IN BRIEF

GENE EXPRESSION

Different ways to splice the cake

Alternative splicing, which involves the excision of different sections of mRNA during post-transcriptional processing, provides a means of expanding transcriptomic complexity. The regulation and function of alternative splicing remain poorly understood, but a new study reveals a technique that enables in-depth analysis of alternative splicing programmes. The authors found that, in neurons, microexons (exons of 3–27 nucleotides) were more highly conserved, had higher levels of alternative splicing than longer exons and were most frequently incorrectly spliced in the brains of individuals with autism.

ORIGINAL RESEARCH PAPER Irimia, M. *et al.* A highly conserved program of neuronal microexons is misregulated in autistic brains. *Cell* **159**, 1511–1523 (2014)

MOTOR SYSTEMS

Switching sides

Lateralized movements require the coordinated contraction of different muscle groups, including trunk and limb muscles, located on opposite sides of the body, but it is not well understood how this is regulated at the spinal level. A new study shows that axial (trunk) muscles, which are mostly innervated by motor neurons of the medial motor column throughout the spinal cord, are themselves innervated by second-order interneurons originating both contralateral and ipsilateral to the motor neuron. By contrast, motor neurons innervating the limb muscles show a more restricted expression pattern in lateral motor columns and are innervated by a different subpopulation of interneurons that are mostly ipsilateral to the motor neuron.

ORIGINAL RESEARCH PAPER Goetz, C., Pivetta, C. & Arber, S. Distinct limb and trunk premotor circuits establish laterality in the spinal cord. *Neuron* **85**, 131–144 (2014)

SENSORY SYSTEMS

TLC for touch neurons

Low-threshold mechanosensory receptors (LTMRs) are important for the sense of touch. Here, the authors show that, in mice, the Aδ subtype of LTMRs (Aδ-LTMRs), which are located inside hair follicles, are tuned to be more sensitive to deflection in the caudal-to-rostral direction. This is achieved by an asymmetric distribution of the lanceolate (tapered branches) endings of Aδ-LTMRs that is biased towards the caudal side of the hair follicle. Furthermore, this polarized distribution of lanceolate Aδ-LTMR endings, and therefore their direction selectivity, is dependent on brain-derived neurotrophic factor signalling.

ORIGINAL RESEARCH PAPER Rutlin, M. *et al.* The cellular and molecular basis of direction selectivity of Aδ-LTMRs. *Cell* **159**, 1640–1651 (2014)

NEURONAL CIRCUITS

Waves of perception

It remains controversial whether cortical oscillations are an epiphenomenon or an important mechanism by which cortical information flow can be coordinated. A recent study in humans analysed the effects of γ-band-specific entrainment of cortical areas and found that interhemispheric connectivity could be increased by artificially increasing interhemispheric coherence (that is, in-phase stimulation) and reduced by anti-phase stimulation. Importantly, these connectivity changes correlated with performance in a motion perception task, which suggests a functional role for these oscillations in long-range coupling of activity across cortical areas.

ORIGINAL RESEARCH PAPER Helfrich, R. F. *et al.* Selective modulation of interhemispheric functional connectivity by HD-tACS shapes perception. *PLoS Biol.* **12**, e1002031 (2014)