

Deqin Yang at Chongqing Medical University and Lingfei Luo at Southwest University, Beibei in Chongqing, China, and their co-workers used lasers to rupture blood vessels in the brains of zebrafish. They monitored the events that followed with time-lapse microscopy, and saw the immune cells, called macrophages, migrate to the damaged area. A macrophage extended projections that adhered to the broken ends of the blood vessels and pulled them together by mechanical traction. In zebrafish engineered to lack macrophages, cerebral blood vessels healed more slowly than in normal animals.

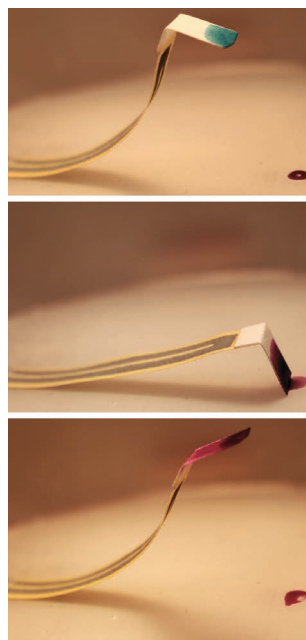
The findings expand on the known roles of macrophages in the brain, the authors say. *Immunity* <http://doi.org/bgrv> (2016)

MATERIALS

Paper strips on the move

Strips of paper embedded with a conducting polymer can perform a range of movements with electrical stimulation.

George Whitesides at Harvard University in Cambridge, Massachusetts, and his colleagues made



M. HAWEDI ET AL. ADV. FUNCT. MATER. (2016)

paper actuators that expand and contract according to their water content. They added a conducting polymer that coated the fibres of the paper, and then applied Scotch tape to one side. When electrically activated, the paper heats up, dries out and contracts. When the electrical current is turned off, the paper absorbs water from the air and expands. The tape is not affected by heat or moisture, so directs the paper to bend in certain ways.

The authors made actuators of different shapes, including one that could curl up (**pictured**), and say that the devices could be used in lightweight micromachines. *Adv. Funct. Mater.* 26, 2446–2453 (2016)

IMMUNOLOGY

How an antibody combats HIV

A broadly neutralizing antibody against HIV can both boost people's immunity to the virus and directly target infected cells.

The antibody, 3BNC117, has previously been shown to lower HIV levels in the blood of patients. To study its effect on the immune system, Michel Nussenzweig of the Rockefeller University in New York City and his colleagues gave people with HIV one dose of the antibody. They found that patients with higher levels of the virus in their blood developed much broader neutralizing-antibody responses to HIV over six months than did those who had little to no virus (either uninfected individuals or people taking antiretroviral therapies). This indicated that the antibody is boosting the patients' ability to produce other HIV-neutralizing antibodies.

In a second study, a team led by Nussenzweig and Arup Chakraborty of the Massachusetts Institute of Technology in Cambridge showed that the same antibody speeds up the removal of

SOCIAL SELECTION

Popular topics on social media

Call calf Higgs Bison, says Twitter

Just weeks after the public voted overwhelmingly to name a new UK research vessel Boaty McBoatface, the US particle-physics facility Fermilab in Batavia, Illinois, asked people on Twitter to name a bison (pictured) that was born on its grassy grounds on 26 April. "What would you call our new baby bison? Tweet us with #BisonNaming. Please, no Bison McBisonface." The science world stepped up with a flood of responses — about 260 in the first day. Sandia National Laboratories in Albuquerque, New Mexico, offered "Neil deGrass Bison". Other ideas included Higgs Bison, Enrico Furry

(a play on Enrico Fermi, who discovered many radioactive isotopes), Bison Tennial and Niels Bohrson.



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HIV-infected T cells from the blood of mice.

Science <http://doi.org/bgdx>; <http://doi.org/bgdz> (2016)

GENETICS

CRISPR maps yeast genes

The CRISPR–Cas9 gene-editing system could be harnessed to speed up the search for DNA sequences linked to specific traits.

Researchers can identify genomic regions that are linked to traits, but pinpointing the responsible snippet of DNA within that region is difficult. To speed up the hunt, Meru Sadhu and his colleagues at the University of California, Los Angeles, targeted the Cas9 enzyme to cut DNA at 95 sites on one copy of chromosome 7 in yeast (*Saccharomyces cerevisiae*). The team then built a library of yeast strains, each with a genetic rearrangement at one of the 95 sites — making it easier to determine the function of a given section of DNA.

The researchers used their library to pinpoint a gene variant that makes yeast sensitive to manganese. *Science* <http://doi.org/bgd2> (2016)

PLANETARY SCIENCE

Planet 9 may glow from within

The hypothetical ninth planet of the Solar System could shine brightly.

Planet 9, if it exists, is thought to be an ice planet that is slightly smaller than Neptune, orbiting in the far outer Solar System. Esther Linder and Christoph Mordasini of the University of Bern in Switzerland modelled the evolution of the planet's probable internal structure. On the basis of its estimated mass and location, they conclude that the planet is still giving off residual heat that was generated when it was formed. This would cause the planet to emit light in the mid- and far-infrared range.

The authors say that future telescopes, such as the Large Synoptic Survey Telescope, or dedicated surveys should be able to detect Planet 9 — or rule out its existence.

Astron. Astrophys. 589, A134 (2016)

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