

Planck Institute for Ornithology in Seewiesen, Germany, and his team analysed videos of Natterer's bats (*Myotis nattereri*; **pictured**) feeding on *Musca domestica* flies on a cowshed ceiling. Thousands of lone flies walked across the area without being attacked. However, copulating pairs were attacked 5.3% of the time. Bats also attacked loudspeakers playing the distinctive ultrasound buzzing produced by copulating flies.

This is the first identified mechanism that supports theories that copulation can leave animals more vulnerable to attack.

Curr. Biol. 22, R563–R564 (2012)

ARCHAEOLOGY

Modern thinking gets older

Modern human behaviour underlying cultural innovations such as language and art might have begun in southern Africa thousands of years earlier than assumed.

Evidence for symbolic behaviour, such as shell beads, appeared at least 80,000 years ago in southern Africa. This behaviour then seemingly disappeared and did not return until roughly 20,000 years ago — when humans with cultural links to modern San hunter-gatherers began to produce engraved bones and other complex artefacts.

However, Francesco d'Errico at the University of Bordeaux in France, Paola Villa at the University of Colorado in Boulder and their teams suggest that antecedents to San culture in fact appeared much earlier. Radiocarbon dating of seashell and ostrich eggshell beads (**pictured**), complex resins and an ochre-stained point previously excavated from Border Cave in South

Africa suggests that the artefacts are up to 44,000 years old. Around this time, humans living near Border Cave also began to produce double-faced stone blades and flint arrow points — consistent with the emergence of modern symbolic behaviour, the authors say.

Proc. Natl Acad. Sci. USA <http://dx.doi.org/10.1073/pnas.1204213109>; <http://dx.doi.org/10.1073/pnas.1202629109> (2012)

MEDICINE

Neighbours join the resistance

Normal cells near cancerous ones can support their malignant neighbours by secreting proteins in response to anticancer drugs.

Peter Nelson at the Fred Hutchinson Cancer Research Center in Seattle, Washington, and his team found that chemotherapy triggered benign cells near prostate tumours to secrete a signalling protein called WNT16B. This promoted tumour growth and could help tumours to become resistant to therapy. Targeting the regulators of WNT16B, or other components of the tumour microenvironment, could be routes to developing anti-resistance drugs.

Nature Med. <http://dx.doi.org/10.1038/nm.2890> (2012)

BIOLOGY

Pregnancy alters gut microbes

Pregnancy triggers a radical shift in human gut microflora, moving the body towards a diabetes-like condition.

Ruth Ley at Cornell University in Ithaca, New York, and her team analysed the faecal bacteria of 91 pregnant women. During the first trimester, these women's bacterial populations were

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NEUROBIOLOGY

Diabetes drug boosts neuron growth

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on www.cell.com/cell-stem-cell in July

Growing evidence suggests that the mammalian brain recruits adult neural stem cells in an attempt to repair diseased or injured neurons. Drugs that can spur on this recruitment are highly sought after.

One candidate is the widely used diabetes drug metformin, which activates an enzyme called aPKC. In the brain, this protein's action on another protein, CBP, is essential for optimal specialization of neural precursor cells.

Freda Miller at the Hospital for Sick Children in Toronto, Canada, and her team showed that metformin also activated the aPKC–CBP pathway in cultured mouse and human neural precursors, promoting neuron generation. Moreover, it enhanced the generation of new neurons in the brains of live adult mice. Crucially, the change seemed to confer a benefit: adult mice treated with metformin showed better spatial-memory formation in a water maze compared with controls. *Cell Stem Cell* 11, 23–35 (2012)

similar to each other and to those of non-pregnant women. But by the third trimester, there were marked differences between the mothers-to-be, and their average gut make-up resembled that seen in a mouse model of metabolic syndrome — a collection of symptoms linked to diabetes.

When the microbiota from third-trimester women were transferred into mice, the animals gained more fat and became less sensitive to insulin than did mice that received first-trimester microbes. Mammals can manipulate their gut biology to trigger changes beneficial to a developing fetus, the researchers suggest. *Cell* 150, 470–480 (2012)

For a longer story on this research, see go.nature.com/4v7cht

MATERIALS

SLIPS blitz biofilms

Coating solids with immobilized liquids could help to deal with dangerous bacterial biofilms.

Many bacterial species form durable slimes that can cover everything from

medical devices to ship hulls. Joanna Aizenberg at Harvard University in Cambridge, Massachusetts, and her team showed that slippery liquid-infused porous surfaces (SLIPS) — in which a liquid is 'locked' onto a solid through affinities between the two — can resist biofilm growth.

Whereas conventional slippery surfaces such as Teflon were colonized by biofilms within hours, SLIPS reduced the attachment of *Pseudomonas aeruginosa* biofilms by 99.6% over seven days. Similar success rates were seen against *Staphylococcus aureus* and *Escherichia coli*. SLIPS are stable under a variety of conditions and their anti-biofilm properties are not due to toxicity of the immobilized liquid. This makes them candidates for many anti-biofilm applications, say the authors.

Proc. Natl Acad. Sci. USA <http://dx.doi.org/10.1073/pnas.1201973109> (2012)

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