RESEARCH HIGHLIGHTS

Selections from the scientific literature

GENOMICS

Early risers share genetic signature

Three different teams have identified genetic variants that are associated with being a morning person.

Youna Hu, David Hinds and their team at 23andMe, a personal-genetics firm in Mountain View, California, analysed genome data from nearly 90,000 customers who stated in a survey whether they were a morning person or a night owl. Teams led by Michael Weedon at the University of Exeter Medical School, UK, and Richa Saxena at the Massachusetts General Hospital in Boston conducted similar analyses on the DNA of more than 100,000 people who participated in the UK Biobank project.

Each team found a dozen or more variants that were linked to a person's preference for sleep times — and many were in or near genes that help to regulate the body's circadian clock.

Nature Commun. *7,* **10448 (2016); preprints at bioRxiv http://doi.org/bcb7 (2016); http://doi.org/bcb8 (2016)**

CLIMATE CHANGE

More carbon from planted forests

Planting trees will not necessarily slow climate change.

Kim Naudts at the Laboratory of Climate Science and Environment in Gif-sur-Yvette, France, and her colleagues paired a history of land-use in Europe with land and atmospheric models to study the effect of forests on the climate. Although the continent's forests have expanded by 10%, timber harvesting and a shift to more commercially valuable trees — mainly the fast-growing conifers — have resulted in the release of more than 3 billion tonnes of carbon into the atmosphere since 1750.

The change from deciduous trees to darker-leaved conifers contributed to a rise of 0.12 °C in local surface temperatures.

Science 351, **597–600 (2016)**

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PARASITOLOGY

Honeybee virus spread by human activity

The commercial trade in honeybees has helped to spread a deadly bee virus around the globe over the past century.

Deformed wing virus reduces the winter survival of European honeybees (*Apis mellifera*), and could be a factor in the large colony losses seen in some parts of the world. To find out how the virus became pandemic, Lena Wilfert at the University of Exeter, UK, and her colleagues analysed the virus's genome to reconstruct its evolutionary and geographical history. The team found that the virus has spread from Europe in the past century, in part because of the trade in commercial colonies. New carriers of the virus also contributed: the *Varroa* mite (*Varroa destructor*) began to infect European honeybees about 50 years ago, when this pandemic started.

Tighter controls on commercial colonies are needed to slow the virus's spread, the authors say.

Science 351, **594–597 (2016)**

NEUROSCIENCE

Brain cells in wells make amyloid

Many different types of brain cell can secrete high levels of the peptide amyloid-β, which forms the brain plaques associated with Alzheimer's disease.

To detect molecules from single brain cells, Tracy Young-Pearse at Harvard Medical School in Boston, Massachusetts, and her colleagues designed arrays of nanometre-sized wells. They took cells from healthy people and from individuals with familial Alzheimer's disease, reprogrammed them into stem cells and used them to derive a variety of brain-cell types, which they then placed in the wells. The authors added antibodies that would detect specific molecules.

Subsets of the brain cells secreted amyloid-β at different rates, and even non-neuronal cells such as astrocytes produced high levels. More of the cells derived from people with Alzheimer's disease secreted large amounts of the peptide compared to cells from healthy individuals.

J. Neurosci. 36, **1730–1746 (2016)**

NEUROSCIENCE

Molecule protects ageing neurons

A small molecule reverses the neuronal deterioration that is typically found in middle-aged animals.

Compared with the neurons of young animals, nerve cells in middle-aged rats generally have fewer branches. Their