RESEARCH ARTICLES

1367 Calibrating the End-Permian Mass Extinction
S. Shen et al.
High-precision geochronologic dating constrains probable causes of Earth’s largest mass extinction.

1372 Imaging of Plasmodium Liver Stages to Drive Next-Generation Antimalarial Drug Discovery
S. Meister et al.
Imidazolopiperazine compounds inhibit liver-stage malaria parasites with one oral dose in mice.

REPORTS

1377 Carving at the Nanoscale: Sequential Galvanic Exchange and Kirkendall Growth at Room Temperature
E. González et al.
Processes used in colloidal chemistry can be jointly exploited to make complex metal alloy nanoparticles.

1380 The Origin of OB Runaway Stars
M. S. Fujii and S. Portegies Zwart
Most of the unusually fast, young stars in our galaxy are produced in three-body encounters within dense clusters of stars.

1383 A Perovskite Oxide Optimized for Oxygen Evolution Catalysis from Molecular Orbital Principles
J. Suntivich et al.
An electronic property of metal oxides was used to guide development of a catalyst for prospective use in energy applications.

1385 Climate Sensitivity Estimated from Temperature Reconstructions of the Last Glacial Maximum
A. Schmittner et al.
Last Glacial Maximum temperature reconstructions and model simulations can constrain the equilibrium climate sensitivity.

1388 Middle Stone Age Bedding Construction and Settlement Patterns at Sibudu, South Africa
L. Wadley et al.
Early humans constructed sleeping mats from local plants, including some with insecticidal properties.

1392 Context Modularity of Human Altruism
M. Alexander and F. Christia
Ethnic integration enhances cooperative behavior and sanctioning of free-riders.

1394 Capacity Building Helps Pastoral Women Transform Impoverished Communities in Ethiopia
D. L. Coppock et al.
Diversification of income-producing activities provides greater resilience to drought.

1398 Perceived Predation Risk Reduces the Number of Offspring Songbirds Produce per Year
L. Y. Zanette et al.
Fear itself reduces reproductive success in song sparrows.

Aribidopsis EDS1 Connects Pathogen Effector Recognition to Cell Compartment-Specific Immune Responses
K. Heidrich et al.

Pathogen Effectors Target Arabidopsis EDS1 and Alter Its Interactions with Immune Regulators
S. Bhattacharjee et al.
Coordination of different defense pathways across cell compartments produces a fully effective innate immune response.

The Competitive Advantage of a Dual-Transporter System
S. Levy et al.
Low-affinity nutrient transporters sense depletion earlier than high-affinity transporters, thus preparing cells for starvation.

Perceptual Learning Incepted by Decoded fMRI Neurofeedback Without Stimulus Presentation
K. Shibata et al.
Even the adult primary visual cortex is sufficiently plastic to allow performance enhancement.

Entorhinal Cortex Layer III Input to the Hippocampus Is Crucial for Temporal Association Memory
J. Suh et al.
A specific neural circuit integrates temporally dispersed stimuli into a coherent memory episode.

Interconversion Between Intestinal Stem Cell Populations in Distinct Niches
N. Takedo et al.
Two niches with distinct characteristics work in tandem.

Explaining Seasonal Fluctuations of Measles in Niger Using Nighttime Lights Imagery
N. Bharti et al.
Changes in human population density as measured by satellite images of nighttime lights predict measles.

Empathy and Pro-Social Behavior in Rats
I. Ben-Ami Bartal et al.
Rats free companions from restraint, apparently motivated by empathy to end their mate’s distress.
Global analysis finds that five decades of intensive tuna stocks at edge of sustainability hover around 21°C.

Temperatures on a newly discovered world could potentially habitable planet is Christmas Present for Kepler Astronomers. 

Fuel from waste? Genetically engineered bacteria could turn trees, grasses, and agricultural waste into gasoline.


Aphtha virus drugs are found at different concentrations in human mucosal tissues with implications for pre-exposure prophylaxis trials to prevent HIV transmission.

How honeybees break a decision-making deadlock. J.E. Niven

A SUMoylation-dependent transcriptional subprogram is required for myc-driven tumorigenesis. J.D. Kessler et al.

Cytoplasmic dynein moves through uncoordinated stepping of the AAA+ ring domains. M.A. DeWitt et al.

Sucrose efflux mediated by SWEET proteins as a key step for phloem transport. L.-Q. Chen et al.

Capturing ultrasmall EMT Zeolite from template-free systems. E.-P. Ng et al.

Synthetic partial waves in ultracold atomic collisions. R.A. Williams et al.

Capturing ultrasmall EMT zeolite from template-free systems. E.-P. Ng et al.

Control of the early stages of nucleation favors the synthesis of large-pore zeolite crystals ~10 nanometers in size. T.Nakada et al.

The molecular motor dynein moves each of its two heads independently along the microtubule. G. Fu et al.

T cells make specific use of different protein kinase C isoforms. S.T. Tanaka et al.

An E3 ubiquitin ligase inhibits the development of inflammatory T cells involved in autoimmune diseases. G. Fu et al.

The signal transduction knowledge environment. M.B. Yaffe et al.

The complex art of telling it simply. M.B. Yaffe

Editorial Guide: The simple art of telling it simply. M.B. Yaffe

Research Article: Neuronal growth cone retraction relies on prion neurotophin receptor signaling through RAC. R. Denhardt et al.

Whereas nerve growth factor promotes neurite outgrowth, the precursor form triggers retraction.

Research Article: The SH2 domain-containing proteins in 21 species establish the provenance and scope of phosphotyrosine signaling in eukaryotes. B.A. Liu et al.

The evolution of modular protein domains correlates with organismal complexity.

Research Article: Protein kinase C η is required for T cell activation and homeostatic proliferation. G. Fu et al.

T cells make specific use of different protein kinase C isoforms.

Research Article: PDLIM2 inhibits T helper 17 cell development and granulomatous inflammation through degradation of STAT3. T. Tanakka et al.

An E3 ubiquitin ligase inhibits the development of inflammatory T cells involved in autoimmune diseases.

ST network: Expression2Kinas (X2K) Identifying the signaling components that may mediate changes in genome-wide expression profiles. S.T. Tanaka et al.


Integrating medicine and science. 7 December issue: http://scim.ag/stm120711

Focus: Three Rs of animal testing for regenerative medicine products. R. Robinson

Conceptions of animal welfare have spurred the design of “smarter” preclinical studies intended to ultimately benefit patients.

Focus: ROCK in a stiff place. D.A. Louifemberger

Research Article: Age-related intimal stiffening enhances endothelial permeability and leukocyte transmigration. J. Huang et al.

Inhibiting endothelial cell contractility reverses the deleterious effects of age-related matrix stiffening on normal cell function.