EDITORIAL
777  Capably Communicating Science
  Alan I. Leshner

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

NEWS & ANALYSIS
785  Policy Shifts on Emergency Use of Cholera Vaccines
786  Big or Small, Science Will Suffer If Sequestration Goes Into Effect
>> Science Podcast
788  In Mock Case, Biological Evidence Reduces Sentences
>> Report p. 846
789  Negative Report on GM Crops Shakes Government’s Food Agenda

NEWS FOCUS
790  Stopping Alzheimer’s Before It Starts
  How to Talk About Alzheimer’s Risk
793  Mountains of Data
796  As Isolation Ends, Myanmar Faces New Ecological Risks

LETTERS
798  A Global Perspective on HIV/AIDS
  S. K. Saxena et al.
  HIV/AIDS: The Next Generation
  D. Futterman
  Maximizing Endangered Species Research
  D. K. Rosenberg et al.
799  CORRECTIONS AND CLARIFICATIONS

BOOKS ET AL.
800  Processes of Life
  J. Dupré, reviewed by C. J. Villabona-Arenas
801  Epigenetics in the Age of Twitter
  G. Weissmann, reviewed by M. A. C. Ingram

POLICY FORUM
802  Citizen Involvement in the U.S. Endangered Species Act
  B. J. Brois and E. G. N. Biber
>> Science Podcast

PERSPECTIVES
805  Circadian Time Redoxed
  M. D. C. Belle and H. D. Piggins
>> Report p. 839
806  Reproduction in Early Amniotes
  P. M. Sander
808  A Swiss Army Knife of Immunity
  S. J. J. Brouns
>> Research Article p. 816
809  Water Vapor in the Lower Stratosphere
  A. R. Ravishankara
>> Report p. 835
811  Cuprates Get Orders to Charge
  J. M. Tranquada
>> Report p. 822
812  Order from Disorder
  D. Wang and A. Fernandez-Martinez
>> Report p. 825
813  An Ancient Portal to Proteolysis
  A. Matouschek and D. Finley
>> Report p. 843

CONTENTS continued >>

COVER
Male rhinoceros beetles (Trypoxylus dichotomus) wield a huge forked horn on their heads. Sexual selection may favor the evolution of exaggerated trait sizes because the developmental mechanism responsible for increased growth also results in signal reliability. See page 860.

Photo: Will Freihofer and Douglas Emlen

DEPARTMENTS
775  This Week in Science
778  Editors’ Choice
780  Science Staff
865  New Products
866  Science Careers
CONTENTS

BREVIA

815 Type 6 Secretion Dynamics Within and Between Bacterial Cells

M. Basler and J. J. Mekalanos

Time-lapse video records a bacterial protein transportation machine in action.

RESEARCH ARTICLE

816 A Programmable Dual-RNA–Guided DNA Endonuclease in Adaptive Bacterial Immunity

M. Jinek et al.

A prokaryotic RNA–directed targeting system can be designed to cleave any DNA sequence.

REPORTS

821 Long-Range Incommensurate Charge Fluctuations in (Y,Nd)Ba$_2$Cu$_3$O$_{6+x}$

G. Ghiringhelli et al.

Scattering experiments uncover an order competing with superconductivity in a cuprate family.

825 Long-Range Ordered Carbon Clusters: A Crystalline Material with Amorphous Building Blocks

L. Wang et al.

Amorphous carbon clusters can be constructed into a crystalline material.

828 Camouflage and Display for Soft Machines

S. A. Morin et al.

Soft robots with microfluidic channels in a skin layer show camouflaging abilities.

832 Mixed-Phase Oxide Catalyst Based on Mn-Mullite (Sm, Gd)Mn$_2$O$_5$ for NO Oxidation in Diesel Exhaust

W. Wang et al.

Costly platinum catalysts for removing nitrogen oxide pollutants could potentially be replaced with metal oxide catalysts.

835 UV Dosage Levels in Summer: Increased Risk of Ozone Loss from Convectively Injected Water Vapor

J. G. Anderson et al.

Convective injection of water vapor into the stratosphere increases the rate of ozone destruction there.

839 Circadian Rhythm of Redox State Regulates Excitability in Suprachiasmatic Nucleus Neurons

T. A. Wang et al.

Diurnal metabolic changes in circadian clock neurons are coupled to changes in potassium channel activity.

843 Identification of the Cdc48-20S Proteasome as an Ancient AAA+ Proteolytic Machine

D. Barthelme and R. T. Sauer

The AAA+ enzyme Cdc48 combines with the 20S peptidase to function as an alternative type of proteasome.

