EDITORIAL
959    Cultivating Global Science
       Subra Suresh

NEWS OF THE WEEK
964    A roundup of the week’s top stories

NEWS & ANALYSIS
967    Dams Along Sudanese Nile Threaten Ancient Sites
968    Senate Bills Would Make Room for More STEM Graduates
969    NSF’s ‘Big Pitch’ Tests Anonymized Grant Reviews
970    Homegrown Organic Matter Found on Mars, But No Life
       >> Science Express Report by A. Steele et al.
971    Military’s Plan to Buy Biofuels Hits Roadblock in U.S. House
972    NSF Gives Clinical Students a Shot at Winning Graduate Fellowships

NEWS FOCUS
973    An Evolutionary Theory of Dentistry
       The Burdens of Being a Biped
       >> Science Podcast
976    The Biology of Genomes Meeting
       Single-Cell Sequencing Tackles Basic and Biomedical Questions
       HDL Itself Does Not Prevent Heart Attacks

LETTERS
978    Support for Greece
       H. Z. Hausen
       “Two Heads Are Better” Stands to Reason
       H. Mercier and D. Sperber
979    Life in Science: The Noblest Lesson
       R. Sinclair

BOOKS ET AL.
980    The Power of Habit
       C. Duhigg, reviewed by W. Wood
981    Measuring the Universe
       M. Kakula and R. Higgitt, curators, reviewed by D. Dixon

POLICY FORUM
982    From “Science in Europe” to “European Science”
       M. Nedeva and M. Stampfer

PERSPECTIVES
984    Pushing Your Back into Place
       B. Bowerman and S. M. O’Rourke
       >> Research Article p. 999
985    Guided Tour to the Heart of RISC
       E. Kaya and J. A. Doudna
       >> Report p. 1036
986    Resolving Some Old Problems in Protein Crystallography
       P. Evans
       >> Reports pp. 1030 and 1032
988    Kinship and Human Thought
       S. C. Levinson
       >> Brevia p. 998; Report p. 1049
989    Enter the Majorana Fermion
       P. W. Brouwer
       >> Report p. 1003
990    Systems Biology, Metabolomics, and Cancer Metabolism
       M. Tomita and K. Kami
       >> Report p. 1040
991    An Avian Magnetometer
       M. Winklhofer
       >> Report p. 1054

SCIENCE PRIZE ESSAY
993    Learning Biology by Recreating and Extending Mathematical Models
       H. J. Chiel et al.

CONTENTS continued >>
BREVIA

998 Predicting Pragmatic Reasoning in Language Games
M. C. Frank and N. D. Goodman
A Bayesian inference model predicts how listeners decode communications.
>> Perspective p. 988; Report p. 1049

RESEARCH ARTICLE

999 Growing Microtubules Push the Oocyte Nucleus to Polarize the Drosophila Dorsal-Ventral Axis
T. Zhao et al.
The addition of tubulin monomers to microtubules provides the force to relocate the oocyte nucleus.
>> Perspective p. 984

REPORTS

1003 Signatures of Majorana Fermions in Hybrid Superconductor-Semiconductor Nanowire Devices
V. Mourik et al.
Theoretically predicted particles that double as their own antiparticles emerge in a superconductor-coupled indium antimonide nanowire.
>> Perspective p. 989

1007 Unidirectional Growth of Microbumps on (111)-Oriented and Nanotwinned Copper
H.-Y. Hsiao et al.
Oriented copper grains grown using direct-current electroplating serve as a template for intermetallic microbumps.

1011 Real-Time Imaging of Pt3Fe Nanorod Growth in Solution
H.-G. Liao et al.
An in situ liquid stage is used to study the formation of nanowires from solution in a transmission electron microscope.

1014 Direction-Specific Interactions Control Crystal Growth by Oriented Attachment
D. Li et al.
Iron oxyhydroxide nanoparticles rotate until finding a perfect lattice match with a neighboring particle to grow.

1018 Large-Pore Apertures in a Series of Metal-Organic Frameworks
H. Deng et al.
Metal-organic frameworks with hexagonal channel pores up to almost 100 angstroms in diameter have been synthesized.

1023 Linking Petrology and Seismology at an Active Volcano
K. Saunders et al.
Volcanic minerals from a Mount St. Helens eruption reveal a causal relationship between magma processes and seismicity.

1028 Temperature-Dependent Alterations in Host Use Drive Rapid Range Expansion in a Butterfly
R. M. Pateman et al.
A warmer UK has enabled the brown argus butterfly to expand its range by feasting on the geranium.

1030 Linking Crystallographic Model and Data Quality
P. A. Karplus and K. Diederichs
A statistical method places model and data quality on the same scale and indicates how far one can model.

