RESEARCH HIGHLIGHTS

Selections from the scientific literature

CANCER GENETICS

Genome shatters in brain cancer

Cancer is usually attributed to a slow accumulation of genomic changes, but a few cancers result instead from a single catastrophic event that causes massive reshuffling of the genome. Researchers have discovered these major changes, called chromothripsis, in a type of medulloblastoma — a common childhood brain cancer — and have linked the disease to mutations in the tumour-suppressor gene *TP53*, which encodes the protein p53.

Jan Korbel at the European Molecular Biology Laboratory in Heidelberg, Germany, and his colleagues sequenced the genome of one patient with medulloblastoma and mutated *TP53*, and found many large genomic rearrangements. By analysing the genomes of 98 other patients with the brain cancer, they uncovered a strong association between mutant *TP53* and chromothripsis in one subtype of the cancer.

The authors propose that the protein p53 is involved in either initiating this massive genomic storm or keeping the cells alive afterwards.

Cell **148, 59–71 (2012)**

BILL HUBICK

RESTORATION ECOLOGY

New wetlands don't measure up

Wetland restoration may be falling short of its goals, with restored or created wetlands lagging behind reference ones in terms of carbon storage and native species richness and abundance.

In many parts of the world, humans have destroyed more than half of the wetlands and efforts to restore them (pictured) stretch back 60 years. David Moreno-Mateos at the University of California, Berkeley, and his colleagues analysed 621 restored or created wetlands. They found that carbon storage in such wetlands was just half that of reference wetlands even two decades after restoration. Moreover, restored and created wetlands showed only a 74% recovery in a measure of 'biological structure' that combined several measures of the number and richness of native species.

PLoS Biol. **10, e1001247 (2012)**

PSYCHOLOGY

'Brightness' fools the eye

The pupils of the human eye shrink in response to brightness, even when the glow is merely an optical illusion.

US NATL ACAD. SCI.

Bruno Laeng and Tor Endestad at the University of Oslo used infrared eye trackers to monitor the pupils of participants looking at illusions of lightness or brightness. These graphic designs give the impression of having brighter or whiter components (**pictured right**) than similar images of equal luminance (**left**). The pupils rapidly constricted when people glanced at the 'brighter' image, then slowly readjusted to the picture's true light intensity.

The authors suggest that the physical response to the illusions may be an adaptation designed to protect the eye's sensitive light-absorbing cells from potentially damaging levels of light.

Proc. Natl Acad. Sci. USA **http://dx.doi.org/10.1073/pnas.1118298109 (2012)**

EVOLUTION

Why animals get bigger over time

In palaeontology, Cope's rule holds that species evolve larger body sizes over geological time. One possible explanation has been that competition favours bigger bodies. To test this, Pasquale Raia at the University of Naples Federico II in Italy and his colleagues compiled a species tree of 554 extinct mammals across the past 60 million years, and analysed size evolution within lineages.

They found that body size tends to increase as animals develop more specialized diets confined to particular habitats. Moreover, the origination of larger sizes coincided with periods of global cooling, and came at the cost of increased extinction risk.

Am. Nat. **http://dx.doi.org/10.1086/664081 (2012)**

GENE THERAPY

An eye for gene repair

Gene therapy in dogs can reverse retinal defects that lead to blindness in humans.

William Beltran and Gustavo Aguirre at the University of Pennsylvania in Philadelphia