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IN BRIEF

NEUROLOGICAL DISORDERS

GM1 ganglioside improves motor function

Modulating the phosphorylation of mutant huntingtin might slow the progression of Huntington's disease (HD). This study showed that intraventricular infusion of GM1 ganglioside into a mouse model of HD (YAC128 mice) caused phosphorylation of mutant huntingtin at specific amino acid residues that are known to attenuate huntingtin toxicity. Moreover, GM1 treatment also reduced neuronal dysfunction and improved motor function in mice that previously showed symptoms of HD. This study highlights that GM1 — which has already been investigated in patients with other disorders — might be beneficial in HD.

ORIGINAL RESEARCH PAPER Di Pardo, A. *et al.* Ganglioside GM1 induces phosphorylation of mutant huntingtin and restores normal motor behavior in Huntington disease mice. *Proc. Natl Acad. Sci. USA* **109**, 3528–3533 (2012)

OBESITY AND DIABETES

Adenosine kinase inhibitor increases β-cells

Increasing the number of insulin-producing β-cells could be beneficial in diabetes. Annes *et al.* showed that adenosine kinase inhibitors (AKIs) selectively promoted the replication of primary β-cells (taken from mice, rats and pigs). They also showed that adenosine kinase acts as a cell-autonomous regulator of β-cell replication, and that AKI-mediated β-cell replication involved activation of mammalian target of rapamycin. A single injection of the AKI ABT-702 into mice increased β-cell replication (but not exocrine cell or hepatocyte replication), suggesting that AKIs might be useful in diabetes therapy.

ORIGINAL RESEARCH PAPER Annes, J. P. *et al.* Adenosine kinase inhibition selectively promotes rodent and porcine islet β-cell replication. *Proc. Natl Acad. Sci. USA* 15 Feb 2012 (doi: 10.1073/pnas.1201149109)

NEUROLOGICAL DISORDERS

Inhibiting tau oligomerization

Tau — a protein involved in Alzheimer's disease — is modified by *O*-linked *N*-acetylglucosamine (*O*-GlcNAc). This study investigated the effect of thiamet G, an inhibitor of the glycoside hydrolase *O*-GlcNAcase, in a mouse model of Alzheimer's disease (hemizygous JNPL3 mice). Oral treatment of mice increased tau-specific *O*-GlcNAc in the brain, hindered the formation of tau aggregates and decreased neuronal cell loss. Furthermore, *O*-GlcNAc modification blocked tau oligomerization independently of tau phosphorylation, and also inhibited the aggregation of an unrelated protein, suggesting that *O*-GlcNAc may function to prevent protein aggregation in general.

ORIGINAL RESEARCH PAPER Yuzwa, S. A. *et al.* Increasing *O*-GlcNAc slows neurodegeneration and stabilizes tau against aggregation. *Nature Chem. Biol.* 26 Feb 2012 (doi:10.1038/nchembio.797)

CANCER

GSK3α is a new target in leukaemia

New targets are needed for acute myeloid leukaemia (AML), a disorder in which myeloid cells do not differentiate properly. Using a gene expression-based screen, Banerji *et al.* identified a role for glycogen synthase kinase 3α (GSK3α) in human AML. Pan-GSK inhibitors induced differentiation in AML cell lines and in patient blasts. Suppression of GSK3α using RNA knockdown impaired the growth and proliferation of AML cells *in vitro*, impaired engraftment and increased survival in an AML xenograft model. So this study shows that — similarly to the established role of GSK3β in leukaemia — GSK3α is a target in AML.

ORIGINAL RESEARCH PAPER Banerji, V. *et al.* The intersection of genetic and chemical genomic screens identifies GSK-3α as a target in human acute myeloid leukemia. *J. Clin. Invest.* **122**, 935–947 (2012)