1032 Structures from Anomalous Diffraction of Native Biological Macromolecules
Q. Liu
Don’t get MAD or be SAD; try lower energy.
>> Perspective p. 986

1036 The Crystal Structure of Human Argonaute2
N. T. Schirle and I. J. MacRae
The structure of the core protein of the human RNA interference machinery is determined at high resolution.
>> Perspective p. 985

1040 Metabolite Profiling Identifies a Key Role for Glycine in Rapid Cancer Cell Proliferation
M. Jain et al.
Rapidly growing cancer cells rely on the amino acid glycine to make nucleotides.
>> Perspective p. 990

1045 FKF1 Conveys Timing Information for CONSTANS Stabilization in Photoperiodic Flowering
Y. H. Song et al.
A plant protein sensitive to blue light links longer afternoons to more flowering.

1049 Kinship Categories Across Languages Reflect General Communicative Principles
C. Kemp and T. Regier
The systems of terms used in different languages to describe kin are optimized for simplicity and informativeness.
>> Perspective p. 988; Brevia p. 998; Science Podcast

1054 Neural Correlates of a Magnetic Sense
L.-Q. Wu and J. D. Dickman
Neurons in a pigeon’s brain encode the direction and intensity of the geomagnetic field.
>> Perspective p. 991
SCIENCEONLINE

A Mitochondrial Pyruvate Carrier Required for Pyruvate Uptake in Yeast, *Drosophila*, and Humans

D. K. Bricker et al.

The genes encoding two components of the pyruvate transporter in mitochondria have been identified.

10.1126/science.1218099

Identification and Functional Expression of the Mitochondrial Pyruvate Carrier

S. Herzig et al.

Two components of the mitochondrial pyruvate transporter confer transport activity when expressed in bacteria.

10.1126/science.1218530

Recurrent Hemizygous Deletions in Cancers May Optimize Proliferative Potential

N. L. Solimini et al.

The genomes of cancer cells have preferentially lost genes that inhibit cell growth.

10.1126/science.1219580

The Structures of COPI-Coated Vesicles Reveal Alternate Coatomer Conformations and Interactions

M. Faini et al.

The flexible coatomer complex makes contact with a variable number of neighbors and coats vesicles of variable size.

10.1126/science.1221443

Structural Basis for Prereceptor Modulation of Plant Hormones by GH3 Proteins

C. S. Westfall et al.

Crystal structures of plant GH3 proteins reveal how these enzymes accommodate jasmonates, auxins, and benzoates.

10.1126/science.1221863

A Reduced Organic Carbon Component in Martian Basalts

A. Strele et al.

Analysis of 11 martian meteorites reveals complex hydrocarbons associated with magmatic minerals in 10 of them.

10.1126/science.1220715 >> News story p. 970

Hesperian Age for Western Medusae Fossae Formation, Mars

J. R. Zimbelman and S. P. Scheidt

Counts of impact craters provide age for a region on Mars close to the landing site of rover Curiosity.

10.1126/science.1221094

SCIENCENOW

www.sciencenow.org

Highlights From Our Daily News Coverage

Life at the Top Can Be Good for Your Health

A study suggests that high-ranking baboons have stronger immune systems.

http://scim.ag/Immune_Systems

Just a Spoonful of Castor Oil

A study reveals the molecular mechanism of castor oil.

http://scim.ag/Castor_Oil

Barely Breathing Microbes Still Living in 86-Million-Year-Old Clay

Organisms deep beneath the sea floor survive on minuscule amounts of oxygen.

http://scim.ag/Microbes-Oxygen

RESEARCH ARTICLE: Modeling the Dynamic Relationship Between HIV and the Risk of Drug-Resistant Tuberculosis

R. Sargeev et al.

FOCUS: TB and HIV—Deadly Liaison or Manageable Threat?

B. G. Williams

HIV-coinfected TB patients are less likely to be affected by drug-resistant TB.

LETTERS: Comments and Response on "The Predictive Capacity of Personal Genome Sequencing"

Comments: C. B. Begg and M. C. Pike; D. Golan and S. Rosset; E. J. Topol

Response: B. Vogelstein et al.

SCIENCECAREERS

www.sciencemag.org/career_magazine

Free Career Resources for Scientists

Experimental Error: The Unwritten Rules of Journalism

A. Ruben

The key to understanding the way the media covers science is to know the rules to which science journalists adhere.

http://scim.ag/EE_SciWriters

Working for a Contract Research Organization

N. Lubick

Scientists interested in any phase of drug research and development can find opportunities within CROs.

http://scim.ag/CRO_Work

Content Collection: Lab Management

E. Pain

New group leaders need to learn how to manage people, projects, finances, and more.

http://scim.ag/CC_LabManagement

SCIENCEPODCAST

www.sciencemag.org/multimedia/podcast

Free Weekly Show

On the 25 May Science Podcast: classifying cousins, the evolution of bad teeth, where science and comedy meet, and more.