846 The Double-Edged Sword: Does Biomechanism Increase or Decrease Judges’ Sentencing of Psychopaths?

L. G. Aspinwall et al.

An empirical study of sentencing judgments suggests that perceived biological predisposition induces leniency.

849 Hippocampal Place Fields Emerge upon Single-Cell Manipulation of Excitability During Behavior

D. Lee et al.

Nonspatial, cellular factors can play a decisive role in how neurons respond to inputs in awake behaving animals.

853 Neural Representations of Location Composed of Spatially Periodic Bands

J. Krupic et al.

The brain performs a Fourier analysis of space to produce the representations of space in and around the hippocampus.

857 A TOG:αβ-tubulin Complex Structure Reveals Conformation-Based Mechanisms for a Microtubule Polymerase

P. Ayaz et al.

Conformation-selective interactions with microtubule subunits explain how assembly enzymes recognize the growing end.

860 A Mechanism of Extreme Growth and Reliable Signaling in Sexually Selected Ornaments and Weapons

D. J. Emlen et al.

Rhinoceros beetle horns, a sexually selected weapon, are more sensitive to nutrition and reliably indicate male quality.

>> Perspective p. 808

>> Perspective p. 811

>> Perspective p. 812

>> Perspective p. 813

>> News story p. 788; Science Podcast

>> Science Signaling Podcast by D. J. Emlen and A. M. VanHook

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A new technique could help designers create safer structures.

SCIENCEONLINE

SCIENCEEXPRESS
www.scienceexpress.org

Photo-tautomerization of Acetaldehyde to Vinyl Alcohol: A Potential Route to Tropicophoric Acids
D. U. Andrews et al.

Enol tautomers may play a bigger role in atmospheric chemistry than previously suspected.

10.1126/science.1220712

The Precise Solar Shape and Its Variability
J. R. Kuhn et al.

Observations with NASA’s Solar Dynamics Observatory show that the shape of the Sun does not vary with the 11-year solar cycle.

10.1126/science.1223231

Next-Generation Digital Information Storage in DNA
G. M. Church et al.

Digital information can be stored in DNA at densities higher than digital media such as flash memory or quantum holography.

10.1126/science.1226355

Intestinal Inflammation Targets Cancer-Inducing Activity of the Microbiota
J. C. Arthur et al.

Microbes resident in the gut can promote colorectal cancer in mice in an inflammation-independent manner.

10.1126/science.1224820

Single Reconstituted Neuronal SNARE Complexes Zipper in Three Distinct Stages
Y. Gao et al.

Zippering of a single SNARE complex generates high force and energy that can potentially drive synaptic membrane fusion.

10.1126/science.1224492

Predatory Fish Select for Coordinated Collective Motion in Virtual Prey
C. C. Ioannou et al.

Computer-generated prey evolve coordinated group behaviors when attacked by bluegill sunfish.

10.1126/science.1224892

RESEARCH ARTICLE: Proteasome Inhibition Alleviates SNARE-Dependent Neurodegeneration
M. Sharma et al.

Neurodegeneration in a mouse model is abrogated by proteasome inhibitors that reverse impaired SNARE-complex assembly.

SCIENCECAREERS
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Free Career Resources for Scientists

Careers in Fast-Forward
M. Price

Winners of NIH’s Early Independence Awards share the trials and successes of starting their own labs immediately after graduating.

http://scim.ag/CareersFastForward

Tooling Up: Why Good People Leave Good Jobs
D. Jensen

Short stays do not look good to future employers—so why are they so common?

http://scim.ag/GoodPeopleGoodJobs

My Career, My Nonacademic Husband, and Me
A. Ambrosi

The implications of being in a mixed-career couple became apparent as lifestyle differences appeared.

http://scim.ag/MixedDualCareers

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On the 17 August Science Podcast: citizens’ roles in protecting species, biological evidence in courts, sequestration of the U.S. research budget, and more.

RESEARCH ARTICLE: Elicitation of Broadly Neutralizing Influenza Antibodies in Animals with Prior Influenza Exposure
C.-J. Wei et al.

Broadly neutralizing antibodies to influenza can be elicited by vaccination in animals previously infected or immunized by the virus.

RESEARCH ARTICLE: Targeted Tumor-Penetrating siRNA Nanocomplexes for Credentialing the Ovarian Cancer Oncogene ID4
Y. Ren et al.

Tumor-penetrating siRNA nanocomplexes credential ID4 as a therapeutic oncogene target in human ovarian cancer.
Science 337 (6096), 775-865.