RESEARCH HIGHLIGHTS

Selections from the scientific literature

CANCER

Blocking tumour sugar metabolism

An emerging strategy in cancer drug development is to target key metabolic molecules in tumours. Researchers have pinpointed one for prostate cancer: an enzyme involved in glucose metabolism that seems to be crucial to cancer survival.

Almut Schulze at the Cancer Research UK London Research Institute and her colleagues found that the survival of three different prostate cancer cell lines depended on glucose. Using small RNA molecules to silence genes for 222 enzymes and other molecules involved in glucose metabolism, the authors screened these cells for genes required for survival, and homed in on one, *PFKFB4*. Shutting this gene down in tumour cells stopped them from growing when they were injected into mice.

PFKFB4 enables cancer cells to produce antioxidants, which neutralize harmful oxidizing molecules. The researchers say that this protein could be a target for cancer drugs.

Cancer Discov. **http://dx.doi.org/10.1158/2159-8290.CD-11-0234 (2012)**

M. SECCHI/CORBIS

GEOSCIENCE

Venice: sliding down, tilting east

Although previous research had indicated that Venice had stabilized, an up-to-date study suggests that the city is still sinking — and even tilting slightly to the east.

Yehuda Bock at the University of California, San Diego, and his colleagues combined Global Positioning System data from five stations in Venice and its lagoon from 2001 to 2011 with four years of data from space-based radar instruments. They found that Venice is sinking at a rate of 1–2 millimetres per year, with a general eastward tilt, and say that shifting tectonic plates and sediment compaction might be responsible.

The results may help the city to prepare for flooding caused by rising sea levels and seasonal tides.

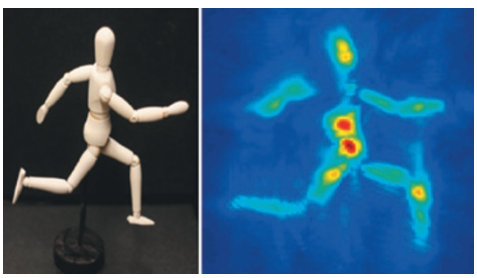
Geochem. Geophys. Geosyst. **http://dx.doi.org/10.1029/2011GC003976 (2012)**

OPTICS

Camera sees hidden objects

An ultrafast camera can create images of objects hidden behind a wall by capturing scattered laser light.

Ramesh Raskar at the Massachusetts Institute of Technology in Cambridge and his group fired a pulse of laser light at a wall on the far side of a hidden object (**pictured, left**), and recorded the time at which the scattered light — including the small fraction of photons that bounced off the object — reached their camera. The device records images every 2 picoseconds, allowing it to record the distance travelled by each photon with sub-millimetre precision. The team's algorithm then uses this information to reconstruct the image (**right**).



This ability to see around corners could be invaluable in dangerous or inaccessible locations, such as in highly contaminated areas or inside machinery with moving parts.

Nature Commun. **3, 745 (2012)**

For a longer story on this research, see go.nature.com/nlsom5

IMMUNOLOGY

Early exposure to microbes is key

An observed increase in the prevalence of certain autoimmune diseases has been linked to the lack of childhood exposure to microbes. A study by Dennis Kasper and Richard Blumberg at Harvard Medical School in Boston, Massachusetts, and their colleagues reveals a possible cellular mechanism for this 'hygiene hypothesis'.

The authors found that when they induced asthma or colitis in juvenile mice raised in a sterile environment, the animals had higher-than-normal levels of a type of immune cell called invariant natural killer T cells in their lungs or colon, respectively. These cells trigger inflammation and have been linked to ulcerative colitis and asthma. Moreover, expression