Nature Reviews Neurology **10**, 123 (2014); published online 25 February 2014;
doi:10.1038/nrneurol.2014.28;
doi:10.1038/nrneurol.2014.29;
doi:10.1038/nrneurol.2014.30;
doi:10.1038/nrneurol.2014.31

IN BRIEF

MOTOR NEURON DISEASE

Intraspinal stem cell injections for ALS are safe and feasible

A phase I trial demonstrates that stem cell therapy in amyotrophic lateral sclerosis (ALS) is safe, feasible and well-tolerated by the patients. 15 individuals with ALS received intraspinal and/or lumbar neural stem cell injections and were monitored for up to 2.5 years after transplantation. According to the investigators, stem cell therapy might have benefited the study participants who did not have a bulbar-onset ALS and received the treatment early in the disease course, but a larger study will be required to assess the efficacy of stem cell therapy in ALS.

Original article Feldman, E. L. *et al.* Intraspinal neural stem cell injections in ALS subjects: phase I trial outcomes. *Ann. Neurol.* doi:10.1002/ana.24113

GENETICS

Potassium channel function linked to autism and epilepsy

Epilepsy is a common comorbidity in autism, but the potential shared molecular background has remained elusive. Discovery of a mutation in *KCND2*, the gene that encodes the potassium channel K_v4.2, has now provided new insight into mechanisms connecting epilepsy and autism spectrum disorder. Whole-exome sequencing of a family with identical twins—both affected by autism and severe, intractable seizures—revealed a *de novo* mutation in *KCND2*, and functional analysis of the mutated K_v4.2 channel revealed slowed inactivation.

Original article Lee, H. *et al.* Exome sequencing identifies *de novo* gain of function missense mutation in *KCND2* in identical twins with autism and seizures that slows potassium channel inactivation. *Hum. Mol. Genet.* doi:10.1093/hmg/ddu056

SENSORY SYSTEMS

Could future hearing aids employ cochlear optogenetics?

Optogenetic stimulation provides greater frequency resolution than the electrical stimulation that provides the basis for sound coding in current cochlear and auditory brainstem implants. In a new study, optogenetic stimulation of genetically engineered spiral ganglion neurons in mice activated the auditory pathway, and restored auditory activity in deaf mice. The findings might pave the way for better auditory prostheses.

Original article Hernandez, V. H. *et al.* Optogenetic stimulation of the auditory pathway. *J. Clin. Invest.* doi:10.1172/JCI69050

ALZHEIMER DISEASE

Wnt signalling—a promising target for AD treatment

Activation of the Wnt pathway might provide a novel strategy to prevent amyloid- β -related neurodegeneration, recent research indicates. Wnt has been implicated in synaptic development, but little was known about its role in mature synapses. *In vivo* activation of Wnt signalling restored memory and synaptic function in a mouse model of Alzheimer disease, and improved episodic memory, enhanced long-term potentiation and facilitated excitatory synaptic transmission in wild-type mice.

Original article Vargas, J. Y. *et al.* *In vivo* activation of Wnt signaling pathway enhances cognitive function of adult mice and reverses cognitive deficits in an Alzheimer's disease model. *J. Neurosci.* **34**, 2191–2202 (2014)