RESEARCH HIGHLIGHTS

Selections from the scientific literature

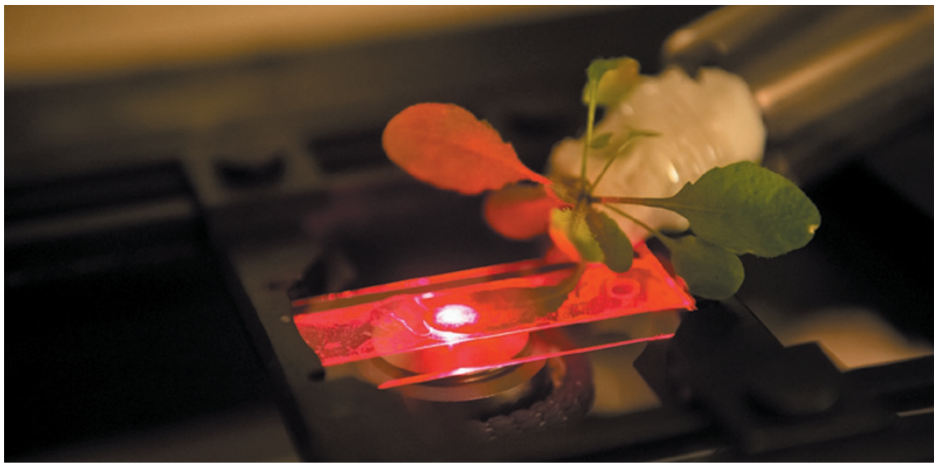
NEUROSCIENCE

Orange light boosts brain power

The colour of the light you are exposed to could affect how well your brain functions.

Gilles Vandewalle at the University of Liège, Belgium, Howard Cooper at the French National Institute of Health and Medical Research in Bron and their colleagues exposed 16 volunteers to blue, green or orange light for 10 minutes, then kept them in darkness for 70 minutes. The researchers recorded the volunteers' brain activity while the participants performed various cognitive tests under green light. People exposed to orange light had more activity in the prefrontal cortex, which is involved in higher cognitive function, than those exposed to blue light.

The findings suggest that a light-sensitive protein in the retina called melanopsin, which is primed by orange–red light and is not involved in vision, can influence cognition.
Proc. Natl Acad. Sci. USA **http://doi.org/rwf (2014)**



BRYCE VICKMARK

BIONANOTECHNOLOGY

Nanotubes rev up photosynthesis

Carbon nanotubes that infiltrate leaves can boost photosynthetic activity and even turn plants into chemical sensors.

Michael Strano and his colleagues at the Massachusetts Institute of Technology in Cambridge used near-infrared microscopes to track single-walled carbon nanotubes in the leaves of *Arabidopsis* plants (pictured) and in extracted chloroplasts, the photosynthesizing organelle in plants. They found that the nanotubes integrate themselves into the chloroplasts' outer envelope. The semiconducting carbon nanotubes tripled photosynthetic activity in extracted chloroplasts compared with those without nanoparticles, by enhancing electron transport.

In addition, the authors showed that leaves containing fluorescent carbon nanotubes designed to stop glowing in the presence of the pollutant nitric oxide also stopped fluorescing when exposed to the pollutant. Carbon nanotubes could allow plants to detect other chemicals such as pesticides, the researchers say.
Nature Mater. **http://doi.org/rxc (2014)**

ANIMAL BEHAVIOUR

Badgers roam many miles

Badgers could be travelling much greater distances than previously supposed, a finding that might affect how the animals are culled or vaccinated to prevent the spread of bovine tuberculosis.

Andrew Byrne at University College Dublin and his colleagues marked 963 European badgers (*Meles meles*; **pictured**) between 2008 and 2012 and later recaptured them to determine their movements across 755 square kilometres of County Kilkenny in Ireland. Roughly half of the recaptures took place at the same burrows where an individual was originally captured. Of the remaining animals, 43% travelled less than 1 km. But some ventured relatively long distances: 5% of movements were over 7.3 km and one animal travelled over 22 km.

The authors suggest that officials seeking to confine disease to specific areas should extend buffer zones by at least 7.3 km.
J. Anim. Ecol. **http://doi.org/rwh (2014)**

DAVID J. SLATER/ALAMY

ECOLOGY

Killing dingoes has side effects

Efforts to control populations of a top predator in Australia have had unintended ecological effects — decreased vegetation and fewer small mammals.

In southeastern Australia, government officials have been poisoning dingoes (*Canis lupus dingo*) to reduce the predator's impact on livestock. Mike Letnic at the University of New South Wales in Sydney and his team compared seven sites in the eucalyptus forests of southeastern Australia, in which dingoes are controlled, with the same number of ecologically similar sites where the animals are left alone. Areas where dingoes are killed contained more of the animal's prey, such as kangeroos, but less understory vegetation and fewer small mammals.

As the prey populations grow in areas with dingo control, these animals consume more vegetation, reducing the cover under which small mammals can hide from their predators.
Proc. R. Soc. B 281, **20133094 (2014)**