RESEARCH HIGHLIGHTS

Selections from the scientific literature

ENVIRONMENTAL MICROBIOLOGY

Soil source for vine bacteria

The bacteria found on grapevines seem to come mostly from soil, a finding that could help researchers to understand how soil microbes influence the properties of wine made from the grapes.

Jack Gilbert at Argonne National Laboratory in Illinois and his colleagues took samples of soil and Merlot grapevines from five vineyards on Long Island, New York. They sequenced the bacterial genomes found in the soil and on the plants, and discovered that the bacterial communities on various plant parts were more similar to those in the soil around the roots than to each other. This suggests that the soil is a key bacterial reservoir for grapevines.

These grapevines seem to share a core microbial composition with those from California and from Bordeaux in France.

mBio 6, **e02527-14 (2015)**

SOPRINTENDENZA ARCHEOLOGIA DELLA PUGLIA/ MUSEO ARCHEOLOGICO DI ALTAMURA

HUMAN EVOLUTION

Neanderthal freed from stone

A complete skeleton embedded in an Italian cave is that of an early Neanderthal.

Discovered in 1993 near Altamura in southern Italy, the remains (pictured) are coated in a thick layer of calcite, and the bones have been examined only while embedded. A team led by Giorgio Manzi at the Sapienza University of Rome got permission to cut out a small sample of a shoulder bone for laboratory study. Uranium–thorium dating of calcite layers surrounding the bone suggests that the remains are between 128,000 and 187,000 years old. Mitochondrial DNA sequences from the bone matched those of other Neanderthals (*Homo neanderthalensis*).

The skeleton is the oldest Neanderthal from which DNA has been collected, the researchers say, making it a good candidate for further in-depth genetic analysis.

J. Hum. Evol. **http://dx.doi.org/10.1016/j.hevol.2015.020.007 (2015)**

BIOMECHANICS

Big tortoise shell makes flipping hell

The size and shape of a tortoise's shell influence how quickly the animal can right itself when it falls onto its back.

Ana Golubović of the University of Belgrade and her colleagues studied the Hermann's tortoise (*Testudo hermanni*; **pictured**), which lives in hilly, rocky habitats that often flips the animal onto its back. The team measured the amount of time it took adult male and female tortoises to get back on their feet after being turned over.

They found that larger animals of both sexes spent more time righting themselves than smaller ones. Males that had larger plates along the rear edge of their shell — useful for adding stability during mating — also took longer to flip themselves back over.

A similar effect of shell shape on flipping may be found across other tortoise species, the researchers say.

Zool. Anz. 254, **99–105 (2015)**

ZORANDIM/SHUTTERSTOCK

PLANT SCIENCE

Potato gene guards against blight

A gene in a wild potato plant boosts the plant's resistance to the destructive potato-blight fungus.

For ten years, Vivianne Vleeshouwers of Wageningen University in the Netherlands and her colleagues combed the Andes — the ancestral home of the potato — for genes involved in defence against the fungus *Phytophthora infestans*. This organism caused the 1840s Irish potato famine and is still a common pathogen.

They discovered that a wild potato, *Solanum microdontum*, contains a gene encoding a protein called ELR that recognizes elictin proteins, which are evolutionarily conserved in the fungus. ELR is an immune receptor that can trigger a defence response that kills infected leaf cells to slow the pathogen's spread.

The team transferred the gene to cultivated potato plants, where it conferred increased blight resistance. Using this gene could lead to more-durable blight resistance than other known resistance genes, the authors say.

Nature Plants **http://dx.doi.org/10.1038/nplants.2015.34 (2015)**