IN BRIEF

NEURODEGENERATIVE DISEASE

Transcriptional repression of p53 by parkin and impairment by mutations associated with autosomal recessive juvenile Parkinson's disease

Alves da Costa, C. *et al. Nature Cell Biol.* 4 Oct 2009 (doi:10.1038/ncb1981)

Parkin mutations are linked to autosomal recessive juvenile Parkinson's disease (AR-JP). Parkin has ubiquitin ligase activity; however, there is also evidence that it can act as a transcriptional regulator. Here the authors show that parkin binds to and transactivates the p53 promoter to repress p53 transcription and that mutations associated with familial AR-JP abolish this activity. These findings indicate a new function for parkin, the disruption of which may contribute to AR-JP.

VISUAL SYSTEM

Approach sensitivity in the retina processed by a multifunctional neural circuit

Münch, T. A. *et al. Nature Neurosci.* **12**, 1308–1316 (2009)

Animals can rapidly detect and respond to approaching objects; however, the cells and circuits involved in this process were unclear. The authors identified a mouse retinal ganglion cell (PV-5) that is responsive to approaching objects. Further analysis showed that a rapid inhibitory pathway, involving a cone bipolar cell connected to an amacrine cell, inhibits PV-5's responses to non-approaching motion. This circuit was previously known to be involved in night time vision; here, the authors show that the same pathway is active in daytime conditions.

ION CHANNELS

An unexpected role for TASK-3 potassium channels in network oscillations with implications for sleep mechanisms and anesthetic action

Pang, D. S. J. *et al. Proc. Natl Acad. Sci USA* 24 Sep 2009 (doi:10.1073/pnas.0907228106)

TASK-3 channels are acid-sensitive 'background' K^+ channels that are activated by some anaesthetics. Pang ***et al.*** show that deletion of TASK-3 channels reduced sensitivity to halothane in mice and, unexpectedly, abolished a particular frequency (type II theta) of synchronized cortical oscillatory activity. Furthermore, the animals demonstrated abnormal sleep patterns. These findings suggest a link between TASK-3 channels' role in the generation of type II theta oscillations and the regulation of sleep behaviour.

THERAPEUTIC STRATEGIES

Motoneuron transplantation rescues the phenotype of SMARD1 (spinal muscular atrophy with respiratory distress type 1)

Corti, S. *et al. J. Neurosci.* **29**, 11761–11771 (2009)

SMARD1 is a lethal motor neuron disease for which there is no effective treatment. The authors transplanted mature motor neurons into the spinal cord of a mouse model of SMARD1. They showed that transplanted neurons can functionally and effectively integrate into the spinal cord circuitry when transplantation was combined with pharmacological induction of axonal growth. Therefore, motor neuron replacement therapy is a potential strategy for the treatment of SMARD1.