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K.-K. Ni et al.
Raman laser irradiation can cool a cloud of KRb molecules to ultralow translational, vibrational, and rotational temperatures, a step toward forming molecular condensates. 10.1126/science.1163861

IMMUNOLOGY
Innate Immunity in Caenorhabditis elegans Is Regulated by Neurons Expressing NPR-1/GPCR
K. L. Styer et al.
In the nematode Caenorhabditis elegans, sensory neurons surprisingly can inhibit innate immune responses, in part through the mitogen-activated protein kinase signaling pathway. 10.1126/science.1163673

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Comment on “Age and Evolution of the Grand Canyon Revealed by U-Pb Dating of Water Table–Type Speleothems”
J. Pederson et al.
Comment full text at www.sciencemag.org/cgi/content/full/321/5896/1634b

CHEMISTRY
Catalytic Conversion of Biomass to Monofunctional Hydrocarbons and Targeted Liquid-Fuel Classes
E. L. Kunkes et al.
A set of two reactors, one that breaks down biomass sugars and a second that directs chain formation, can synthesize various hydrocarbon fuels. 10.1126/science.1159210

CLIMATE CHANGE
Ancient Permafrost and a Future, Warmer Arctic
D. G. Froese et al.
The existence of a 700,000-year-old patch of permafrost in sub-Arctic Canada shows that ground ice far from the pole can resist melting during warm intervals.
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Some pathogens synthesize the essential vitamin menaquinone by an
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required for cell division protects mice infected with Staphylococcus aureus from death.
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K.-M. Wu, Y.-H. Lu, H.-Q. Feng, Y.-Y. Jiang, J.-Z. Zhao
Planting engineered cotton that expresses a natural toxin reduces
pest damage to both the cotton itself and to other crops planted
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Can Catch Shares Prevent Fisheries Collapse? 1678
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Global catch statistics since 1950 suggest that fisheries will be
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Mother seabirds that are infected by parasitic nematodes are less able
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and affecting population viability.

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During development, programmed cellular death within sheets of
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Reward-Predictive Cues Enhance Excitatory Synaptic Strength onto Midbrain Dopamine Neurons 1690
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X chromosome inactivation in stem cells is reversed, a step in
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Brains of the young and old process rewards in different ways.

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RESEARCH ARTICLE: Structural Basis of CXCR4 Sulfotyrosine Recognition by the Chemokine SDF-1/CXCL12
C. T. Veldkamp, C. Seibert, F. C. Peterson, N. B. De la Cruz,
J. C. Haugner III, H. Basnet, T. P. Sakmar, B. F. Volkman
The structure of SDF-1 bound to an extracellular domain of CXCR4 illustrates how chemokines recognize receptor sulfotyrosines and helps to identify an inhibitor of leukocyte chemotaxis.

PROTOCOL: Analysis of Signaling Events by Combining High-Throughput Screening Technology with Computer-Based Image Analysis
M. Kodiha, C. M. Brown, U. Stochaj
High-throughput screening and MetaXpress software modules can be adapted to quantify the subcellular localization of fluorescently labeled molecules.

PRESENTATION: Dynamic Visualization of Signaling Activities in Living Cells
M. D. Allen, L. M. DiPilato, B. Ananthanarayanan, R. H. Newman,
Q. Ni, J. Zhang
Engineered fluorescent reporters allow researchers to follow subcellular activities of signaling components in real time in live cells.

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