huntingtin protein (mHtt) is expressed throughout the bodies of carriers, but mHtt-associated cell death occurs selectively in certain brain regions, including the striatum, which is important for movement.

A team led by Solomon Snyder at Johns Hopkins University School of Medicine in Baltimore, Maryland, found that Rhes, a protein located mainly in the striatum, binds to mHtt and attaches a small protein to it. This modification increased cell death in cultured cells, suggesting that Rhes interacts with mHtt to cause localized neurodegeneration.

ECOLOGY

Biomes bounce back

PLoS ONE **4**, e5653 (2009)

Ecosystems damaged by human activities such as agriculture and oil spills may be quicker to recover than was thought. Rather than taking centuries, or even millennia, to convalesce, Holly Jones and Oswald Schmitz at Yale University found that even severely damaged ecosystems could recover within decades.

The duo reviewed 240 independent scientific studies conducted between 1910 and 2008 that examined the recovery of large ecosystems from damaging human activities and natural disturbances such as hurricanes. They discovered that the longest average recovery time — found to be taken by forest ecosystems — was no more than 56 years. Deep-ocean ecosystems took only about 5 years.

HIGH-ENERGY PHYSICS

Muonium gets real

Phys. Rev. Lett. **102,** 213401 (2009)

Muons are heavy, unstable cousins of electrons that are produced by high-energy collisions of more commonplace particles.

Since the 1960s, high-energy physicists have observed atomic-like 'muonium' particles made up of an antimuon and an electron, or 'muonic atoms' in which a muon replaces an ordinary atomic electron. But nobody has seen 'true muonium', made up of a muon and an antimuon. Now Stanley Brodsky of the SLAC National Accelerator Laboratory at Stanford University in California and Richard Lebed of Arizona State University in Tempe suggest that physicists could spot the stuff if they just look in the right place.

They show that true muonium can briefly appear in colliding beams of electrons and their antiparticles, positrons. In fact, the authors say, true muonium may have already been made in modern electron–positron colliders.

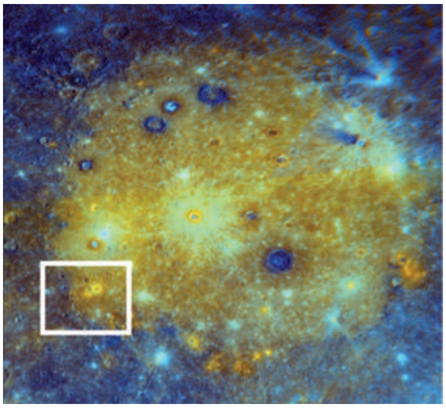
PLANETARY SCIENCE

Mercurial Mercury

Earth Planet. Sci. Lett. doi:10.1016/j.epsl.2009.04.037 (2009)

Baked by the Sun and blasted by impacts, Mercury is thought to have lost much of its volatile content — such as water vapour and carbon dioxide — early in its history. But its interior may have been bubblier than thought, according to Laura Kerber of Brown University in Providence, Rhode Island, and her colleagues. Using observations from the MESSENGER spacecraft, the researchers spotted the remnants of a volcano that they say was driven by explosive magma with high volatile concentrations.

The large size of the volcanic dome (marked by box below) suggests a volatile content comparable to that seen in eruptions on Earth. The discovery favours the idea that Mercury formed from volatile-rich planetesimals from the outer Solar System that migrated inwards.



ELSEVIER

CANCER BIOLOGY

Tumour clue

Proc. Natl Acad. Sci. USA doi:10.1073/pnas.0900351106 (2009).

The blood-pressure drug losartan could fight some breast cancers, studies in mice suggest.

Arul Chinnaiyan of the University of Michigan in Ann Arbor and his colleagues analysed 3,200 experiments that characterized gene-expression patterns in breast cancer tumours. The search revealed that a gene called *AGTR1* was expressed at higher than normal levels in 10–20% of the cancers.

Human mammary cells that express *AGTR1* at abnormally high levels became more invasive when stimulated with angiotensin II, which activates the AGTR1 protein. Meanwhile, losartan, a treatment for high blood pressure that inhibits AGTR1, reduced this response. It also reduced tumour growth by 30% in mice implanted with *AGTR1*-overexpressing breast cancer cells.

JOURNAL CLUB

Gail Christeson
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A geophysicist ponders the mysteries of intraplate earthquakes.

During my first semester at college, I attended a lecture describing plate tectonics, and immediately knew that geophysics would be my major and hopefully my career. Subsequent lectures, textbooks, journal articles and, later, my own research educated me about how elegantly plate tectonics explains the processes that control the locations of most earthquakes.

However, some of the largest-known North American earthquakes — including those of 1811–12 famed for ringing church bells in Boston and changing the course of the Mississippi River — are associated with the New Madrid Seismic Zone (NMSZ) in the Southern and Midwestern United States, far from known plate boundaries. So what causes these events? Eric Calais of Purdue University in Indiana and Seth Stein at Northwestern University in Illinois present some surprising results from an examination of Global Positioning System (GPS) data from the region (E. Calais and S. Stein *Science* **323,** 1442; 2009).

Previous studies found that the NMSZ was moving at a different rate and in a different direction from the North American Plate, implying that strain would steadily accumulate until released by a large-magnitude earthquake. But, incorporating three years' worth of extra GPS data, Calais and Stein found motions indistinguishable from those of the North American Plate, corresponding to extremely low strain rates. It is not clear what the underlying processes causing the NMSZ earthquakes are. Is strain accumulation variable over time in intraplate settings? What are the implications for hazard prediction?

The results leave me perplexed, but oddly comforted — there are plenty of mysteries left for the next generation of geophysicists. And perhaps one day a theory will elegantly explain intraplate seismicity, just as plate tectonics did for interplate seismicity.

Discuss this paper at **http://blogs.nature.com/nature/journalclub**