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### REVIEW

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**Cover**

Shaded perspective view of a surface topography of the West Antarctic Ice Sheet looking toward the Filchner-Ronne Ice Shelf and Antarctic Peninsula at the upper left. Floating ice shelves at the surface are in gray; the grounded ice sheet is shaded green to blue with increasing elevation. The topography was used to determine the volume of ice above sea level, as described on page 901.

*Image: David Vaughan, British Antarctic Survey*
A Key Role for Similarity in Vicarious Reward
D. Mobbs et al.
A functional magnetic resonance imaging study reveals the interactions within the brain that modulate feelings of reward on seeing a similar person win a contest.
>> Science Podcast

Reassessment of the Potential Sea-Level Rise from a Collapse of the West Antarctic Ice Sheet
J. L. Bamber et al.
A collapse of the West Antarctic Ice Sheet would raise global sea level by 3.2 meters, but with large regional variations.
>> Perspective p. 888; Science Podcast

Input-Specific Spine Entry of Soma-Derived Vesl-1S Protein Conforms to Synaptic Tagging
D. Okada et al.
The protein Vesl-1S fulfills the synaptic tagging hypothesis for the maintenance of input-specific action of neuronal networks.

Achieving λ/20 Resolution by One-Color Initiation and Deactivation of Polymerization
L. Li et al.
Polymerization activated by a pulsed light beam was halted by a continuous beam of the same color in a surrounding halo.
>> Perspective p. 892

Two-Color Single-Photon Photoinitiation and Photoinhibition for Subdiffraction Photolithography
T. F. Scott et al.
Polymerization activated by a beam of light was halted by inhibitors generated by a surrounding halo of a different color.
>> Perspective p. 892

Confining Light to Deep Subwavelength Dimensions to Enable Optical Nanopatterning
T. L. Andrew et al.
Molecules that photoisomerize and change in transparency are used to define narrow features on photoresists.
>> Perspective p. 892

Size and Shape of Saturn’s Moon Titan
H. A. Zebker et al.
Titan’s poles lie at lower elevations than the equator, perhaps explaining its high-latitude hydrocarbon lakes.

Observing the Quantization of Zero Mass Carriers in Graphene
D. L. Miller et al.
Scanning tunneling microscopy on graphene reveals non-equally spaced Landau energy levels induced by a magnetic field.

Direct Detection of Abortive RNA Transcripts in Vivo
S. R. Goldman et al.
RNA polymerase engages in abortive transcription in bacteria, a process that may help to regulate gene expression.

The Nuclear DNA Base 5-Hydroxymethylcytosine Is Present in Purkinje Neurons and the Brain
S. Kriaucionis and N. Heintz
The genome of mammals contains appreciable amounts of a previously undescribed modified DNA base.

Conversion of 5-Methylcytosine to 5-Hydroxymethylcytosine in Mammalian DNA by MLL Partner TET1
M. Tahiliani et al.
Methylated C bases, an important epigenetic mark in genomic DNA, can be enzymically converted to 5-hydroxymethylcytosine.

A Functional Role for Transposases in a Large Eukaryotic Genome
M. Nowacki et al.
The ciliate Oxytricha uses transposase genes to influence thousands of DNA rearrangements required for proper development.

MAPK3/1 (ERK1/2) in Ovarian Granulosa Cells Are Essential for Female Fertility
H.-Y. Fan et al.
Targeted disruption of the kinases derails the molecular events that mediate induction of female reproductive development.
>> Perspective p. 890

Cell Movements at Hensen’s Node Establish Left/Right Asymmetric Gene Expression in the Chick
J. Gros et al.
Asymmetric gene expression is passively set up in the early chick embryo by cell rearrangements.

A Frazzled/DCC-Dependent Transcriptional Switch Regulates Midline Axon Guidance
L. Yang et al.
A single receptor in Drosophila is involved in two molecular strategies that coordinate axon guidance.
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Fictive Reward Signals in the Anterior Cingulate Cortex
B. Y. Hayden et al.
Single neurons in the monkey cingulate cortex respond to fictive and experienced outcomes in the same way.

Extinction-Reconsolidation Boundaries: Key to Persistent Attenuation of Fear Memories
M.-H. Monfils et al.
Behavioral manipulations can reverse a learned fearful association in rats.
Synapse- and Stimulus-Specific Local Translation During Long-Term Neuronal Plasticity
D. O. Wang et al.
Live-cell microscopy reveals local translation during long-term facilitation of Aplysia sensory-motor synapses.
10.1126/science.1173205

Diversity and Complexity in DNA Recognition by Transcription Factors
G. Badis et al.
A broad survey of transcription factors reveals that related proteins can have multiple and differing DNA binding specificities.
10.1126/science.1162527

A Vital Role For Interleukin-21 in the Control of a Chronic Viral Infection
J. S. Yi et al.
The cytokine interleukin-21 has a profound impact on virus-specific T cell responses to chronic infections in mice.
10.1126/science.1175194

Determining the Dynamics of Entanglement
O. Jiménez Farías et al.
The evolution of quantum mechanically entangled photon pairs can now be measured as they interact with their environment.
10.1126/science.1171544

Pd-Pt Bimetallic Nanodendrites with High Activity for Oxygen Reduction
B. Lim et al.
The catalytic activity of platinum is enhanced with high surface area.
10.1126/science.1170377

Pandemic Potential of a Strain of Influenza A (H1N1): Early Findings
C. Fraser et al.
An antagonist of two protein-protein interactions required for synapse formation has been identified in C. elegans.
10.1126/science.1176062

Presentation: Integrative Analysis of Genome-Wide RNA Interference Screens
J. D. Berndt et al.
By integrating RNAi screens with protein-protein interaction data, drug-protein interaction data, or disease-genotype data, researchers can focus their efforts on the best hits.

Glossary
Find out what CoA, PAO, and WW mean in the world of cell signaling.

E-Letter: Paradigm Shift
J. S. Torday and V. K. Rehan
Torday and Rehan discuss the recent Science Signaling editorial by Searls.

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