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IN BRIEF

DIABETES

Regulation of hepatic glycogenesis by serotonin

Tudhope and colleagues tested the effects of serotonin (5-hydroxytryptamine [5-HT]) on postprandial hepatic glucose uptake. They found that 5-HT had both stimulatory and inhibitory effects on glycogen synthesis in hepatocytes, which were mediated by 5-HT1F/5-HT2A and 5-HT2B receptors, respectively. These opposing effects could underlie the hyperglycemia or hypoglycemia caused by drugs targeting serotonin function, suggest the investigators.

Original article Tudhope, S. J. *et al.* A novel mechanism for regulating hepatic glycogen synthesis involving serotonin and cyclin-dependent kinase-5. *Diabetes* doi:10.2337/db11-0870

OBESITY

Body fat and visceral fat mass are positively associated with iron deficiency in children

Analysis of the associations of obesity, percentage of body fat and visceral fat mass with body iron status in 1,493 schoolchildren aged 9–13 years shows that boys and girls with obesity have higher serum ferritin levels and lower transferrin saturation levels than normal-weight children. Iron deficiency and iron-deficiency anemia were more frequent in boys and girls in the highest quartiles of percentage of body fat than in children in the lowest quartile, possibly owing to the chronic inflammation induced by excessive adiposity.

Original article Moschonis, G. *et al.* Association of total body and visceral fat mass with iron deficiency in preadolescents: the Healthy Growth Study. *Brit. J. Nutr.* doi:10.1017/S0007114511005952

CANCER

Inhibition of mutant BRAF is associated with thyroid tumor regression and restoration of radioiodine uptake *in vivo*

Doxycycline-inducible expression of the BRAF Val600Glu protein in thyroid follicular cells of mice causes highly penetrant and poorly differentiated thyroid tumors to develop, induces hypothyroidism and virtually abolishes thyroid-specific gene expression and radioiodine incorporation. Therapy with small-molecule inhibitors of MEK or mutant BRAF reduced proliferation, whereas treatment with MAPK pathway inhibitors restored susceptibility of the tumor cells to a therapeutic dose of radioiodine.

Original article Chakravarty, D. *et al.* Small-molecule MAPK inhibitors restore radioiodine incorporation in mouse thyroid cancers with conditional BRAF activation. *J. Clin. Invest.* doi:10.1172/JCI46382

BASIC RESEARCH

Autophagy deficiency contributes to diabetes progression

Production of unfolded protein response (UPR) machinery is reduced in autophagy-deficient β cells. As a result, these β cells become susceptible to endoplasmic reticulum stress *in vitro*. *In vivo*, offspring of mice with β-cell-specific autophagy deficiency, which have mild hyperglycemia, and leptin-deficient *ob/ob* mice develop severe diabetes mellitus, with increased β-cell apoptosis and accumulation of reactive oxygen species.

Original article Quan, W. *et al.* Autophagy deficiency in β cells leads to compromised unfolded protein response and progression from obesity to diabetes in mice. *Diabetologia* doi:10.1007/s00125-011-2350-y

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