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IN BRIEF

METABOLISM

New role of insulin and IGF-1 receptors in the expression of imprinted genes and microRNAs

Ligand binding to the insulin and insulin-like growth factor 1 receptors activates the tyrosine kinase pathway. The unoccupied receptors can also generate signals that activate noncanonical pathways, which are poorly known. A new study reveals that expression of paternally and maternally imprinted genes and microRNAs is dowregulated in brown preadipocytes lacking both of the receptors. Inactivation of the insulin receptor has similar effects in mouse embryonic fibroblasts and in mouse brown adipose tissue *in vivo*.

Original article Boucher, J. *et al.* Insulin and insulin-like growth factor 1 receptors are required for normal expression of imprinted genes. *Proc. Natl Acad. Sci. USA* doi:10.1073/pnas.1415475111

DIABETES

HMG-CoA reductase inhibition and T2DM risk in statin users

Statins decrease levels of LDL cholesterol through inhibition of HMG-CoA reductase. Statin use has been associated with a modestly increased risk of type 2 diabetes mellitus (T2DM). On the basis of data from randomized trials and population studies, Swerdlow *et al.* observed that both statin treatment and carriage of common single nucleotide polymorphisms in the *HMGCR* gene, which encodes HMG-CoA reductase, were associated with weight gain and increased risk of T2DM. The researchers conclude that the prodiabetic effects of statins are partially mediated by HMG-CoA reductase inhibition.

Original article Swerdlow, D. I. *et al.* HMG-coenzyme A reductase inhibition, type 2 diabetes, and bodyweight: evidence from genetic analysis and randomised trials. *Lancet* doi:10.1016/S0140-6736(14)61183-1

CANCER

MicroRNA-mediated effects of vitamin D on leptin-stimulated tumour growth

Treatment with 1,25-dihydroxyvitamin D_3 (1,25[OH]$_2$ D_3) suppresses leptin-mediated growth of ovarian cancer cells and administration of a 1,25(OH)$_2$ D_3 analogue suppresses ovarian tumour growth induced by a high-fat diet in mice, show new findings. The anti-leptin effects of 1,25(OH)$_2$ D_3 are mediated by a microRNA, miR-498, which downregulates expression of telomerase reverse transcriptase mRNA.

Original article Kasiappan, R. *et al.* Vitamin D suppresses leptin stimulation of cancer growth through microRNA. *Cancer Res.* doi:10.1158/0008-5472.CAN-14-1702

THERAPY

New bone-sparing thiazolidinedione

Thiazolidinediones have several adverse effects, including an increased risk of fracture. This effect is thought to be related to the activation of PPARγ, which decreases osteoblast formation and increases osteoclast formation. A new thiazolidinedione analogue, MSDC-0602, has insulin-sensitizing properties but low affinity for PPARγ. Fukunaga and colleagues tested the effects of the new drug on bone and saw that MSDC-0602 did not increase osteoclast differentiation and proliferation in cells in culture and in live mice, in contrast with rosiglitazone.

Original article Fukunaga, T. *et al.* An insulin-sensitizing thiazolidinedione, which minimally activates PPARγ, does not cause bone loss. *J. Bone Miner. Res.* doi:10.1002/jbmr.2364