ASTRONOMY

A planet with two suns

NASA's Kepler telescope has spotted a planet that is sure to revive memories of *Star Wars* — it orbits two stars, like Tatooine, the fictional home planet of Luke Skywalker.

Laurance Doyle at the SETI Institute in Mountain View, California, and his team looked for the slight dimming of light that occurs when a planet passes in front of its parent star. But for the planet Kepler-16b, they detected four instances of dimming. Two occurred when the stars crossed each other, and two much smaller ones were caused by the planet, which is about the size of Saturn, moving in front of each star. The stars' masses are about 20% and 69% that of the Sun, and orbit each other every 41 days. The planet has a nearly circular 229-day orbit.

The authors suggest that, rather than being captured, the planet formed from the same dust and gas as the two stars — a novel situation that challenges some models of solar system formation.
Science 333, **1602–1606 (2011)**

CELL THERAPY

Heart attack hits bone marrow

The far-reaching effects of a heart attack explain why using patients' own bone-marrow cells to repair cardiac damage has yielded only modest results in clinical trials.

Matthew Springer and his colleagues at the University of California, San Francisco, report that a heart attack changes the composition of the bone marrow cells. The event triggers inflammation throughout the body, shifting the composition of the cells in the bone marrow and making it more inflammatory. When mice that had suffered heart damage were treated with bone-marrow cells from other heart-damaged mice, their cardiac function improved less than mice treated with cells from healthy animals. However, if the donor mice received an anti-inflammatory drug after sustaining heart damage, the cells regained their full therapeutic potential.
Sci. Transl. Med. 3, **100ra90 (2011)**

PALAEOCLIMATOLOGY

El Niño in a warming world

Fossil analyses have cast doubt on the prediction by some climate modellers that a warmer world will bring an enduring warming of the eastern Pacific as a result of the warm phase of the El Niño–Southern Oscillation becoming permanent.

El Niño, a quasiperiodic cycling of tropical Pacific water temperatures, causes extreme weather around the globe. Researchers looking at fossil evidence dating back to roughly 50 million years ago report that El Niño may still have been oscillating despite the higher temperature.

Linda Ivany at Syracuse University in New York and her team analysed Antarctic fossils from the Eocene warm period, 56 million to 34 million years ago, when the average global temperature exceeded today's by at least 10 °C. They measured the width of growth bands in the fossils of wood and bivalves, a class of molluscs, as indicators of annual growth rate. They found growth rates that varied with a similar frequency to the El Niño cycle, suggesting that it was still occurring.
Geophys. Res. Lett. **http://dx.doi.org/10.1029/2011GL048635 (2011)**

IMMUNOLOGY

Calming the cytokine storm

Some people can fend off influenza infection; others have a severe, sometimes fatal, inflammatory reaction. Researchers in La Jolla, California, have pinpointed a cellular mechanism that prompts this 'cytokine storm'.

Inflammation is triggered by immune-signalling proteins called cytokines. Michael Oldstone and Hugh Rosen at the Scripps Research Institute and their teams had previously shown that stimulating cell receptors for a lipid signalling molecule called S1P dampens the cytokine storm. The current study reports that, in mice, this is mediated by a specific receptor, $S1P_1$, that is expressed in the cells lining the blood vessels of the lungs. Treating flu-infected mice with an $S1P_1$-stimulating molecule decreased both their cytokine production and the number of inflammatory cells migrating into their lungs, and improved their survival.

The findings could be relevant to other viral infections, as well as to autoimmune diseases.
Cell 146, **980–991 (2011)**

COMMUNITY CHOICE

The most viewed papers in science

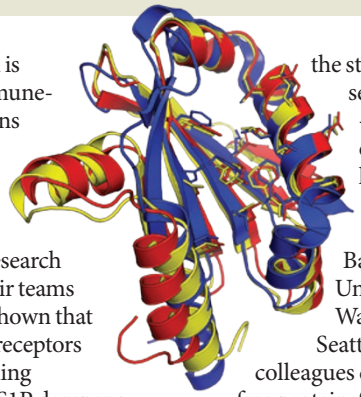
NANOTECHNOLOGY

Graphene lets LEDs stretch

HIGHLY READ on pubs.acs.org in August

Stretchy arrays of light-emitting diodes (LEDs) can be created using electrodes made of graphene — atomically thin sheets of carbon. Such arrays could one day be incorporated into devices from displays to medical monitors.

John Rogers of the University of Illinois at Urbana-Champaign and his colleagues laminated arrays of inorganic LEDs with graphene films. The flexibility of the graphene allows it to conform to the surface topography of the arrays. The authors then etched the graphene into shapes to form electrodes. The transparent electrodes provided robust electrical connections between the LEDs that allowed the researchers to stretch the arrays to roughly double their original length with no apparent change in function.
Nano Lett. **http://dx.doi.org/10.1021/nl202000u (2011)**



STRUCTURAL BIOLOGY

Online gamers solve structure

A group of online game players with little to no biochemistry background have figured out the structure of several proteins — including one that has long stumped scientists.

David Baker at the University of Washington in Seattle and his colleagues created a free protein-folding game called Foldit. Users play with protein fragments, competing with each other to come up with structures with the lowest energy and thus the highest score. In one example, Foldit players modified a protein model (**pictured red**) to arrive at a structure (**yellow**) that was closer to the actual determined structure (**blue**) than the original model.

The players also helped to solve the structure of a protein from the Mason–Pfizer monkey virus, which causes simian AIDS in monkeys. This structure had eluded researchers for many years.
Nature Struct. Mol. Biol. **http://dx.doi.org/10.1038/nsmb.2119 (2011)**

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