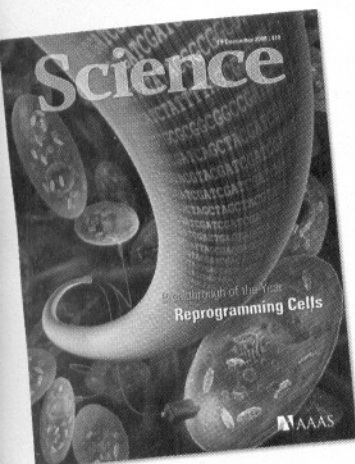




COVER

A metaphorical USB cable transmitting genetic information to "reprogram" cells symbolizes the Breakthrough of the Year for 2008. Advances in the burgeoning field of cellular reprogramming have brought scientists closer to the goal of using stem cells to better understand and someday treat disease. See the special section beginning on page 1766.

Image: Chris Bickel

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Breakthrough of the Year

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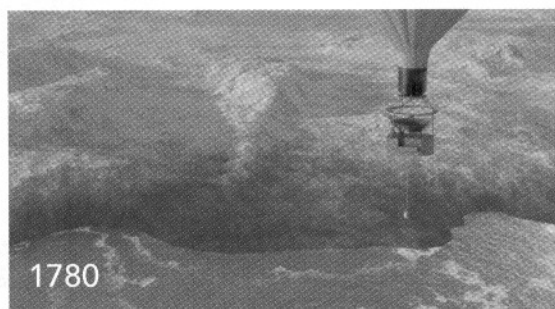
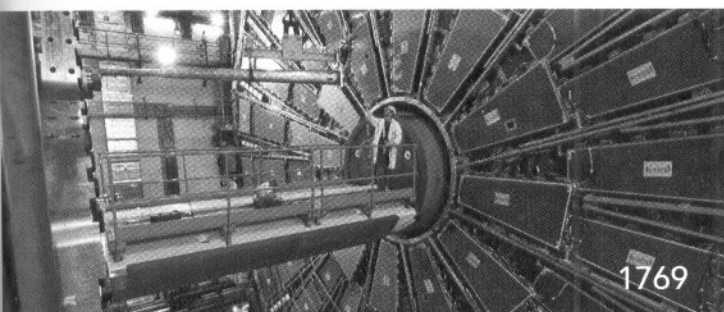
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Foraminiferal Isotope Evidence of Reduced Nitrogen Fixation in the Ice Age Atlantic Ocean

H. Ren et al.

Nitrogen fixation in the tropical Atlantic increased during deglaciation and, along with increased denitrification, helped to stabilize the ocean nitrogen reservoir.

10.1126/science.1165787

PLANT SCIENCE

Glucosinolate Metabolites Required for an *Arabidopsis* Innate Immune Response

N. K. Clay, A. M. Adio, C. Denoux, G. Jander, F. M. Ausubel

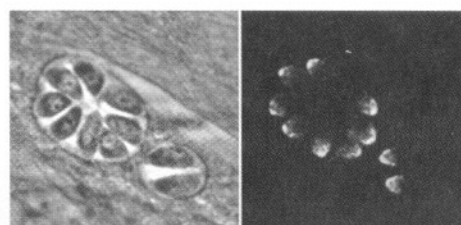
10.1126/science.1164627

A Glucosinolate Metabolism Pathway in Living Plant Cells Mediates Broad-Spectrum Antifungal Defense

P. Bednarek et al.

Plant cells defend against fungal attack through an innate immunity pathway in which infection triggers glucosinolate synthesis, stimulating formation of a protective callose.

10.1126/science.1163732



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Rapid Membrane Disruption by a Perforin-Like Protein Facilitates Parasite Exit from Host Cells

B. F. C. Kafsack et al.

The human and animal parasite that causes toxoplasmosis escapes from host cells by using a perforin-like protein to make holes in the intracellular vacuole in which it resides.

10.1126/science.1165740

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Electron Cryomicroscopy of *E. coli* Reveals Filament Bundles Involved in Plasmid DNA Segregation

J. Salje, B. Zuber, J. Löwe

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10.1126/science.1164346

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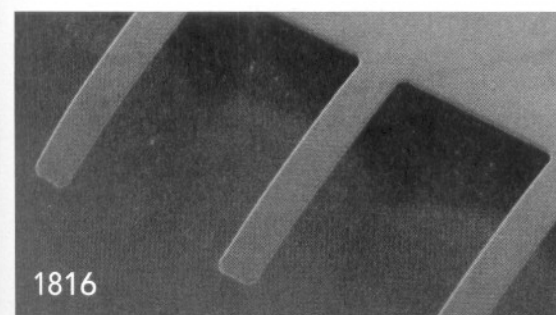
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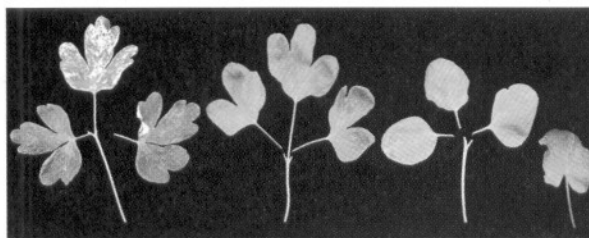
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