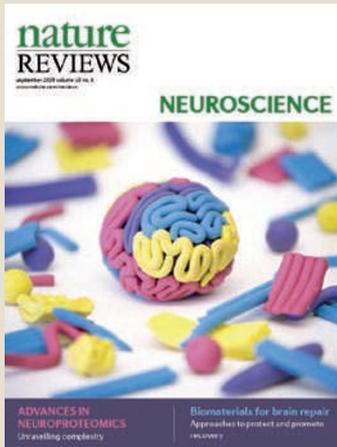




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► **COVER:** 'Moulding the brain' by Kirsten Lee, inspired by the Review on p647.



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**R**epairing damage to the nervous system that occurs as a result of trauma or disease remains one of the key goals of neuroscience research. Several of the strategies under investigation are highlighted in this month's issue.

Approaches that are being considered to protect and repair the nervous system include the delivery of neuroprotective or neurotrophic compounds and the transplantation of cells or tissue grafts to replace damaged cells. In their Review, Emerich and colleagues (page 682) describe how recent advances in biomaterials research, particularly the ability to manipulate the interactions between materials and their cellular environment, may contribute to these initiatives.

Harnessing the brain's endogenous plasticity is another possible approach to treat the damaged brain. Holtmaat and Svoboda (page 647) review the evidence for structural synaptic plasticity in the adult brain and its contribution to experience-dependent learning and spontaneous recovery from injury.

Two Research Highlights demonstrate the potential of repair strategies and the challenges that they face. On page 621 we summarize three studies that used different approaches to promote recovery in rodents with spinal cord injury, including manipulation of immune and glial cell responses, the application of neurotrophic factors and rehabilitation therapy. However, it is important to appreciate the challenges that remain in translating successful animal studies to the clinic. Illustrating this point, on page 624 we describe the discouraging results of a small transplantation trial in patients with Huntington's disease. However, the hope is that these results can help us to better understand disease mechanisms, leading to new therapeutic strategies that promote recovery.

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