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IN BRIEF

DIABETES

GAD65 antigen therapy in T1DM

Treatment with alum-formulated GAD65 (also known as glutamate decarboxylase 2) did not preserve β -cell function in 334 patients with type 1 diabetes mellitus (T1DM) of recent onset and detectable serum GAD65 autoantibodies over a 15-month period. The primary endpoint—change in stimulated serum C-peptide levels between baseline and 15-month follow-up—did not improve with GAD65 treatment. In addition, no significant differences were observed in insulin dose, HbA_{1c} concentration and in hypoglycemia rate between treated patients and those receiving placebo.

Original article Ludvigsson, J. *et al.* GAD65 antigen therapy in recently diagnosed type 1 diabetes mellitus. *N. Engl. J. Med.* **366**, 433–442 (2012)

NONALCOHOLIC FATTY LIVER DISEASE

Microbiota in the pathogenesis of systemic autoinflammatory and metabolic disorders

Changes in gut-microbiota–host interactions, due to impaired NLRP3 and NLRP6 inflammasome sensing, could explain the rate of progression of multiple abnormalities associated with the metabolic syndrome, such as the progression from nonalcoholic fatty liver disease to nonalcoholic steatohepatitis. In mice, alterations caused by inflammasome deficiency were associated with exacerbated hepatic steatosis and inflammation, through influx of TLR4 and TLR9 agonists into the portal circulation, which increased hepatic TNF expression and induced progression to nonalcoholic steatohepatitis.

Original article Henao-Mejia, J. *et al.* Inflammasome-mediated dysbiosis regulates progression of NAFLD and obesity. *Nature* doi:10.1038/nature10809

CANCER

Thyroid proteomics identify tumor markers

A set of 9 proteins—identified by 2D electrophoresis of cytosolic protein extracts from frozen thyroid samples, image and multivariate statistical analyses and mass spectrometry—can discriminate between thyroid cancer subtypes (follicular adenomas, follicular carcinomas, papillary carcinomas). These proteins, which include 14-3-3 proteins, selenium-binding protein 1, peroxiredoxin 6 and annexin A5, had the same predictive power in differentiating between follicular carcinoma and adenoma or between follicular and papillary carcinoma, as did a larger set of 25 proteins.

Original article Sofiadis, A. *et al.* Proteomic profiling of follicular and papillary thyroid tumors. *Eur. J. Endocrinol.* doi:10.1530/EJE-11-0856

METABOLISM

Benefits of exercise-induced autophagy

Autophagy induction by acute exercise could underlie the beneficial metabolic effects of exercise. US researchers generated mutant mice with normal levels of basal autophagy but with knock-in mutations in BCL2 phosphorylation sites that prevent autophagy activation by a stimulus (exercise or starvation). Mutant mice show decreased endurance and altered glucose metabolism during acute exercise, as well as impaired chronic exercise-mediated protection against high-fat-diet-induced glucose intolerance.

Original article He, C. *et al.* Exercise-induced BCL2-regulated autophagy is required for muscle glucose homeostasis. *Nature* **481**, 511–515 (2012)