RESEARCH HIGHLIGHTS

Selections from the scientific literature

PHYSICS

'Nanoear' hears small sounds

By using laser beams to trap a gold nanoparticle, researchers in Germany have developed a sensitive sound-wave detector.

Tightly focused laser beams, known as optical tweezers, have been used to manipulate microscopic objects for two decades. Andrey Lutich, Jochen Feldmann and their co-workers at the Ludwig–Maximilians University in Munich used a similar approach: they suspended a 60-nanometre gold nanoparticle in water in the focal spot of a laser beam. They sent sound waves through the water and measured changes in the particle's constrained motion. The authors calculate that the nanoparticle can pick up sounds as low as –60 decibels, making the set-up a million times more sensitive than the human ear.

Phys. Rev. Lett. 108, **018101 (2012)**

CARDIOVASCULAR BIOLOGY

Stranded cells fuel plaques

One contributor to the build-up of fatty plaques in artery walls is a signalling protein that blocks the emigration of a major plaque constituent from the deposits.

Fat-laden white blood cells called macrophages are abundant in atherosclerotic plaques. Kathryn Moore at New York University and her colleagues found that these cells produce netrin-1, a protein that can guide the migration of white blood cells and the growing tips of neurons. But expression of netrin-1 in plaques blocked macrophage responses to chemical cues that would normally direct them out of the plaques.

Furthermore, mice lacking the netrin-1 gene had less atherosclerosis. These findings suggest that netrin-1 could provide a new drug target.

Nature Immunol. **http://dx.doi.org/10.1038/ni.2205 (2012)**

J. DIEGMANN

EVOLUTION

Colour vision aids the hunt

Primates with three types of colour receptor in their eyes capture more insect prey than those whose eyes have two. But the latter are not without advantage — they are better at detecting and catching camouflaged prey.

The primates of mainland Africa and Asia all have three types of colour receptor, making them 'trichromats'. Some in the Americas can be trichromat or dichromat. Hannah Buchanan-Smith at the University of Stirling, UK, and her colleagues studied trichromatic and dichromatic tamarins (*Saguinus* spp.; pictured) in captivity and in the field.

Other research has shown that trichromacy may also assist primates in spotting ripe fruits and young leaves. The persistence of dichromacy may result from the advantage it provides in detecting concealed prey, the authors say.

Anim. Behav. **http://dx.doi.org/10.1016/j.anbehav.2011.11.023 (2012)**

CELL BIOLOGY

No centrosome, no problem

Planarian flatworms have rid their cells of centrosomes, organelles that are found in nearly every animal cell. The structures anchor microtubule filaments that control cell division, cell migration and cell orientation.

Juliette Azimzadeh and Wallace Marshall at the University of California, San Francisco, and their team noticed that the flatworm *Schmidtea mediterranea* lacks centrioles — which make up the centrosomes — in dividing cells. They found centrioles only in certain cells that help the worms to glide across surfaces, feed and sense their environment.

The *S. mediterranea* genome is missing several genes needed to form centrioles; most flatworms have a full suite of centrosome genes. The authors suggest that planarians shed their centrosomes because, unlike many other animals, they rely on a form of embryonic development that does not depend on a cell's orientation.

Science **http://dx.doi.org/10.1126/science.1214457 (2012)**

CLIMATE-CHANGE ECOLOGY

Extinctions underestimated

More species may become extinct as a result of climate change than previously thought, a modelling study suggests.