RESEARCH HIGHLIGHTS

Selections from the scientific literature

NEUROSCIENCE

Hormone linked to depression

A hormone released by fat cells that is associated with a reduced risk of type 2 diabetes could also protect against depression.

Blood levels of the hormone adiponectin are positively correlated with insulin sensitivity. Xin-Yun Lu at the University of Texas at San Antonio and her colleagues manipulated levels of adiponectin in the blood and brains of mice, and assessed the animals' likelihood of exhibiting depression-like behaviours in response to stressors. The researchers found that mice with low blood levels of the hormone were more likely to show signs of depression than were control animals. Injecting adiponectin-neutralizing antibodies into the mouse brain also increased the likelihood of depression-like symptoms. By contrast, injecting adiponectin into the brain had an antidepressant-like effect in both normal-weight and obese, diabetic mice.

The findings could explain why depression is twice as prevalent in people with type 2 diabetes as in the general population.

Proc. Natl Acad. Sci. USA **http://dx.doi.org/10.1073/pnas.1202835109 (2012)**

PALAEOANTHROPOLOGY

Lucy's relatives walked upright

An analysis of bones from the same species as 'Lucy' — a hominin who lived 3.2 million years ago — suggests that this species was more human-like than previously thought.

C. WARD

Carol Ward at the University of Missouri in Columbia and her team analysed dozens of *Australopithecus afarensis* bones (**example pictured**), unearthed between 1990 and 2007 in Hadar, Ethiopia. The bones have been dated to between 3 million and 3.4 million years ago, and are thought to be from individuals intermediate in size between the smallest and the largest *A. afarensis* specimens yet found.

Foot bones indicate that *A. afarensis* had an arched foot, whereas vertebrae suggest a more human-like upper backbone than previously suspected. Both are consistent with upright walking.

J. Hum. Evol. **http://dx.doi.org/10.1016/j.jhevol.2011.11.012 (2012)**

A. DESCAT/MAP/GARDEN WORLD

ECOLOGY

For more than just kissing

The ecological impact of mistletoe plants — proposed to be keystone species crucial to ecosystem health — has been quantified. This is the first such attempt for any keystone species.

Mistletoes (Loranthaceae; pictured) provide fruit and nectar, as well as nesting and roosting sites for animals such as birds and insects. David Watson and Matthew Herring at Charles Sturt University in Albury, Australia, removed mistletoes from 17 woodland sites in the state of New South Wales in 2004. Three years after the plants' removal, species richness had declined by an average of 20.9% overall, and by 26.5% in the case of woodland-dependent bird species. By contrast, in 11 control sites where mistletoes remained, average species richness had increased.

Mistletoes promote biodiversity mainly by enriching the soil with nutrients through leaf fall and decomposition, the authors suggest.

Proc. R. Soc. B. **http://dx.doi.org/10.1098/rspb.2012.0856 (2012)**

MICROBIOLOGY

Watching biofilms form

A sophisticated imaging technique has enabled researchers to watch bacteria assemble into tight-knit, organized communities called biofilms and to discern the structure and key protein components that hold these communities together.

Biofilms help bacteria to survive stressors such as antibiotics, but studying intact, living biofilms has proved difficult. Veysel Berk at the University of California, Berkeley, and his team developed a method to fluorescently label proteins in cells and continuously image them using conventional and super-resolution microscopy. The researchers watched dividing *Vibrio cholerae* cells, which cause cholera, and found that biofilms form when daughter cells remain attached to their parent cells, generating cell clusters. These clusters group together and are enclosed by a protein envelope to ultimately form the biofilm.

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