IN BRIEF

TASTE RECEPTORS

Sensing nutrients from within

In mammals, feeding is in part regulated by sensors in internal organs, including the brain, that detect nutrients. Some of these internal sensors seem to be taste receptors, and this study indicates that the same is true in flies. The authors identified gustatory receptor 43a (Gr43a) as a fructose receptor in taste neurons and showed that it is also expressed in the fly brain. They found that brain Gr43a is needed to sense hemolymph fructose, which was shown to be a marker of nutritious carbohydrate intake, and that Gr43a activity promotes feeding in hungry flies but inhibits feeding in satiated flies.

ORIGINAL RESEARCH PAPER Miyamoto, T. *et al.* A fructose receptor functions as a nutrient sensor in the *Drosophila* brain. *Cell* **151**, 1113–1125 (2012)

SENSORY SYSTEMS

Converging on olfactory white

The colour white results from combining many different wavelengths at equal intensities. Here, Weiss *et al.* asked participants to rate the perceptual similarity of various odorant mixtures to see if an 'olfactory white' could be generated. The presented mixtures were increasingly complex, featuring rising numbers of equally intense odorants that together increasingly filled the stimulus space. The participants found that mixtures of ~30 odorants started to smell alike, even if they contained no common components, suggesting that an olfactory white can be generated and that it relies on the characteristics of sets of molecules rather than the identities of individual molecules.

ORIGINAL RESEARCH PAPER Weiss, T. *et al.* Perceptual convergence of multi-component mixtures in olfaction implies an olfactory white. *Proc. Natl Acad. Sci. USA* **109**, 19959–19964 (2012)

TECHNIQUES

The active hunt for ribosomes

This study describes a way to establish the molecular profiles of neurons that respond to a particular stimulus. The authors found that, in mice, stimulus-induced neural activity often leads to a rise in the level of phosphorylated ribosomal protein S6 (pS6). Using specific anti-pS6 antibodies and mouse brain homogenates, they specifically immunoprecipitated ribosomes and their associated mRNAs from neurons in which S6 phosphorylation had been induced. This method might help to reveal the neural mechanisms that underlie various behaviours. For example, through pS6 capture, the authors showed that fasting in mice is linked to galanin neuron activity.

ORIGINAL RESEARCH PAPER Knight, Z. A. *et al.* Molecular profiling of activated neurons by phosphorylated ribosome capture. *Cell* **151**, 1126–1137 (2012)

NEUROGENESIS

The α-synuclein influence

It has been unclear whether the presynaptic protein α-synuclein (α-syn) has a role in adult neurogenesis in the hippocampal dentate gyrus (DG). Here, mice in which the genes encoding α- and β-syn had been knocked out showed increased neurogenesis in the adult DG, but α-syn overexpression impaired newborn DG neuron survival and dendritic development. In patients with dementia with Lewy bodies, hippocampal α-syn levels were increased but the number of hippocampal cells expressing SOX2, a neural stem cell marker, declined. Together, these data suggest that α-syn is required for the development of new hippocampal neurons in adults.

ORIGINAL RESEARCH PAPER Winner, B. *et al.* Role of α-synuclein in adult neurogenesis and neuronal maturation in the dentate gyrus. *J. Neurosci.* **32**, 16906–16916 (2012)