IN BRIEF

PAIN

Cannabinoid potentiation of glycine receptors contributes to cannabis-induced analgesia

Xiong, W. *et al. Nature Chem. Biol.* **7**, 296–303 (2011)

In addition to binding to cannabinoid receptor 1 (CB1) and CB2, cannabinoids can potentiate the activity of the glycine receptor (GlyR). This study showed that the interaction between Ser296 in the GlyR and the hydroxyl groups of cannabis is crucial for mediating cannabis-induced pain relief. The use of cannabis for pain relief is limited owing to its psychoactive properties, however, by developing analogues that potentiate the activity of GlyRs but not of CB1s, it may be possible to enhance the therapeutic activity of this compound.

NEURODEGENERATIVE DISEASE

Suppression of Alzheimer's disease-related phenotypes by expression of heat shock protein 70 in mice

Hoshino, T. *et al. J. Neurosci.* **31**, 5225–5234 (2011)

Upregulation of heat shock protein 70 (HSP70) could be an effective treatment for Alzheimer's disease as it prevents amyloid-β peptide oligomerization and enhances amyloid-β phagocytosis *in vitro*. Here, the authors investigated the effects of HSP70 overexpression on Alzheimer's disease-related phenotypes by crossing mice expressing a mutant form of amyloid-β precursor protein (APPsw mice) with mice overexpressing HSP70. They found that overexpression of HSP70 improved spatial learning and memory in APPsw mice, confirming the therapeutic potential of increasing HSP70 levels *in vivo*.

NEUROGENESIS

Increasing adult hippocampal neurogenesis is sufficient to improve pattern separation

Sahay, A. *et al. Nature* **472**, 466–470 (2011)

Adult neurogenesis has been associated with an improvement in hippocampal functions, but it is unclear whether increasing neurogenesis in the adult hippocampus is sufficient to improve cognition and mood. The authors showed that enhancing the survival of adult-born neurons in mice improved their ability to distinguish two similar contexts in a fear-discrimination task. Interestingly, no differences were observed in other cognitive tasks, such as object recognition and spatial learning. These findings suggest that promoting adult neurogenesis in humans could be used to ameliorate the decreased ability to discriminate between similar contexts that is seen during normal ageing.

DEVELOPMENT

DISC1-dependent switch from progenitor proliferation to migration in the developing cortex

Sawa, A. *et al. Nature* **473**, 92–96 (2011)

This study uncovers a novel role for disrupted in schizophrenia 1 (DISC1) in corticogenesis. DISC1 mediates the proliferation of neuronal progenitors by regulating β-catenin signalling. Phosphorylation of DISC1 at Ser710 triggers the recruitment of Bardet–Biedl syndrome proteins to the centrosome and the transition from progenitor cell proliferation to postmitotic neuron migration. Disturbance of this DISC1-dependent switch may account for the defective corticogenesis observed in patients with autism.