

## IN BRIEF

## EMOTION

## Fast fear

Rodent studies suggest the existence of a subcortical pathway that rapidly processes threat-related information, but direct evidence for such a pathway in primates has been lacking. Here, people with epilepsy who had been implanted with intracranial electrodes in the amygdala and, in some cases, in the visual cortex were shown pictures of faces. Fearful faces elicited activity in the amygdala, which is implicated in threat processing, more quickly than in the visual cortex, indicating that a rapid threat-processing pathway exists in humans.

**ORIGINAL ARTICLE** Méndez-Bértolo, C. *et al.* A fast pathway for fear in human amygdala. *Nat. Neurosci.* <http://dx.doi.org/10.1038/nn.4324> (2016)

## METABOLISM

## Promoting obesity

Obesity has been linked to changes in plasma and faecal levels of short-chain fatty acids, including acetate, but whether these changes cause weight gain is unclear. Perry *et al.* found that rats receiving a high-fat diet developed an increase in whole-body acetate levels that was attributable to increased acetate production by the gut microbiota. The rise in acetate levels increased parasympathetic nervous system activity and glucose-stimulated insulin secretion. Interestingly, chronic intragastric infusion of acetate into rats receiving a normal diet led to insulin resistance and marked weight gain. Thus, microbiota-produced acetate might promote obesity.

**ORIGINAL ARTICLE** Perry, R. J. *et al.* Acetate mediates a microbiome–brain– $\beta$ -cell axis to promote metabolic syndrome. *Nature* **534**, 213–217 (2016)

## GLIA

## Matching the demand

Oligodendrocytes provide support to axons by supplying lactate for aerobic ATP production, but the regulation of this process is unclear. Axons can release glutamate during phases of neuronal activity, and NMDA-type glutamate receptors (NMDARs) are found in oligodendrocytes, although the function of these receptors is not known. Here, glial NMDAR stimulation promoted glucose transporter 1 translocation to the plasma membrane, leading to increased oligodendrocytic glucose uptake and lactate release. This may allow oligodendrocytes to meet the metabolic demands of active axons without developing damagingly high internal levels of lactate.

**ORIGINAL ARTICLE** Saab, A. S. *et al.* Oligodendroglial NMDA receptors regulate glucose import and axonal energy metabolism. *Neuron* <http://dx.doi.org/10.1016/j.neuron.2016.05.016> (2016)

## SPATIAL PROCESSING

## Route finder

Hippocampal place cell firing is thought to encode the location of an animal in its environment. However, in rats continually passing the same location to reach different places, the firing of place cells linked to that location seems to be influenced by their start or end position, suggesting that place cell firing is also linked to behavioural goals. Grieves *et al.* showed that when rats could take two different overlapping routes to reach the same end position, most place cells that fired on both routes showed route-dependent firing patterns, suggesting that place fields represent the trajectory rather than the behavioural goal.

**ORIGINAL ARTICLE** Grieves, R. M., Wood, E. R. & Dudchenko, P. A. Place cells on a maze encode routes rather than destinations. *eLife* <http://dx.doi.org/10.7554/eLife.15986> (2016)