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ATMOSPHERIC SCIENCE
Atmospheric Warming and the Amplification of Precipitation Extremes
R. P. Allan and B. J. Soden
Satellite data show that in the tropics, heavy rain events have increased in warmer months and decreased in colder months, more than predicted by climate models.
10.1126/science.1160787

BIOCHEMISTRY
Helical Structures of ESCRT-III Are Disassembled by VPS4
S. Lata et al.
A protein responsible for the final separation of daughter cells or budding viruses forms heteromeric complexes on the inside of the membrane to regulate the abscission step.
10.1126/science.1161070

RESEARCH ARTICLES
PSYCHOLOGY
The Rupture and Repair of Cooperation in Borderline Personality Disorder
B. King-Casas et al.
In a game, patients with personality disorder cannot build trust with normal partners, possibly because they cannot distinguish between trusting and distrusting acts in others.
>> Perspective p. 778; Science Podcast

ASTRONOMY
Gas Disks to Gas Giants: Simulating the Birth of Planetary Systems
E. W. Thommes, S. Matsumura, F. A. Rasio
A model of the evolution of planets from a gas-rich disk shows that the disk’s density and viscosity affect the final distribution of planets and that our solar system is unusual.
>> Perspective p. 777

CHEMISTRY
Latent Fingerprint Chemical Imaging by Mass Spectrometry
Imaging of fingerprints in the field with a portable mass spectrometer can reveal the presence of drugs, explosives, or other materials and help resolve overlapping prints.

777 & 814
EVOLUTION
A Conserved Mutation in an Ethylene Biosynthesis Enzyme Leads to Andromonoecy in Melons
A. Boualem et al.
Melon plants have both hermaphroditic and male flowers, a mating system that results from a mutation involved in ethylene synthesis that is still under positive selection.

MEDICINE
Human CHN1 Mutations Hyperactivate α2-Chimaerin and Cause Duane’s Retraction Syndrome
N. Miyake et al.
A signaling protein that helps nerve fibers find their correct target muscles is required for innervation of the eye muscles and, if defective, causes an eye movement disorder.

IMMUNOLOGY
Deletional Tolerance Mediated by Extrathymic Aire-Expressing Cells
J. M. Gardner et al.
Cells in the spleen and lymph nodes express self-antigens to detect and remove circulating self-reactive immune cells that have escaped deletion by the thymus.

NEUROSCIENCE
Dynamic Shifts of Limited Working Memory Resources in Human Vision
P. M. Bays and M. Husain
Working memory is a flexibly allocated, but finite, resource; more attention given to an object means it is remembered more precisely, whereas other objects are remembered less well.

CHEMISTRY
Programming DNA Tube Circumferences
P. Yin et al.
Synthetic molecular tubes with monodisperse, programmable circumferences are self-assembled using a single-stranded DNA motif.

CHEMISTRY
The Role of Excited-State Topology in Three-Body Dissociation of sym-Triazine
J. D. Savee et al.
Molecular imaging, along with theoretical analysis, shows that two distinct mechanisms interact to simultaneously break apart a molecule into three equivalent fragments.

PLANETARY SCIENCE
Phyllosilicate Diversity and Past Aquatic Activity Revealed at Mawrth Vallis, Mars
J. L. Bishop et al.
One of the oldest water channel deposits on Mars shows a layered sequence of different clay minerals produced by a history of aqueous alteration.

ATMOSPHERIC SCIENCE
Brown Carbon Spheres in East Asian Outflow and Their Optical Properties
D. T. L. Alexander, P. A. Crozier, J. R. Anderson
Pollution blown from East Asia over the Pacific contains abundant brown spheres, not simply black or organic carbon particles, complicating modeling of its climatic effects.
The Dynamic Z Bands of Striated Muscle Cells

In contrast to its stolid image, the Z band of the mature myofibril is a beehive of activity.

FUNDING SOURCES
Browse a list of grants and funding opportunities for cell signaling research and training; in the Resources section.

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Science 321 (5890), 741-859.