RESEARCH ARTICLE

354 Optical Deconstruction of Parkinsonian Neural Circuitry
V. Gradinaru et al.
The therapeutic effects of high-frequency stimulation of the subthalamic nucleus result from direct effects on afferent axons.

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G. K. Campbell et al.
Laser probing of identical fermions in optical traps introduces distinctions that give rise to collisional signatures.

364 Contrasting Developmental Trajectories in the Earliest Known Tetrapod Forelimbs
V. Callier et al.
Growth of the humerus of Acanthostega shows no functional change during life, whereas that of Ichthyostega shows differences between juvenile and adults.

367 A Ferroelectric Oxide Made Directly on Silicon
M. P. Warusawithana et al.
Thin, strained films of strontium titanate, deposited directly on silicon, form ferroelectric domains that can be patterned.

370 Anomalous Fractionations of Sulfur Isotopes During Thermochemical Sulfate Reduction
Y. Watanabe et al.
Reactions between organic matter and sulfate can fractionate sulfur isotopes in a way that does not depend on mass.

374 Origin of Nucleosynthetic Isotope Heterogeneity in the Solar Protoplanetary Disk
A. Trinquier et al.
Titanium isotope anomalies in meteorites do not reflect heterogeneity of the initial stage of the protoplanetary disk.

377 Atlantic Forcing of Persistent Drought in West Africa
T. M. Shanahan et al.
Severe droughts, lasting from decades to centuries, have occurred repeatedly in West Africa during the past 3000 years.

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V. Menuz et al.
Enzymes that catalyze synthesis of ceramide lipids influence survival of worms during anoxia.

384 Sequential Regulation of DOCK2 Dynamics by Two Phospholipids During Neutrophil Chemotaxis
A. Nishikimi et al.
The signaling lipid phosphatidic acid links chemotaxant signals to directional movement of neutrophils.

387 Rare Variants of IFIH1, a Gene Implicated in Antiviral Responses, Protect Against Type 1 Diabetes
S. Nejentsev et al.
Deep resequencing revealed rare alleles that were significantly associated with protection from diabetes.

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S. C. J. Parker et al.
The molecular shape of DNA, as well as the nucleotide sequence itself, can have functional consequences and constrain evolution.

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K. Liu et al.
The developmental pathway of lymphoid dendritic cells from myeloid progenitors is traced in mice.

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J. A. Mikucki et al.
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G. L. Cohen et al.
Reflecting upon and writing down one’s set of important values may buffer against recursive negative thoughts.

403 Mirror Neurons Differentially Encode the Peripersonal and Extrapersonal Space of Monkeys
V. Caggiano et al.
The spatial selectivity of mirror neurons suggests that their role goes beyond understanding actions and extends to generating responses.

407 DNA Binding Site Sequence Directs Glucocorticoid Receptor Structure and Activity
S. H. Meijsing et al.
DNA is a sequence-specific ligand for the glucocorticoid receptor that allosterically modulates this transcription factor’s activity.
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The ciliate Oxytricha expresses transposase genes to influence thousands of DNA rearrangements required for proper development.
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The Nuclear DNA Base 5-Hydroxymethylcytosine Is Present in Purkinje Neurons and the Brain
S. Kriaucionis and N. Heintz
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M. Tahiliani et al.
Methylated C bases, an important epigenetic mark in genomic DNA, can be enzymatically converted to 5-hydroxymethylcytosine.
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TECHNICAL COMMENTS

Comment on “Atmospheric Hydroxyl Radical Production from Electronically Excited NO2 and H2O”
S. Carr et al.
full text at www.sciencemag.org/cgi/content/full/324/5925/336b

Response to Comment on “Atmospheric Hydroxyl Radical Production from Electronically Excited NO2 and H2O”
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Changes in the conformation, binding partners, or localization of signaling proteins affect the flow of information through signaling cascades.

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P. A. Pouille et al.
Mesoderm invagination during gastrulation is controlled by mechanical cues that promote Fog signaling and redistribution of a motor protein.

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M. D. Houslay
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Y. Liu et al.
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M. L. Dustin
From individual molecules to cells in animals, imaging has brought incredible insight to immunology.

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