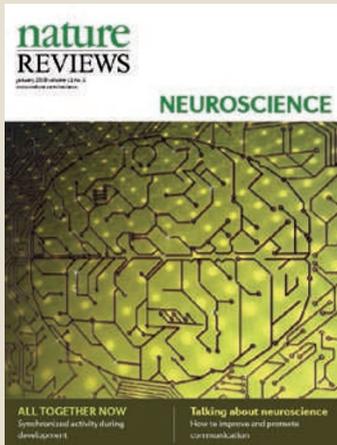




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► **COVER:** 'Brain circuits' by Kirsten Lee, inspired by the Review on p30.



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**T**he establishment of neural circuits during development and their constant fine-tuning during maturation and adulthood require the nervous system to be highly adaptive.

Correlated network activity is thought to be required for the development of neural circuits. The Review on page 18 by Blankenship and Feller describes the cellular mechanisms that underlie the generation and regulation of patterned, spontaneous activity. The authors point to similarities and differences in the development of various neural circuits, including the spinal cord, cochlea, retina, hippocampus and cerebellum.

On page 30 of this issue, Jörntell and colleagues review recent experimental findings regarding information processing in cerebellar microcircuits that are not explained by existing models of cerebellar function. They show that newly revealed characteristics, including plasticity, of the components of the cerebellar microcircuit correspond to the computational principles of adaptive filters.

When part of the network malfunctions, the nervous system tries to compensate for the dysfunctional module through a range of dynamic adaptations. On page 44, Merabet and Pascual-Leone discuss our understanding of the mechanisms that underlie crossmodal neuroplastic changes associated with blindness and deafness. This understanding can help in the development of new strategies and therapies to rehabilitate or even restore the function of the lost sense.

Finally, in our Perspective this month Illes and colleagues (page 61) discuss a different type of adaptation: they reflect on the challenges and opportunities that new digital and interactive media present for the dialogue between scientists and the public, and call for a rethinking of the strategy for science communication in this new media landscape.

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