Published by AAAS

www.sciencemag.org  SCIENCE  VOL 336  25 MAY 2012  955

SCIENCEEXPRESS

www.sciencexpress.org

A Mitochondrial Pyruvate Carrier Required for Pyruvate Uptake in Yeast, *Drosophila*, and Humans

D. K. Bricker et al.

The genes encoding two components of the pyruvate transporter in mitochondria have been identified.

10.1126/science.1218099

Identification and Functional Expression of the Mitochondrial Pyruvate Carrier

S. Herzig et al.

Two components of the mitochondrial pyruvate transporter confer transport activity when expressed in bacteria.

10.1126/science.1218530

Recurrent Hemizygous Deletions in Cancers May Optimize Proliferative Potential

N. L. Solimini et al.

The genomes of cancer cells have preferentially lost genes that inhibit cell growth.

10.1126/science.1219580

The Structures of COPI-Coated Vesicles Reveal Alternate Coatomer Conformations and Interactions

M. Faini et al.

The flexible coatomer complex makes contact with a variable number of neighbors and coats vesicles of variable size.

10.1126/science.1221443

Structural Basis for Prereceptor Modulation of Plant Hormones by GH3 Proteins

C. S. Westfall et al.

Crystal structures of plant GH3 proteins reveal how these enzymes accommodate jasmonates, auxins, and benzoates.

10.1126/science.1221863

A Reduced Organic Carbon Component in Martian Basalts

A. Strele et al.

Analysis of 11 martian meteorites reveals complex hydrocarbons associated with magmatic minerals in 10 of them.

10.1126/science.1220715 >> News story p. 970

Hesperian Age for Western Medusae Fossae Formation, Mars

J. R. Zimbelman and S. P. Scheidt

Counts of impact craters provide age for a region on Mars close to the landing site of rover Curiosity.

10.1126/science.1221094

SCIENCESIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

22 May Issue: http://scim.ag/ss052212

RESEARCH ARTICLE: Interferon-β Therapy Against EAE Is Effective Only When Development of the Disease Depends on the NLRP3 Inflammasome

M. Inoue et al.

PODCAST

M. L. Shinohara and A. M. VanHook

Characterization of an animal model may explain why not all patients with multiple sclerosis respond to interferon-β.

PERPECTIVE: Structure of the First Sphingosine 1-Phosphate Receptor

A. L. Parrill et al.

The lipid sphingosine 1-phosphate may laterally diffuse through the membrane to bind a receptor.

PERPECTIVE: Revisiting Channel Allostery—A Coherent Mechanism in IP3 and Ryanodine Receptors

K. Hamada and K. Mikoshiba

Structural analyses suggest a similar gating mechanism in the IP3 and ryanodine receptors.

SCIENTRANSATIONAL MEDICINE

www.sciencetranslationalmedicine.org

Integrating Medicine and Science

23 May Issue: http://scim.ag/stm052312

FOCUS: Clinician-Investigators as Translational Bioscientists—Shaping a Seamless Identity

E. R. Edelman and K. LoMarco

COMMENTARY: Risk and Return for the Clinician-Investigator

S. Heinrichson and D. Altschuler

PODCAST

E. R. Edelman and K. LoMarco

In this first of a series, senior scientists counsel early-career clinician-investigators on molding a successful research career.

RESEARCH ARTICLE: Effective Adjunctive Therapy by an Innate Defense Regulatory Peptide in a Preclinical Model of Severe Malaria

A. H. Achmat et al.

Anti-inflammatory drugs based on host defense peptides ameliorate malaria in mice.

RESEARCH ARTICLE: Adenosine A2A Receptor Activation Prevents Wear Particle–Induced Osteolysis

A. Mediero et al.

Bone damage cause by particles from orthopedic implants is prevented by an adenosine receptor agonist in mice.

RESEARCH ARTICLE: PTH/PTHrP and Vitamin D Control Antimicrobial Peptide Expression and Susceptibility to Bacterial Skin Infection

B. Muelseien et al.

Vitamin D and parathyroid hormone work together to maximize innate immune resistance to skin infections.

SCIENCEPODCAST

www.sciencemag.org/multimedia/podcast

Free Weekly Show

On the 25 May Science Podcast: classifying cousins, the evolution of bad teeth, where science and comedy meet, and more.

Published by AAAS

www.sciencemag.org  SCIENCE  VOL 336  25 MAY 2012  955
Science 336 (6084), 956-1058.

ARTICLE TOOLS http://science.sciencemag.org/content/336/6084

SUPPLEMENTARY MATERIALS http://science.sciencemag.org/content/suppl/2012/05/24/336.6084.DC1

PERMISSIONS http://www.sciencemag.org/help/reprints-and-permissions