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IN BRIEF

SLEEP

Adenosine-based antidepressants?

The antidepressant effect of a night without sleep is a well-known but poorly understood phenomenon. The authors showed that 12-hour sleep deprivation increased hippocampal extracellular adenosine levels and adenosine receptor A1 (A1R) signalling in mice. Conversely, impairing gliotransmission in astrocytes reduced the antidepressant-like effects of 12-hour sleep deprivation. Moreover, sleep deprivation had no effects in mice lacking A1Rs and central administration of an A1R agonist mimicked the antidepressant effect of sleep deprivation. These data point to astrocytic adenosine signalling as a possible therapeutic target for a novel class of antidepressants.

ORIGINAL RESEARCH PAPER Hines, D. J. *et al.* Antidepressant effects of sleep deprivation require astrocyte-dependent adenosine mediated signaling. *Transl. Psychiatry* **3**, e212 (2013)

PSYCHIATRIC DISORDERS

Focusing on flaws

Individuals with body dysmorphic disorder (BDD) are preoccupied with perceived bodily flaws. Little is known about the brain mechanisms underlying BDD, and the authors therefore assessed whole-brain and local white matter organization in patients with BDD. They found evidence of greater local versus global efficiency of information processing in individuals with BDD compared with healthy controls. Global efficiency levels negatively correlated with BDD symptom severity. Greater local versus global information processing might explain why people with BDD are unable to see a physical flaw as minor in the context of their whole appearance.

ORIGINAL RESEARCH PAPER Arienzo, D. *et al.* Abnormal brain network organization in body dysmorphic disorder. *Neuropsychopharmacology* 15 Jan 2013 (doi:10.1038/npp.2013.18)

CELL FATE

A new way of reprogramming

Fibroblasts can be reprogrammed into neurons *in vitro* using a combination of transcription factors. The authors showed that such reprogramming can also be achieved through downregulation of a poly-pyrimidine tract-binding protein (PTBP). PTBP regulates microRNAs and thereby modulates a regulatory loop between certain microRNAs, the REST complex and transcription of neuronal genes. Consequently, PTBP knock-down relieves the repression of neuronal genes, including the crucial transcription factors, in non-neuronal cells.

ORIGINAL RESEARCH PAPER Xue, Y. *et al.* Direct conversion of fibroblasts to neurons by reprogramming PTB-regulated microRNA circuits. *Cell* **152**, 82–96 (2013)

BEHAVIOUR

It's all in the wiring

To study the relationship between synaptic connectivity and circuit function, the authors compared network connectivity in the pharyngeal nervous system (PNS) of two related nematode species with different feeding behaviours, one microbivore and one predatory. A graph theoretical approach revealed that the two nematodes showed greatly different wiring of neurons that are homologous in terms of cell body position and neurite anatomy. The data suggest that the increased behavioural complexity of the predatory nematode is associated with increased complexity of PNS connectivity.

ORIGINAL RESEARCH PAPER Bumbarger, D. J. *et al.* System-wise rewiring underlies behavioral differences in predatory and bacterial-feeding nematodes. *Cell* **152**, 109–119 (2013)