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Plant Immunity Requires Conformational Changes of NPR1 via S-Nitrosylation and Thioredoxins
Y. Tada et al.

After a pathogen invades a plant, a protein, usually kept in a multimeric state by S-nitrosylation, is dissociated by thioredoxin, freeing the monomers for defense responses.

10.1126/science.1156970

GEOCHEMISTRY
Ferruginous Conditions Dominated Later Neoproterozoic Deep-Water Chemistry
D. E. Canfield et al.

Low sulfur input caused the deeper ocean to become anoxic and rich in ferrous iron 750 million years ago, a reversal from the more oxidizing conditions of the previous 1 billion years.

10.1126/science.1154499

CELL BIOLOGY
Essential Cytoplasmic Translocation of a Cytokine Receptor–Assembled Signaling Complex
A. Matsuzawa et al.

Degradation of one member of a protein complex that forms when a cytokine receptor is activated causes the complex to move to the cytoplasm, triggering the downstream pathway.

10.1126/science.1157340

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Comment on “A 3-Hydroxypropionate/4-Hydroxybutyrate Autotrophic Carbon Dioxide Assimilation Pathway in Archaea”
T. J. G. Ettema and S. G. E. Andersson

Full text at www.sciencemag.org/cgi/content/full/321/5887/342b

Response to Comment on “A 3-Hydroxypropionate/4-Hydroxybutyrate Autotrophic Carbon Dioxide Assimilation Pathway in Archaea”
I. A. Berg, D. Kockelkorn, W. Buckel, G. Fuchs

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K. Koh et al.

A search for genetic modulators of sleep in Drosophila identified a gene encoding a brain protein that is likely secreted and is required for recovery from sleep deprivation. >> News story p. 334

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P. Kumar, R. Narayan, J. L. Johnson

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P. Thibault et al.
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A. King et al.
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Measurements of the elastic properties of graphene agree with calculations for a defect-free material and show that it is indeed stronger than other materials.

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Y. Fang, N.-H. Seong, D. D. Dlott
The distribution of electric field–enhancing sites on a nanostructured substrate is measured by using the enhanced field to damage those sites.

CLIMATE CHANGE
Patagonian Glacier Response During the Late Glacial–Holocene Transition
R. P. Ackert Jr. et al.
Dating of a glacial moraine in southern Patagonia implies that increased precipitation caused glacier growth after a period of Northern Hemisphere cooling 11,000 years ago. >> Perspective p. 348

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J. A. Evans
As journals become available electronically, scientists and scholars have more articles at their fingertips but cite relatively fewer, and these tend to be more recent. >> News story p. 329

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A. Clauset and D. H. Erwin
A model of evolutionary body-size changes that accounts for physical constraints and extinction risk reproduces the size distribution of land mammals from the Quaternary.

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Four-Jointed Is a Golgi Kinase That Phosphorylates a Subset of Cadherin Domains
H. O. Ishikawa et al.
A newly described type of protein kinase found in the Golgi phosphorylates signaling proteins on amino acids that are destined to be within extracellular domains.

CELL BIOLOGY
Signal-Mediated Dynamic Retention of Glycosyltransferases in the Golgi
L. Tu, W. C. S. Tai, L. Chen, D. K. Banfield
Glycosyltransferase enzymes stay in the Golgi in the face of continuing membrane traffic because a receptor links their cytoplasmic tails to a recycling coated vesicle.

IMMUNOLOGY
Anomalous Type 17 Response to Viral Infection by CD8+ T Cells Lacking T-bet and Eomesodermin
A. M. Intlekofer et al.
Two transcription factors cooperate to ensure the correct functioning of CD8+ T cells during the response to infection.

CELL SIGNALING
Riboswitches in Eubacteria Sense the Second Messenger Cyclic Di-GMP
N. Sudarsan et al.
The bacterial second messenger cyclic di–guanosine monophosphate controls a wide variety of cellular functions by acting on a riboswitch motif in numerous messenger RNAs.

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L. B. Ekstrom et al.
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A. H. Bass, E. H. Gilland, R. Baker
The conserved neural circuitry for vocal communication in fish and other tetrapods suggests that this function may have originated prior to the evolution of bony vertebrates. >> Perspective p. 347

NEUROSCIENCE
Orbitofrontal Dysfunction in Patients with Obsessive–Compulsive Disorder and Their Unaffected Relatives
S. R. Chamberlain et al.
The abnormally low activation in the frontal cortex of individuals with obsessive compulsive disorder and their close relatives may confer a risk for the disease.
A new drug discovery paradigm focuses on identifying and targeting cellular elements of the host that are exploited by pathogens.

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