In the news

A FAT-BURNING SOLUTION

Altering the balance between 'good' brown fat and 'bad' white fat to burn calories instead of storing them could be a crucial weight-loss tool; a study published in *Cell Metabolism* now suggests a way to achieve this.

Brown fat cells are present at birth and are made up of many lipid droplets and mitochondria, which allow them to burn more energy and generate heat. These cells are replaced in adults by white fat cells, which have a single lipid droplet and are used to store extra calories.

Researchers from The Johns Hopkins University, Maryland, USA, wanted to determine whether blocking the expression of the appetite-stimulating protein neuropeptide Y (NPY) in the hypothalamus affects body weight regulation. They found that NPY-inhibited rats gained less weight than controls, even when fed a high-fat diet for 5 weeks. These findings "made sense" according to Sheng Bi, lead author of the study, as NPY is known to stimulate eating (*Science Daily*, 3 May 2011).

Interestingly, they also discovered that, in NPY-inhibited rats, some of the white fat cells from the groin had been replaced by brown fat cells; these rats showed increased energy expenditure and heat production, which are typically associated with brown fat. Bi believes that this 'transformation' could result from the activation of brown fat stem cells, which may be inactive but still present in adults.

Although "we will need a lot more work to tease this out," as commented by Jeremy Tomlinson from the Obesity Research Centre and the University of Birmingham, UK (*bbc.co.uk*, 3 May 2011), these findings offer new hope to tackle obesity and its related health problems. For example, Bi suggests that brown fat stem cells could be injected under the skin to replace white fat and promote weight loss. "Only future research will tell us if that is possible," he said (*Science Daily*, 3 May 2011).

Rachel David