IN BRIEF

NEURONAL CIRCUITS

Movement intention after parietal cortex stimulation in humans

Desmurget, M. *et al. Science* **324**, 811–813 (2009)

To investigate how the parietal and premotor cortices contribute to the conscious intention to move and to motor awareness, the authors electrically stimulated these regions in patients undergoing brain surgery and monitored their limb and face movements. When the posterior parietal cortex was stimulated, the patients reported the intention to move their limbs or face and even incorrectly believed that they had moved following stronger stimulation. When stimulated in the premotor region, the patients moved without being aware of doing so. Thus, motor intention and awareness are encoded in the parietal cortex.

NEUROLOGICAL DISORDERS

A primate-specific, brain isoform of KCNH2 affects cortical physiology, cognition, neuronal repolarization and risk of schizophrenia

Huffaker, S. J. *et al. Nature Med.* **15**, 509–518 (2009)

Genetic risk factors predispose individuals to mental illness. The authors showed that the expression of a primate-specific isoform of the ether-a-go-go-related K^+ channel family protein KCNH2-3.1, which lacks a domain necessary for slow channel deactivation, was increased in the hippocampus of individuals with schizophrenia. Expression of KCNH2-3.1 in cultured cortical neurons induced a rapid deactivating K^+ current and increased spike frequencies upon stimulation. This study identifies KCNH2-3.1 as a potential susceptibility gene for schizophrenia.

REWARD

Two types of dopamine neuron distinctly convey positive and negative motivational signals

Matsumoto, M. & Hikosaka, O. *Nature* 17 May 2009 (doi:10.1038/nature08028)

Midbrain dopamine neurons are thought to be excited by value-related signals and inhibited by aversive events. The authors recorded from monkey neurons and showed that this is true for only one class of dopamine neurons. They found that another set of neurons was excited by both reward- and aversive event-predicting stimuli. These different sets of neurons were located in specific midbrain subregions, indicating that motivational signals are distinctly encoded by different groups of dopamine neurons.

NEUROGENESIS

Melatonin modulates cell survival of new neurons in the hippocampus of adult mice

Ramirez-Rodriguez, G. *et al. Neuropsychopharmacology* 6 May 2009 (doi:10.1038/npp.2009.46)

The proposed link between circadian rhythm and neurogenesis prompted the authors to investigate the effect of melatonin on neurogenesis. Melatonin increased neuronal differentiation and survival in adult mouse hippocampal neural precursors without modifying cell proliferation *in vitro* or *in vivo*. In addition, melatonin had antidepressant-like effects *in vivo*, suggesting that decreased melatonin in ageing and in some neuropsychiatric disorders results in impaired neurogenesis.