Nature Reviews Neuroscience | AOP, published online 10 April 2013;

IN BRIEF

ATTENTION

Attention all neurons…

Focusing attention involves suppressing responses to distracting stimuli. In the barn owl, target selection involves competitive interactions in the optic tectum, which are influenced by both stimulus-driven and endogenous effects, and both were abolished by the inhibition of a midbrain circuit in the nucleus isthmi pars magnocellularis (Imc). Input to the Imc from multisensory and endogenous sources was transformed into an inhibitory output that was potent enough to exert competitive suppression across the midbrain network, thereby demonstrating a mechanism for the prioritization and selection of the most important stimulus.

ORIGINAL RESEARCH PAPER Mysore, S. P. & Knudsen, E. I. A shared inhibitory circuit for both exogenous and endogenous control of stimulus selection. *Nature Neurosci.* **16**, 473–478 (2013)

SLEEP

Count backwards from ten…

In mammals, general anaesthetics are thought to operate by activating endogenous sleep mechanisms, but whether similar mechanisms operate in flies is not understood. Genetically enhancing levels of synaptic activity in neurons of the dorsal fan-shaped body of the central complex increased sensitivity to the general anaesthetic isoflurane (ISO), but increasing transmitter release in specific wake-promoting dopaminergic neurons conferred ISO resistance. These findings reveal common pathways for sleep and the action of general anaesthetics in the fly brain.

ORIGINAL RESEARCH PAPER Kottler, B. *et al.* A sleep/wake circuit controls isoflurane sensitivity in *Drosophila*. *Curr. Biol.* 14 Mar 2013 (doi:10.1016/j.cub.2013.02.021)

DECISION MAKING

Malice aforethought?

Distinguishing between intentional and unintentional harm relies on mental state reasoning, a faculty that is impaired in high-functioning autistic people. The right temporoparietal junction (RTPJ) is highly active when making moral judgements. Multivoxel pattern analysis (MVPA) revealed that variations in responses in RTPJ across voxels correlated with the moral judgement taken by an individual; these patterns were absent in autistic subjects. The data suggest that MVPA can be used to gain insight into how the RTPJ represents features of beliefs that are relevant for moral decision-making and understanding underlying intent.

ORIGINAL RESEARCH PAPER Koster-Hale, J. *et al.* Decoding moral judgments from neural representations of intentions. *Proc. Natl Acad. Sci. USA* 11 Mar 2013 (doi:10.1073/pnas.1207992110)

PAIN

A phantom experience

The most popular explanation for phantom limb pain involves maladaptive reorganization of the sensorimotor cortex, where the loss of sensory input results in altered limb representation. However, a new neuroimaging study shows that phantom pain involves intact cortical representation and that pain intensity is inversely correlated with connectivity in the primary sensorimotor cortex. Phantom pain was also associated with greater activity and structural integrity in the phantom area. Together, these findings indicate that phantom pain is associated with preserved rather than disrupted representation of the missing limb.

ORIGINAL RESEARCH PAPER Makin, T. R. *et al.* Phantom pain is associated with preserved structure and function in the former hand area. *Nature Commun.* **4**, 1570 (2013)