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COVER

Scanning electron micrograph of HIV viruses, each ~120 nanometers in diameter, on an infected cell surface. This year, clinical trial results showing that antiretroviral treatments for HIV also keep the virus from spreading raised hopes of ending HIV/AIDS epidemics in whole populations. See the Breakthrough of the Year special section beginning on page 1628 and at www.scim.ag/2011btoy.

Image: Thomas Deerinck, Kathleen Fitzpatrick, John Guatelli, and Mark Ellisman, NCMIR, UCSD/Visuals Unlimited, Inc.

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High-Resolution View of the Yeast Meiotic Program Revealed by Ribosome Profiling

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10.1126/science.1215110

Polymerase Exchange During Okazaki Fragment Synthesis Observed in Living Cells

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Single-molecule microscopy suggests that a new core polymerase is used to synthesize each Okazaki fragment.

10.1126/science.1210400

Widespread Genetic Switches and Toxicity Resistance Proteins for Fluoride

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A fluoride-sensing riboswitch regulates the expression of putative fluoride channels in prokaryotes.

10.1126/science.1215063

An All-Silicon Passive Optical Diode

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A silicon-based device is developed that allows the asymmetric propagation of light.

10.1126/science.1214383

Broadband Light Bending with Plasmonic Nanoantennas

X. Ni et al.

A plasmonic antenna array is used to control the propagation of a light beam across an interface.

10.1126/science.1214686

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Highlights From Our Daily News Coverage

Is Jupiter Eating Its Own Heart?

Some gas giants may have destroyed their cores.

http://scim.ag/Jupiter_Core

Are You Inhaling Secondhand Coke?

Researchers pick up traces of illegal drugs in the atmosphere.

<http://scim.ag/Secondhand-Coke>

Solar Cells Capture Lost Energy

New materials generate more electrical charges than the number of photons that energize them.

<http://scim.ag/Solar-Cells>

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Comment on "Nocturnality in Dinosaurs Inferred from Scleral Ring and Orbit Morphology"

M. I. Hall et al.

Full text at www.sciencemag.org/cgi/content/full/334/6063/1641-b

Response to Comment on "Nocturnality in Dinosaurs Inferred from Scleral Ring and Orbit Morphology"

L. Schmitz and R. Motani

Full text at www.sciencemag.org/cgi/content/full/334/6063/1641-c

SCIENCE SIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

20 December issue: <http://scim.ag/ss122011>

RESEARCH ARTICLE: A Distinct Interaction Mode Revealed by the Crystal Structure of the Kinase p38 α with the MAPK Binding Domain of the Phosphatase MKP5

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PERSPECTIVE: Three-Dimensional Docking in the MAPK p38 α

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Specific anti-inflammatory drugs may be possible with knowledge of how a kinase docks to its inactivating phosphatase.

RESEARCH ARTICLE: Protein O-GlcNAcylation Is Required for Fibroblast Growth Factor Signaling in *Drosophila*

D. Mariappa et al.

Fibroblast growth factor signaling is connected to metabolism through the intracellular O-GlcNAcylation of the receptor complex.

RESEARCH ARTICLE: Human Regulatory T Cells Rapidly Suppress T Cell Receptor–Induced Ca²⁺, NF- κ B, and NFAT Signaling in Conventional T Cells

A. Schmidt et al.

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REVIEW: The Emerging Role of Linear Ubiquitination in Cell Signaling

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Linear ubiquitin chains transmit signals that are induced by diverse stimuli and regulate cell activation and death.

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Integrating Medicine and Science

21 December issue: <http://scim.ag/stm122111>

PERSPECTIVE: Mapping the Road Forward in Alzheimer's Disease

D. M. Holtzman et al.

A better understanding of genetics, protein aggregation, and neurobiology combined with improved clinical trial design is needed to combat Alzheimer's disease.

REVIEW: Forty-Year Journey of Angiogenesis Translational Research

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Antiangiogenic drugs successfully treat retinal vascular diseases, but challenges remain in the realm of cancer therapy.

RESEARCH ARTICLE: Predicting Adverse Drug Events Using Pharmacological Network Models

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A network-based method that uses available pharmacosafety data can predict yet-to-be-discovered adverse drug events to help reduce drug-associated morbidity and mortality.

RESEARCH ARTICLE: Dynamics of Dengue Disease Severity Determined by the Interplay Between Viral Genetics and Serotype-Specific Immunity

M. OhAinle et al.

The complex interactions between serotype-specific immunity and viral genetics drive dengue disease outcomes in endemic populations.

SCIENCE CAREERS

www.sciencereers.org/career_magazine

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Breakthrough Behind the Scenes

M. Price

Kimberly Powers's epidemiological research on HIV helped set the stage for this year's Science Breakthrough of the Year.

<http://scim.ag/KimPowers>

Experimental Error: Truly Alternative Careers

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Looking for a career that is off the well-trod path? Pick up your divining rod.

http://scim.ag/EE_TrulyAlternative

SCIENCE PODCAST

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