

IN BRIEF

MIRROR NEURONS

The sound of actions in apraxia

Pazzaglia, M. *et al. Curr. Biol.* **18**, 1766–1772 (2008)

Testing simulation theory with cross-modal multivariate pattern classification of fMRI data

Etzel, J. A., Gazzola, V. & Keysers, C. *PLoS ONE* **3**, e3690 (2008)

Hearing the sound of an action activates the brain areas involved in producing that action, and a new study suggests that activation of this 'mirror system' is required for understanding action sounds: patients with brain lesions that cause impairments in carrying out actions specifically of the mouth (such as smacking one's lips) or a limb (such as clicking one's fingers) were found also to be impaired in recognizing the corresponding 'action sounds'. A second study showed that a pattern-recognition programme that was trained to discriminate fMRI patterns in the premotor cortex associated with hearing hand- and mouth-action sounds could determine from activity patterns during action execution whether a hand or a mouth movement was being made.

NEUROTRANSMISSION

Tight junctions potentiate the insulative properties of small CNS myelinated axons

Devaux, J. & Gow, A. J. *Cell Biol.* **183**, 909–921 (2008)

Intramyelinic tight junctions contribute to the stabilization of the myelin sheaths, and thus to rapid saltatory conduction in vertebrates. Here the authors showed that in mice lacking the tight-junction protein claudin 11, conduction velocity in small optic nerve axons was severely decreased, even though the myelin sheaths did not exhibit gross abnormalities. Their findings suggest that claudin 11 has a key role in maintaining the electrical resistance of myelin and its insulative properties.

NEUROIMMUNOLOGY

Brain mast cells link the immune system to anxiety-like behavior

Nautiyal, K. M. *et al. Proc. Natl Acad. Sci. USA* **105**, 18053–18057 (2008)

Mast cells, a key component of the immune system, are present in the brain; however, their functions in the CNS are unknown. The authors showed that anxiety-like behaviours were increased in transgenic mice lacking CNS mast cells and in wild-type mice in which mast cell activation was blocked pharmacologically. These results indicate that mast cell activity can modulate behaviour, providing further evidence of a physiological interaction between the neural and immune systems.

REPAIR

Light-induced rescue of breathing after spinal cord injury

Alilain, W. J. *et al. J. Neurosci.* **28**, 11862–11870 (2008)

Cervical spinal cord injury can interrupt the descending synaptic input to respiratory motor neurons, causing respiratory deficits. By expressing the light-activated ion channel channelrhodopsin-2 (ChR2) in cervical spinal cord neurons in and around the phrenic motor pool, the authors were able to use photostimulation to restore respiratory diaphragmatic motor activity in rats after spinal hemisection. That the rhythmic activity persisted 24 h after the stimulation ceased highlights a potential therapeutic application of ChR2 technology.