numbers of endemic species occur in regions such as the South American Andes, where the climate has been relatively stable.

The results suggest that animals in regions of rich endemic fauna are particularly vulnerable to future climate change.

Science **http://dx.doi.org/10.1126/science.1210173 (2011)**

EVOLUTION

These fins were made for walking

The first fish to emerge onto land a few hundred million years ago were equipped with pelvic-fin muscles that would eventually help their descendants to walk.

Nicholas Cole and Peter Currie at the Universities of Sydney and Monash in Australia and their co-workers charted pelvic-fin-muscle development in three extant species of bony fish, including lungfish. These creatures' ancestors gave rise to tetrapods — four-legged creatures. The authors also studied two shark species, which are more distantly related to tetrapods.

In bony fish, the pelvic-fin muscles start as extensions of body-wall muscles, just as they do in the shark species. However, only in bony fish do the cells in the developing fin muscle express a gene that is involved in hind-limb muscle development in tetrapods. The authors visualized this process by labelling cells and transplanting them from one strain of zebrafish embryo to another.

PLoS Biol. 9, **e1001168 (2011)**

MICROBIOLOGY

How a bacterium grabs the gut

The food-borne pathogen *Listeria monocytogenes* exploits human defences in the gut to gain entry into the body, reports a team led by Marc Lecuit at the Pasteur Institute in Paris.

Once in the intestines, the *Listeria* bacterium must dock to a host protein called E-cadherin to penetrate the gut wall. However, it has been unclear how *Listeria* gains access to E-cadherin, which normally appears only below the junctions between the cells lining the gut, not at the gut surface. The authors found that, in response to the presence of *Listeria*, cells in the gut called goblet cells secrete mucus to try to eliminate the bacterium. However, in so doing they reveal their E-cadherin proteins, allowing *Listeria* to bind to them and cross the intestinal barrier.

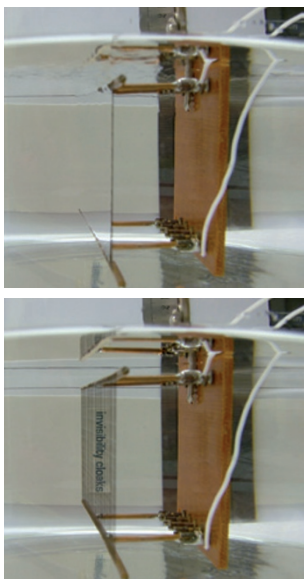
J. Exp. Med. **http://dx.doi.org/10.1084/jem.20110560 (2011)**

OPTICS

A mirage of invisibility

In the classic desert-highway mirage, hot air above the road bends light from the sky towards the eye, making the road look like the sky. The same effect can be created with transparent sheets of carbon nanotubes, say Ali Aliev and his colleagues at the University of Texas at Dallas.

When current is applied, the sheets' high electrical conductance and porosity allow them to quickly heat the surrounding liquid or gas, changing the angle at which it bends light. The team shot a laser beam at the sheets, and adjusted the amount of electrical power applied to the nanotube sheets to tune the bending of the beam. They showed that they could switch this 'cloaking' effect on (**pictured top**) and off (**bottom**) using a nanotube sheet immersed in water.



A. ALIEV

The researchers suggest that the sheets could be used as an optical deflector — important in optical scanning and data processing — or even as a form of 'invisibility cloak'.

Nanotechnology 22, **435704 (2011)**

NEUROBIOLOGY

Stress alters brain connections

Behaviour is affected by stress, but the mechanisms and molecules underlying this have been mysterious. Marianne Müller and Theo Rein at the Max Planck Institute of Psychiatry in Munich, Germany, and their colleagues have pinpointed a gene, *Drr1*, that is upregulated in mouse brain cells when the animal is under stress. This reduces the growth of neuronal projections, or neurites, and renders the neurons less able to form strong connections.

The researchers found that the DRR1 protein binds to, stabilizes and bundles actin — a protein that forms filaments that are vital for neurite growth. Overexpression of the protein lowered the number and length of neurites in mouse neurons.

Surprisingly, mice with elevated levels of DRR1 performed better in memory tests than normal mice, but the mechanism by which this occurs is not clear.

Proc. Natl Acad. Sci. USA **http://dx.doi.org/10.1073/pnas.1103318108 (2011)**

COMMUNITY CHOICE

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ENVIRONMENTAL SCIENCE

Plastic from clothing hits shorelines

HIGHLY READ on pubs.acs.org in September

Shorelines around the globe are contaminated with microscopic pieces of plastic that seem to originate from the use of household washing machines.

Mark Anthony Browne at University College Dublin and his colleagues sampled 18 sites on six continents and across a range of latitudes. They found pieces of plastic debris smaller than 1 millimetre at all of them, with higher levels of the materials in more densely populated areas. Proportions of polyester and acrylic in the contaminants were similar to those found in clothing.

Laboratory experiments showed that washing a single garment in a standard machine can produce more than 1,900 fibres. The authors suggest that these fibres travel through the sewage system and ultimately end up in marine habitats.

Environ. Sci. Technol. **http://dx.doi.org/10.1021/es201811s (2011)**

CORRECTION

Two images accompanying the Research Highlight "'Braille code' for cell growth" (*Nature* **478,** 9; 2011) were erroneously credited. They should have been credited to Hemant Unadkat.

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