

# RESEARCH HIGHLIGHTS

## ANIMAL BEHAVIOUR

### Mongoose traditions

*Curr. Biol.* doi:10.1016/j.cub.2010.04.037 (2010)

A rare example of social learning in the wild has been found.

The banded mongoose (*Mungos mungo*) provides an unusual opportunity to study imitation and traditions in the wild because each pup pairs up with an older mongoose, known as an escort. Corsin Müller and Michael Cant showed that the pups imitate the foraging behaviour of their escorts.

The authors, then both based at the University of Exeter, UK, recorded film of wild mongooses in Uganda as the animals tried to eat an artificial food item: rice and fish contained in a plastic 'egg'. Pups that observed their escorts opening the eggs by holding them with their paws and biting into them tended to use this same technique months later. Meanwhile, pups whose escorts just hurled the eggs against something hard also adopted the brute-force approach. **E.M.**



M. MACEWEN/OSF/PHOTOLIBRARY

## METABOLISM

### Obese cells 'self-undereat'

*Cell Metab.* 11, 467-478 (2010)

Insulin resistance is often associated with obesity. In mice, this link is partly attributable to a faulty cellular process called autophagy, through which a cell degrades its own damaged components. Gökhan Hotamisligil and his team at Harvard School of Public Health in Boston, Massachusetts, showed that obese mice have lower than normal levels of autophagy in the liver, marked by decreased expression of the ATG7 protein.

When they blocked ATG7 production in the livers of lean mice, the animals showed signs of insulin resistance and also of impaired function of a cell organelle called the endoplasmic reticulum (ER), which is involved in protein production and metabolic regulation. Restoring autophagy in obese mice resulted in less ER stress and improved insulin action. **C.L.**

## NEUROSCIENCE

### Drug shrinks brain

*Nature Neurosci.* doi:10.1038/nn.2572 (2010)

Some antipsychotic drugs cause side effects that include slowed movements and shaking — apparently by temporarily shrinking a part of the brain responsible for motor control.

Heike Tost at the National Institute of Mental Health in Bethesda, Maryland, and her team injected seven healthy volunteers with haloperidol, a drug commonly prescribed for schizophrenia. Within two hours, volunteers showed signs of impaired motor ability that coincided with diminished grey-matter volume in their striatum — a brain region that modulates movement and

other processes. Within a day, the brain returned to almost normal size.

Like most antipsychotics, haloperidol blocks a receptor for dopamine, a neurotransmitter that may regulate branching at the synapses through which neurons communicate. The team suggests that haloperidol reduces striatal size by decreasing synaptic growth. **A.M.**

**For a longer story on this research, see [go.nature.com/ecFsq7](http://go.nature.com/ecFsq7)**

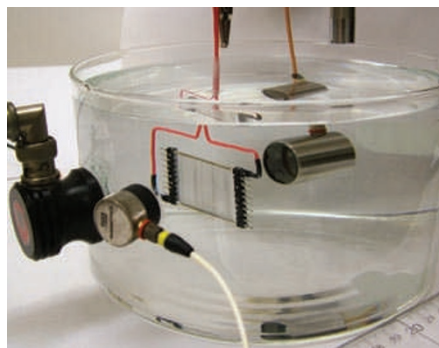
## NANOTECHNOLOGY

### Aquatic speakers

*Nano Lett.* doi:10.1021/nl100235n (2010)

Thin sheets of carbon nanotubes can generate sound underwater 100 times more efficiently than predicted theoretically, say researchers at the University of Texas at Dallas.

Such sheets can generate sound in air when an electric current is applied, by heating up and creating pressure waves in the surrounding air. Ali Aliev and his colleagues found that when their nanotube-based device is placed in water (pictured), a thin layer of air surrounds the hydrophobic sheets, providing a barrier against the water. This enhances the



acoustic vibration and also prevents the water from degrading the nanotubes. The authors suggest that the sheets could be fashioned into flexible and lightweight loudspeaker 'skins' for vehicles both on land and underwater. **E.H.**

## BIOCHEMISTRY

### Picture protein

*Proc. Natl Acad. Sci. USA* doi:10.1073/pnas.0914067107 (2010)

Fluorescent tags that can be attached to cellular proteins are an indispensable biological imaging tool, but are often large and can interfere with a protein's function. Smaller ones, meanwhile, can be toxic, as well as unreliable at labelling the protein of interest.

Alice Ting and her team at the Massachusetts Institute of Technology in Cambridge have developed a protein-labelling method involving small fluorescent tags that they say are less toxic and more specific. They engineered an enzyme from the bacterium *Escherichia coli* to join a blue fluorescent molecule to proteins modified to carry a specific amino-acid recognition sequence.

The authors were able to quickly tag specific groups of proteins inside living mammalian cells. **C.L.**

## GENOMICS

### Genetic editing

*PLoS Genet.* 6, e1000954 (2010)

An individual's genome sequence is not as constant as is commonly thought, according to a large-scale analysis of human DNA and RNA 'editing' by certain proteins.

These proteins can alter DNA and RNA sequences by removing an amine group from

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