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IN BRIEF

DIABETES

Genetic variation underpins metformin response

New research published in *Nature Genetics* could explain why some patients with type 2 diabetes mellitus (T2DM) respond better than others to the first-line therapy metformin. In a genome-wide association study of 13,123 ethnically diverse patients with T2DM, the C allele of rs8192675 in the intron of *SLC2A2* (encoding glucose transporter type 2, liver; GLUT2) was associated with a 0.17% ($P = 6.6 \times 10^{-14}$) greater metformin-induced reduction in HbA_{1c} levels than the T allele. The findings bring a precision medicine approach for prescribing and dosing metformin in T2DM one step closer.

ORIGINAL ARTICLE Zhou, K. *et al.* Variation in the glucose transporter gene *SLC2A2* is associated with glycemic response to metformin. *Nat. Genet.* http://dx.doi.org/10.1038/ng.3632 (2016)

ADIPOSE TISSUE

Angiogenic factor regulates beiging

Blood vessels in white adipose tissue (WAT) regulate β3-adrenergic and cold-induced beiging of WAT via a platelet-derived growth factor C (PDGFC)-mediated paracrine mechanism, according to new data. Global deletion of *Pdgfc*, endothelial-specific deletion of *Kdr* and pharmacological blockade of PDGFα all effectively prevented the WAT–beige transition. Conversely, PDGFC induced beiging of WAT and improved glucose tolerance and insulin sensitivity in high-fat-diet-induced obese mice. The PDGF pathway might, thus, be a potential therapeutic target for the treatment of obesity and other metabolic diseases, such as type 2 diabetes mellitus.

ORIGINAL ARTICLE Seki, T. *et al.* Endothelial PDGF-CC regulates angiogenesis-dependent thermogenesis in beige fat. *Nat. Commun.* 7, 12152 (2016)

BONE

Antiplatelet agent promotes bone formation

Targeting adenosine receptors might be a promising approach to promote bone regeneration, according to new research. The platelet aggregation inhibitor ticagrelor, which also blocks cellular uptake of adenosine, inhibited osteoclast differentiation *in vitro*, an effect that was abrogated by inhibition of the A_{2A} adenosine receptor. Moreover, ticagrelor and clopidogrel (another antiplatelet agent) promoted bone regeneration in mice with calvarial defects as effectively as BMP2, a growth factor currently marketed to promote bone growth and regeneration.

ORIGINAL ARTICLE Mediero, A. *et al.* Ticagrelor regulates osteoblast and osteoclast function and promotes bone formation *in vivo* via an adenosine-dependent mechanism. *FASEB J.* http://dx.doi.org/10.1096/fj.201600616R (2016)

METABOLISM

Calcium–T2DM link strengthens

Elevated serum levels of calcium are associated with an increased risk of incident type 2 diabetes mellitus (T2DM), according to a new study. As part of the Atherosclerosis Risk in Communities (ARIC) study, 12,800 participants who were free of T2DM at baseline were followed up for a median of 8.8 years; serum levels of calcium were measured at baseline. Individuals in the highest calcium quintile were at higher risk of incident T2DM than those in the lowest quintile after adjusting for demographic and lifestyle factors (HR 1.34, 95% CI 1.14–1.57); adjustment for levels of 25-hydroxyvitamin D and parathyroid hormone did not affect the association.

ORIGINAL ARTICLE Rooney, M. R. *et al.* Serum calcium and incident type 2 diabetes: the Atherosclerosis Risk in Communities (ARIC) study. *Am. J. Clin. Nutr.* http://dx.doi.org/10.3945/ajcn.115.130021 (2016)