

## IN BRIEF

## GENES AND DISEASE

### Jumping genes

Genomic DNA in the brain can acquire somatic genetic variations by retrotransposition. The authors found higher copy numbers of the retrotransposon L1 in the prefrontal cortex of patients with schizophrenia. Whole-genome sequencing of brain tissue revealed L1 insertion in or near genes associated with synapse function and schizophrenia. Furthermore, in a mouse model of environmentally induced immune activation, brain genomic DNA showed higher L1 copy numbers. These findings suggest that increased L1 retrotransposition in neurons, triggered by environmental and/or genetic risk factors, may contribute to schizophrenia susceptibility and pathophysiology.

**ORIGINAL RESEARCH PAPER** Bundo, M. et al. Increased L1 retrotransposition in the neuronal genome in schizophrenia. *Neuron* <http://dx.doi.org/10.1016/j.neuron.2013.10.053> (2014)

## NEUROTRANSMISSION

### In and out of time

The synchronous neurotransmitter release that results from repetitive firing is often accompanied by asynchronous release that occurs later and is not tightly synchronized with presynaptic action potentials. Asynchronous firing is thought to be a consequence of an expansion of the intracellular calcium domains that trigger the synchronous release. However, this study suggests that, at zebrafish neuromuscular synapses, these two types of neurotransmitter release depend on different calcium stores: synchronous release involves calcium entry via P/Q-type calcium channels, whereas asynchronous release depends on calcium waves propagating from outside the synapse.

**ORIGINAL RESEARCH PAPER** Wen, H. et al. Synchronous and asynchronous modes of synaptic transmission utilize different calcium sources. *eLife* **2**, e01206 (2013)

## SENSORY PROCESSING

### Sniffing out new interneuron types

In the rodent brain, neural progenitor cells born in the ventral subventricular zone (V-SVZ) migrate to and populate the olfactory bulb with various cell types, including interneurons. The authors observed previously unknown progenitor-producing microdomains within the adult rodent V-SVZ that produced four novel subtypes of olfactory bulb interneurons and that expressed members of the NKX6.2 and ZIC family of transcription factors. This study shows an unexpected level of complexity in the postnatal V-SVZ and highlights its utility for the study of neuronal subtype specification.

**ORIGINAL RESEARCH PAPER** Merkle, F. T. et al. Adult neural stem cells in distinct microdomains generate previously unknown interneuron types. *Nature Neurosci.* <http://dx.doi.org/10.1038/nn.3610> (2013)

## PSYCHIATRIC DISORDERS

### A second chance for ECT?

Electroconvulsive therapy (ECT) can improve therapeutic outcomes in some patients with mood disorders who are not responsive to antidepressant drugs, but it is controversial because of its apparently unspecific effect. A new study shows that in patients with unipolar or bipolar disorder, ECT has highly specific, spatially distributed effects on local brain volume in regions implicated in these disorders. Interestingly, the degree of brain-volume change correlates with the therapeutic effectiveness of ECT.

**ORIGINAL RESEARCH PAPER** Dukart, J. et al. Electroconvulsive therapy-induced brain plasticity determines therapeutic outcome in mood disorders. *Proc. Natl Acad. Sci. USA* <http://dx.doi.org/10.1073/pnas.1321399111> (2013)