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## IN BRIEF

### BIOMARKERS

#### Markers of oxidative stress associated with risk of hip fracture in postmenopausal women

Plasma levels of fluorescent oxidation products (FIOPs) measured at baseline in a group of 996 postmenopausal women from the Nurses' Health Study were positively associated with risk of hip fracture. This association was seen for FIOPs measured at 360 nm excitation and 420 nm emission wavelengths. The hazard ratios for hip fracture were 2.11 (95% CI 0.88–5.10) and 2.67 (95% CI 1.14–6.27) for women in the second and third tertiles of FIOP levels when compared with women in the first FIOP tertile.

**Original article** Yang, S. *et al.* Association between global biomarkers of oxidative stress and hip fracture in postmenopausal women: a prospective study. *J. Bone Miner. Res.* doi:10.1002/jbmr.2302

### THYROID FUNCTION

#### The monoaminergic system might mediate the link between dysregulation of the TSH receptor and ADHD

Mice with a knockout of the TSH receptor display behavioural and cognitive features characteristic of attention deficit/hyperactivity disorder (ADHD). Some of these features were reversed by treatment with methylphenidate, a drug used in ADHD therapy that blocks the dopamine and norepinephrine transporters. Analysis of the knockout mice revealed monoaminergic changes in several brain regions.

**Original article** Mouri, A. *et al.* Thyrotropin receptor knockout changes monoaminergic neuronal system and produces methylphenidate-sensitive emotional and cognitive dysfunction. *Psychoneuroendocrinology* doi:10.1016/j.psyneuen.2014.05.021

### BONE

#### New microRNA inhibits osteoclastogenesis and suppresses osteoporosis and bone metastasis

Transgenic mice that overexpressed a novel microRNA, miR-34a, had decreased osteoclastogenesis, decreased bone resorption and increased bone mass. They also had decreased osteoporosis upon ovariectomy and diminished metastasis of breast and skin cancers. The study researchers suggest that miR-34a could be a potential therapy against osteoporosis and bone metastasis.

**Original article** Krzeszinski, J. Y. *et al.* miR-34a blocks osteoporosis and bone metastasis by inhibiting osteoclastogenesis and Tgif2. *Nature* doi:10.1038/nature13375

### METABOLISM

#### Caveolae influence lipid droplet storage in adipocytes via expression of caveolin-1 and cavin

Overexpression of caveolin-1 in adipocytes in culture and in mice was associated with increased caveolae density, increased size of lipid droplets in adipocytes and increased adipocyte size. Caveolin-1 expression was also associated with expansion of adipocytes in individuals enrolled in an 8-week overfeeding programme. Stimulation of lipolysis in adipocytes, which leads to lipid droplet shrinkage, was also correlated with loss of expression of cavin proteins and caveolae disassembly. These findings help clarify the role of caveolae in the function of fat cells.

**Original article** Briand, N. *et al.* Caveolin-1 expression and cavin stability regulate caveolae dynamics in adipocyte lipid store fluctuation. *Diabetes* doi:10.2337/db13-1961