# RESEARCH HIGHLIGHTS

## Relative values

*Current Biol.* doi:10.1016/j.cub.2008.12.049 (2009)

'Pygmy' is a blanket term for many Central African populations that have an average male height of 150 centimetres or less. Whether these groups share a common evolutionary divergence from other humans has been long-debated. But by comparing 28 genomic regions in 604 people — among them individuals from 9 Pygmy groups — Paul Verdu at the CNRS in Paris and his colleagues have confirmed the single-origin theory, and added to a part of recent human history.

The analysis suggests that Pygmies diverged from other human groups either 54,000 or 90,000 years ago (depending on whether the tallest Pygmy group, the Bongo, is included in statistical tests). They then remained as one interbreeding population until about 800 BC, when the agricultural expansion of their non-Pygmy neighbours seems to have driven a rapid genetic and cultural divergence among them.

**For a longer story on this research, see http://tinyurl.com/awfk52**

M. S. LEWIS/CORBIS

GEOSCIENCE

## Ancient forests

*J. Geophys. Res.* doi:10.1029/2008JG000802 (2009)

Ancient polar forests may have influenced Earth's climate to a greater extent than previously thought, according to a study of five modern relatives of species that grew in them.

During four years of monitoring, David Beerling of the University of Sheffield, UK, Laura Llorens, now at the University of Girona in Spain, and their colleagues found that the trees emitted higher than expected levels of monoterpenes — compounds that produce secondary organic aerosols, which increase cloud cover. Emissions peaked during the prolonged periods of continuous light of the polar summer.

Given that the forests covered upwards of 40% of Earth's total land surface 145 million–65 million years ago, the group says that the monoterpenes the forests released could have had a large effect on the chemistry of the atmosphere and on climate.

GENETICS

## Shady dealings

*Science* doi:10.1126/science.1165448 (2009)

The wolves prowling North America's forests may owe their success and the dark colour of their coats to the domesticated dog.

Greg Barsh of Stanford University in California and his colleagues looked at the DNA of 265 white, grey and black wolves and found that the mutation responsible for black coats seems to have been acquired from hybridization with man's best friend. They prefer this theory to that of dogs acquiring dark coats from wolves because the most recent common ancestor of wolves with the crucial $K^B$-bearing chromosomes lived later than the most recent common ancestor of dogs.

Because there is positive selection for $K^B$-bearing chromosomes in forest-dwelling wolves, domestic dogs may have contributed to the viability of wild wolf populations.

NANOTECHNOLOGY

## Stretch marks

*Nature Nanotechnol.* doi:10.1038/nnano.2008.410 (2009)

Osteoarthritis is difficult to detect in its earliest stages because the joint cartilage shows no obvious signs of degeneration. Martin Stolz at Biozentrum, University of Basel, Switzerland, and his colleagues have now successfully applied atomic force microscopy to the problem, first prodding and then imaging cartilage from mouse and human joints.

SCIENCE/AAAS

This technique allowed them to pick up thickening and reductions in the elasticity of cartilage fibres long before any outward signs of osteoarthritis appeared. The team hopes that their research will lead to devices that detect the disease early and in a minimally invasive manner.

MOLECULAR BIOLOGY

## Solo signal

*Cell* **136,** 411–419 (2009)

For skin, liver or stomach cells to behave like embryonic stem cells, researchers have so far had to add to them at least three genes that have been linked to cancer. But only one such gene, which encodes a molecule called Oct4 (and also Pou5F1), is needed to induce pluripotency — the ability to develop into most cell types — in mouse neural stem cells.

Unlike most successful attempts to reprogram cells, which take about three weeks, this approach by Hans Schöler of the Max Planck Institute for Molecular Biomedicine in Münster, Germany, and his co-workers took four to five weeks of culturing. Nonetheless, the efficiency of the reprogramming was roughly equal to that of mouse embryonic skin cells when Oct4 and three other reprogramming factors are added to them.

NEUROSCIENCE

## Burning sensation

*Nature Chem. Biol.* doi:10.1038/nchembio.146 (2009)

Zinc activates an ion channel that also responds to pungent foods such as wasabi and cinnamon, possibly explaining why zinc overexposure causes pain and inflammation.