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IN BRIEF

DEVELOPMENT

The first neurons of the human cerebral cortex.

Bystron, I. *et al. Nature Neurosci.* **9**, 880–886 (2006)

A population of neurons that precedes all other known cell types of the developing cortex has been discovered in the prospective cerebral cortex of early human embryos. These predecessor neurons originate in the basal telecephalon, before complete closure of the neural tube and onset of local neurogenesis, and then migrate into the cortical primordium. This study suggests that development of the human cerebral cortex begins much earlier than was previously thought.

SYNAPTIC PLASTICITY

Alternative N-terminal domains of PSD-95 and SAP97 govern activity-dependent regulation of synaptic AMPA receptor function.

Schluter, O. M., Xu, W. & Malenka, R. C. *Neuron* **51**, 99–111 (2006)

An important mechanism for regulating synaptic strength is the insertion and retrieval of AMPA receptors, which in turn is regulated by the scaffold proteins PSD-95 and SAP97. Malenka and colleagues show that the different N-termini of the predominant isoforms of these proteins determine the activity dependence of their synaptic functions. Silencing the predominant α-isoform of PSD-95 — which regulates AMPA receptor-mediated synaptic strength independent of activity — unmasked an activity-dependent role for the predominant β-isoform of SAP97, and for PSD-95β with the same N-terminal domain, in regulating this type of plasticity.

NEURODEGENERATIVE DISORDERS

α-Synuclein blocks ER-Golgi traffic and Rab1 rescues neuron loss in Parkinson's models.

Cooper, A. A. *et al. Science* 22 June 2006 (doi:10.1126/science.1129462)

Accumulation of α-synuclein is toxic to cells and results in a number of neurodegenerative disorders, although how it exerts its toxic effect remains unknown. Cooper *et al.* show that expression of α-synuclein in yeast inhibits vesicular trafficking from the endoplasmic reticulum (ER) to the Golgi. Modifiers of this effect, identified in a yeast genome-wide screen, included the homologue of Rab1, itself involved in ER to Golgi trafficking. Furthermore, overexpression of Rab1 attenuated the loss of dopamine neurons in fly, worm and mammalian cell culture models of α-synuclein-induced neurotoxicity. Understanding the pathobiology of α-synuclein will help to guide therapeutic strategies to treat synucleinopathies.

BEHAVIOURAL NEUROSCIENCE

Panic-prone state induced in rats with GABA dysfunction in the dorsomedial hypothalamus is mediated by NMDA receptors.

Johnson, P. L. & Shekhar A. *J. Neurosci.* **26**, 7104–7093 (2006)

Patients with panic disorder are susceptible to panic-like states in response to certain chemical stimuli, including lactate. Chronic infusion of a GABA synthesis inhibitor into the rat hypothalamus elicits a similar susceptibility to lactate-induced panic, suggesting that this region is important in regulating panic-like responses. Johnson and Shekhar show that the response to lactate in these rats is mediated by the enhanced excitability of a subset of glutamatergic neurons expressing NMDA receptors.