

(pictured) or rodents. The

species, host significantly

more zoonotic viruses per

species than rodents, with

Bat species that live longer

1.48 viruses per species.

or produce more litters

per year tended to harbour

more zoonotic viruses, and

a proclivity for living closely

with related species was

zoonotic-viral richness.

the biggest determinant of

The transfer of viruses

between bat species, which

tend to live close together,

than rodent ones, and the

authors suggest that this could partly explain the higher

prevalence of viruses in bats.

Proc. R. Soc. B 280, 20122753

Fish oils turn on

The polyunsaturated fats found in fish oils may

promote longevity by

triggering autophagy, a

process that helps cells to

survive starvation conditions

by degrading and recycling

excess cell components.

A team led by Gary

Ruvkun of Massachusetts

cellular recycling

(2013)

could occur more frequently

authors found that bats, with

an average of 1.79 viruses per

an effect erased by disabling the worms' autophagy machinery.

This mechanism could explain the health benefits that are seen in people who eat diets rich in fish oils, the researchers say.

Genes Dev. http://dx.doi. org/10.1101/gad.205294.112

OPTOMECHANICS

Measuring twist with light

A device that uses light to measure torsion — the amount of twist - of an object at the nanometre scale improves on the sensitivity of previous techniques.

Measuring torsion is key to studies of a wide range of forces, from gravity to electromagnetism. John Davis at the University of Alberta in Edmonton, Canada, and his colleagues have built a torsion detector consisting of a pair of paddles placed next to an optical cavity. Because the paddles' refractive index is higher than that in the cavity, their movement distorts light waves that are trapped within it. By measuring this distortion, the researchers were able to detect subtle torsional shifts in the paddle's positions with roughly 100-times greater sensitivity than other techniques that do

The researchers suggest that the technique could be useful for studying magnetic materials at the nanoscale. Appl. Phys. Lett. 102, 053102 (2013)

not use light.

Symbiosis leads to diversity

Species interactions such as competition and predation spur on diversification — as can symbiotic relationships, a study of plant-invading insects has found.

Many species of a family of

COMMUNITY CHOICE

MICROBIOLOGY

Antibiotic strikes new target

C HIGHLY READ on aac asm org in January

An antibiotic that disables protein synthesis seems to inhibit the growth of several strains of drug-resistant bacteria that are known to cause hospital infections.

Dickon Alley at Anacor Pharmaceuticals in Palo Alto, California, and his colleagues synthesized the antibacterial agent, which blocks the production of an enzyme that is essential for microbial protein synthesis and is designed to fight Gram-negative bacteria — which have an outer envelope that hampers the entry of antibiotics. The agent inhibited the growth of resistant bacteria — including the multidrugresistant Pseudomonas aeruginosa — both in vitro and in a mouse model of infection. The properties of the antibacterial allow it to avoid the main mechanisms that Gram-negative bacteria use to fend off these drugs.

In a clinical trial, the antibiotic successfully cleared urinarytract infections in some patients, but failed to do so in others because of bacterial resistance. The researchers say they are working to avoid this problem.

Antimicrob. Agents Chemother. http://dx.doi.org/10.1128/ AAC.02058-12 (2013)



insect species are more than 17 times as diverse as nonsymbiotic ones.

Forming a relationship with plant-digesting fungi could allow for greater evolutionary diversity in other insect species by providing them with a greater number of potential hosts, Joy suggests. Proc. R. Soc. B http://dx.doi. org/10.1098/rspb.2012.2820 (2013)

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tissues; in return, the female gall midges deposit the fungal spores along with their eggs when they move from plant to plant. In a survey of the literature, Jeffrey Joy at Simon Fraser University in Burnaby, British Columbia, Canada, found that gall midges that are associated with fungi tend to use a wider variety of host plants (pictured) compared with those with no association. Moreover,

his analysis of gall-midge

lineages revealed that symbiotic

insects known as gall midges

(Cecidomyiidae) rely on fungi

to help them break down plant

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Worms fed omega-6 fatty acids lived longer than those

that did not receive the fats

General Hospital in Boston found that when they starved the nematode worm Caenorhabditis elegans, the creatures boosted their production of omega-6 polyunsaturated fatty acids - which are found in fish oils. Supplementing cells from C. elegans and humans with these fatty acids activated autophagy.