An artist’s conception of the antibiotic penicillin and some of the bacteria that have developed resistance to various antibiotics. A special section beginning on page 355 explores the rise and spread of so-called bad bugs and possible interventions.

Illustration: Chris Bickel/Science
PLANT SCIENCE
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

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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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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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Analysis of the x-ray afterglow of intense gamma-ray bursts shows that the bursts result from consumption of the outer part of a dense star and define the star’s rotation rate.
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