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IN BRIEF

NEUROIMAGING

Maternal care modulates the relationship between prenatal risk and hippocampal volume in women but not in men.

Buss, C. *et al. J. Neurosci.* **27**, 2592–2595 (2007)

A small hippocampus has been associated with various psychiatric disorders. Buss *et al.* report that low birth weight, presumably reflecting an adverse intrauterine environment, is linked with reduced hippcampal volume in adulthood; however this effect was only seen in women who reported a low quality of maternal care during childhood. This indicates that the effects of unfavourable prenatal circumstances on neurodevelopment, which may increase vulnerability to psychiatric disorders, could be modified by the postnatal environment.

STEM CELLS

Olig2-regulated lineage-restricted pathway controls replication competence in neural stem cells and malignant glioma.

Ligon, K. L. *et al. Neuron* **53**, 503–517 (2007)

Investigating the molecular basis of the similarities between progenitor cells and cancer stem cells, the authors found that both a subpopulation of neural progenitor cells in the adult rodent brain and human glioma stem cells require OLIG2 for proliferation. OLIG2 is one of the first proteins identified to control the growth of normal and tumorigenic neural progenitor cells by directly repressing the tumour suppressor $p21^{WAF1/CIP1}$.

NEUROTRANSMISSION

Modification of a hydrophobic layer by a point mutation in Syntaxin 1A regulates the rate of synaptic vesicle fusion.

Lagow, R. D. *et al. PLoS Biol.* **4**, e72 (2007)

Syntaxins involved in regulated vesicle fusion have a highly conserved hydrophilic residue at position 254. Mutation of threonine 254 to isoleucine in syntaxin 1A leads to a conformational change in soluble *N*-ethylmaleimide amide-sensitive factor attachment protein receptor (SNARE) complexes that stimulates both spontaneous and Ca^{2+}-evoked synaptic vesicle fusion at the *Drosophila* neuromuscular junction. Most syntaxins regulating spontaneous secretion have a hydrophobic residue at this position, suggesting that these residues are key to determining the structure of SNARE complexes and the rate of vesicle fusion.

MEMORY

Odor cues during slow-wave sleep prompt declarative memory condolidation.

Rasch, B. *et al. Science* **315**, 1426–71429 (2007)

It is thought that new memories are consolidated during sleep because they are replayed in the brain. Rasch *et al.* show that presenting an olfactory stimulus during slow-wave sleep boosted the memory of a previously learned task, but only if the smell had also been present during learning. Functional MRI showed hippocampal activation in response to odour exposure during slow-wave sleep, providing evidence that the memory-boosting effect of re-exposure to a smell during sleep might be associated with replaying memories in the hippocampus.