

## IN BRIEF

 PERCEPTION

## Early experience impairs perceptual discrimination

Han, Y. K. *et al. Nature Neurosci.* 29 July 2007 (doi:10.1038/nn1941)

When animals are exposed to particular sensory stimuli during the 'critical period', cortical areas that represent those stimuli become enlarged, but how this alters subsequent perception is unknown. The authors exposed rats to tones of one frequency throughout the critical period, and then tested their ability to distinguish between different tones at 2 months of age. Surprisingly, perceptual discrimination of the 'experienced' frequency was impaired; however, discrimination of tones close to this frequency was improved. A computational model can account for these results.

 DEVELOPMENT

## Fibroblast growth factor receptors cooperate to regulate neural progenitor properties in the developing midbrain and hindbrain

Saarimäki, J. *et al. J. Neurosci.* 27, 8581–8592 (2007)

Midbrain and hindbrain development is regulated in part by the secretion of signalling molecules, including fibroblast growth factors (FGFs), from the isthmus organizer. To understand how the surrounding tissue responds to these signals, the authors generated mice that carried combinations of FGF receptor 1 (*Fgfr1*), *Fgfr2* and *Fgfr3* mutations. They show that the actions of the three receptors in regulating cell survival and patterning are partly redundant. Furthermore, in the ventral midbrain, FGFRs regulate dopamine neuron production and have a role in controlling progenitor self-renewal and differentiation.

 LANGUAGE

## Brain potentials reveal unconscious translation during foreign-language comprehension

Thierry, G. & Wu, Y. J. *Proc. Natl Acad. Sci. USA* 104, 2530–2535 (2007)

How the brains of bilingual individuals process two languages is a subject of controversy. By measuring event-related potentials, Thierry and Wu tested whether Chinese–English bilinguals access Chinese translations when reading or listening to English words. They found that second-language words were translated into the native language, without the awareness of the bilingual volunteer. These results support the idea that in the brains of bilingual individuals, rather than one language inhibiting the other, as some studies have suggested, the two languages are constantly co-activated.

 NEUROPHARMACOLOGY

## Antidepressant binding site in a bacterial homologue of neurotransmitter transporters

Singh, S. K. *et al. Nature* 9 Aug 2007 (doi:10.1038/nature06038)

Tricyclic antidepressants (TCAs) are thought to target serotonin and dopamine re-uptake transporters, however, their exact mechanism of action is unclear. The authors showed that the TCA *clomipramine* non-competitively inhibits a bacterial member of the same transporter family. Clomipramine appeared to reduce the release of the transporter's substrate intracellularly. By resolving the structure of the clomipramine-bound transporter, the author's revealed that clomipramine binds to an extracellular-facing cavity. The equivalent site in the human transporter might have potential as a therapeutic target.

## DOI:

10.1038/nrn2231