem to regulate many aspects of neural development. Here, the authors showed that synaptic transmission at neuromuscular junctions was reduced in *Caenorhabditis elegans* that lacked miR-1. This was associated with altered expression of nicotinic acetylcholine (Ach) receptor subunits and with altered expression of the transcription factor MEF2. MEF2 regulates presynaptic ACh release, probably by modulating the activity of the synaptic vesicle protein RAB3. These findings suggest that miR-1 regulates synaptic function at neuromuscular junctions through a nicotinic signalling pathway.

■ MEMORY

Analysis of a spatial orientation memory in *Drosophila*

Neuser, K. et al. Nature 28 May 2008 (doi 10.1038/nature07003)

In primates, spatial working memory results from the sustained activity of neurons that encode spatial information. This article showed that *Drosophila melanogaster* also possess a form of spatial working memory. Flies continued to walk towards a target's former position after the target had disappeared. This behaviour required an intact ellipsoid body — specifically the GABAergic ring neurons that it contains. These neurons express S6 kinase II (S6KII), which was previously shown to have a role in memory formation. Silencing the gene that encodes S6KII decreased spatial orientation memory. This could be rescued by conditional expression of S6KII in the R3 and R4 ring neurons.