

IN BRIEF

CIRCADIAN RHYTHMS**Temperature training**

The circadian clock is entrained by daily light fluctuations, but daily temperature fluctuations can also entrain circadian rhythms through an as yet poorly understood mechanism. Here, the authors show that the thermosensory ion channel transient receptor potential A1 (TRPA1) is expressed in the lateral posterior neurons (LPNs) — a subset of central pacemaker neurons — in flies. Flies with mutations in *TrpA1* displayed abnormal circadian activity patterns after temperature entrainment and altered the expression of the clock protein period in the LPNs. These findings suggest that a molecular sensor in central pacemaker neurons contributes to temperature control of circadian rhythm.

ORIGINAL RESEARCH PAPER Lee, Y. & Montell, C. *Drosophila* TRPA1 functions in temperature control of circadian rhythm in pacemaker neurons. *J. Neurosci.* **33**, 6716–6725 (2013)

NEUROIMAGING**Detecting consciousness in infants**

It is hard to demonstrate the presence of conscious processing in pre-verbal infants, but objective measures of consciousness might overcome this problem. The authors recorded event-related potentials in 5-, 12- and 15-month-old infants during trials in which a briefly displayed image of a face was masked by scrambled images displayed before and afterwards. Infants showed broadly the same response pattern as adults, including a late slow-wave response that has been linked to conscious perception in adults. This late response was delayed in infants and was slowest in the youngest group, suggesting that the mechanisms underlying conscious perception become more efficient as the infant brain matures.

ORIGINAL RESEARCH PAPER Kouider, S. *et al.* A neural marker of perceptual consciousness in infants. *Science* **340**, 376–380 (2013)

NEURAL TRANSPLANTATION**Reprogramming fibroblasts to OPCs**

Cell transplantation has potential as a treatment strategy for myelin disorders; however, identifying a source of myelinating cells is essential. The authors exposed mouse fibroblasts to three key transcription factors, generating an expandable population of induced oligodendrocyte progenitor cells (OPCs). When transplanted into forebrain slices or the spinal cord of hypomyelinated mice, the cells myelinated axons. This work may advance research in oligodendrocyte development and could contribute to future re-myelination strategies.

ORIGINAL RESEARCH PAPER Najm, F. J. *et al.* Transcription factor-mediated reprogramming of fibroblasts to expandable, myelogenic oligodendrocyte progenitor cells. *Nature Biotech.* 14 Apr 2013 (doi:10.1038/nbt.2561)

TECHNIQUES**CLARITY in imaging**

Obtaining high-resolution structural and molecular information from intact brain tissue is a key goal, but existing techniques face several limitations. In a new approach, named CLARITY by the authors, an intact mouse brain tissue was hybridized with a hydrogel to preserve its structure and then stripped of lipids. The resulting sample was optically transparent and could be penetrated by a range of chemical and biological reagents, enabling the authors to visualize many structural and molecular features of the intact brain.

ORIGINAL RESEARCH PAPER Chung, K. *et al.* Structural and molecular interrogation of intact biological systems. *Nature* 10 Apr 2013 (doi:10.1038/nature12107)