

RESEARCH HIGHLIGHTS

Selections from the scientific literature

NEUROSCIENCE

Stimulating depression away

Patients with treatment-resistant depression showed rapid improvement after electrodes were inserted at a site in the medial forebrain — a region associated with motivation and reward.

Of the seven patients who received deep brain stimulation, Volker Coenen at University Hospital Freiburg, Germany, and his colleagues report that six responded — measured by a common scale of depression — within days. This response is much faster than the many weeks required for an antidepressant effect in other pilot studies in which researchers targeted other sites in the same brain region and used a higher current. However, the authors say that their results are preliminary and need to be confirmed in larger, controlled studies.

Biol. Psychiatry <http://dx.doi.org/10.1016/j.biopsych.2013.01.034> (2013)

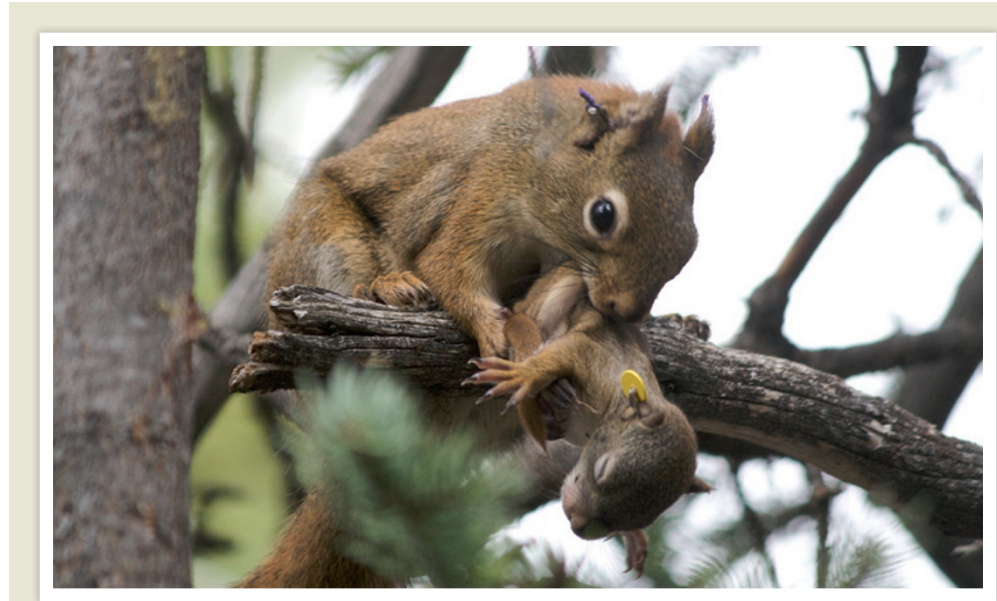
MICROBIOLOGY

Dogs and owners share microbes

Humans are colonized by the same types of microbe as the people and the pets they live with.

Rob Knight at the University of Colorado Boulder and his team used DNA sequencing to analyse the microbes colonizing the skin, guts and mouths of 159 people and 36 dogs, living in 60 households.

Humans tended to have similar microbial communities — particularly on the skin — to their spouses and children. Adult dog-owners also had more skin microbes in common with their dogs than with other dogs. However,



RYAN TAYLOR

ANIMAL BEHAVIOUR

Babies of stressed squirrels grow faster

Social stress alters hormone levels in red-squirrel mothers and leads to faster-growing pups.

In a 22-year study, Ben Dantzer, now at the University of Cambridge, UK, and his team found that, in densely populated red-squirrel (*Tamiasciurus hudsonicus*; pictured) communities, females that had faster-growing pups saw more of them survive their first winter. The researchers simulated crowded conditions by playing recordings of squirrels'

territorial cries. Mothers living in dense groups or exposed to the cries had higher levels of breakdown products from the stress hormone cortisol in their faeces. Pups of squirrels that heard the recordings grew faster than pups of females that heard bird noises. Feeding pregnant squirrels cortisol also boosted the growth rate of their pups, by 41%.

Science <http://dx.doi.org/10.1126/science.1235765> (2013)

microbes in the mouths and guts of canines differed from those of their owners. Shared skin microbiota might help to explain why dog ownership is associated with reduced allergy rates in children, the researchers say.

eLIFE 2, e00458 (2013)

BIOMATERIALS

Worm-inspired adhesive

Whether tissue is wet or dry, a new bandage will stick to it — like an intestinal parasite.

Jeffrey Karp at Brigham and Women's Hospital in Boston,

Massachusetts, and his team have designed a gripping material that steals the sticky secrets of the spiny-headed worm *Pomphorhynchus laevis*. The parasite pierces its fish host with a proboscis that then swells up to lock into place.

The researchers' adhesive is made up of spikes coated with a super-absorbent plastic. When the spikes come into contact with water in tissue, they swell and fasten to the tissue. The removable bandage adhered tightly to pig skin and intestine, and was more than three times as adhesive as surgical staples for affixing skin grafts.

Nature Commun. 4, 1702 (2013)

NEUROSCIENCE

Autism gene alters endocannabinoids

Certain gene mutations associated with autism interfere with nervous-system signals that activate the same pathways as cannabis.

Some people with autism have a mutation or deletion in the neuronal gene *neuroligin-3*. But, although mice carrying a gene with the human mutation show autism-like behaviours, mice that lack the gene do not. Csaba Földy, Robert Malenka and Thomas Südhof at Stanford University