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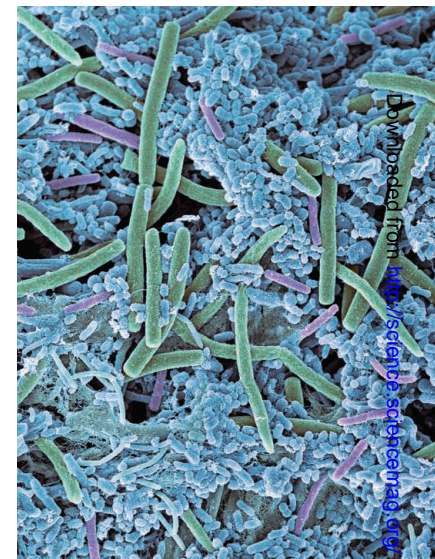
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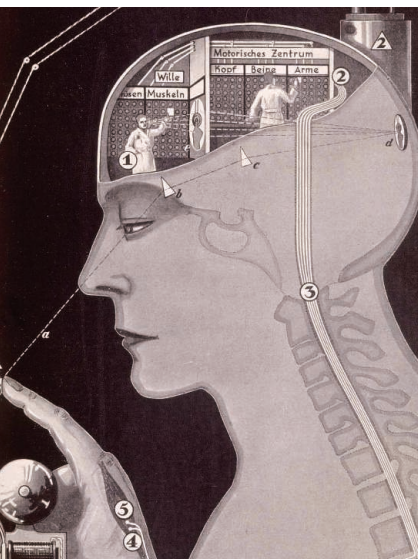
COVER

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.

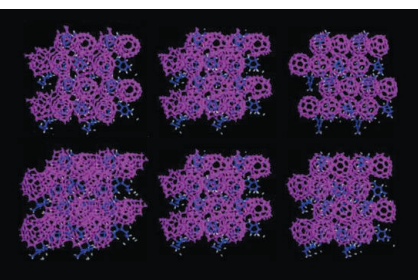
Photo: Will Frehofer and Douglas Emlen

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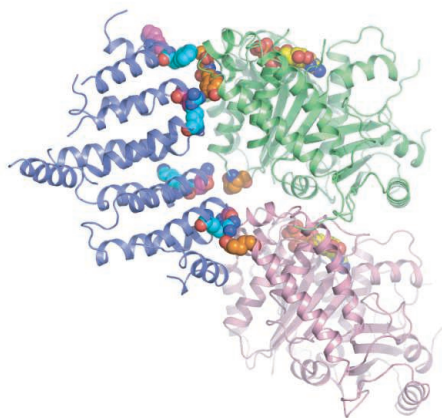
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 A prokaryotic RNA-directed targeting system can be designed to cleave any DNA sequence.
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 Scattering experiments uncover an order competing with superconductivity in a cuprate family.
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 Amorphous carbon clusters can be constructed into a crystalline material.
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- 828** Camouflage and Display for Soft Machines
S. A. Morin et al.
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- 832** Mixed-Phase Oxide Catalyst Based on Mn-Mullite $(Sm, Gd)Mn_2O_5$ for NO Oxidation in Diesel Exhaust
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 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.
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D. Barthelme and R. T. Sauer
 The AAA+ enzyme Cdc48 combines with the 20S peptidase to function as an alternative type of proteasome.
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- 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.
 >> *News story p. 788; Science Podcast*
- 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.
 >> *News story p. 788; Science Podcast*
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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: $\alpha\beta$ -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.
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D. J. Emlen et al.
 Rhinoceros beetle horns, a sexually selected weapon, are more sensitive to nutrition and reliably indicate male quality.
 >> *Science Signaling Podcast by D. J. Emlen and A. M. VanHook*

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SCIENCEONLINE

SCIENCEEXPRESS

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Photo-tautomerization of Acetaldehyde to Vinyl Alcohol: A Potential Route to Tropospheric 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.1218919

SCIENCENOW

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Highlights From Our Daily News Coverage

Why Do Women Get More Migraines?

Brain differences may explain the disparity between the sexes.

http://scim.ag/Women_Migraines

Landscape of Dead Bodies May Have Inspired First Mummies

South American hunter-gatherers began mummifying their dead about 7000 years ago.

<http://scim.ag/First-Mummies>

Too Much Rock 'n' Roll?

A new technique could help designers create safer structures when fans rock too hard.

<http://scim.ag/Safer-Structures>

SCIENCE SIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

14 August issue: <http://scim.ag/ss081412>

RESEARCH ARTICLE: Interference with the PTEN-MAST2 Interaction by a Viral Protein Leads to Cellular Relocalization of PTEN

E. Terrien et al.

The G protein of rabies virus manipulates the cellular localization of PTEN, which may promote cell survival.

RESEARCH ARTICLE: Sequential Inter- and Intra-Subunit Rearrangements During Activation of Dimeric Metabotropic Glutamate Receptor 1

V. Hlavackova et al.

Both subunits in the metabotropic glutamate receptor 1 dimer move relative to each other before one adopts an active conformation.

PERSPECTIVE: L-Type Calcium Channels—On the Fast Track to Nuclear Signaling

M. D'Arco and A. C. Dolphin

In excitation-transcription coupling, some calcium signals are more efficient than others.

PODCAST

D. J. Emlen and A. M. VanHook

Growth of the male rhinoceros beetle's horn is more sensitive to insulin signaling than are other body parts.

>> Report p. 860

ST NETWORK: BioGRID

Explore a collection of published protein-protein and genetic interactions.

ST NETWORK: ChEMBL

Access structural, chemical, and target information for bioactive compounds.

SCIENCE TRANSLATIONAL MEDICINE

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15 August issue: <http://scim.ag/stm081512>

RESEARCH ARTICLE: A Paravascular Pathway Facilitates CSF Flow Through the Brain Parenchyma and the Clearance of Interstitial Solutes, Including Amyloid β

J. J. Iliff et al.

FOCUS: Brain Superhighways

D. J. Begley

Cerebrospinal fluid flows through channels around brain blood vessels that are bounded by astrocytic endfeet, mediated by water transport through aquaporin-4.

RESEARCH ARTICLE: Targeted Tumor-Penetrating siRNA Nanocomplexes for Credentialing the Ovarian Cancer Oncogene *ID4*

Y. Ren et al.

FOCUS: Balancing Tissue and Tumor Formation in Regenerative Medicine

A. M. Bailey

Tumor-penetrating siRNA nanocomplexes credential *ID4* as a therapeutic oncogene target in human ovarian cancer.

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: 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.

SCIENCE CAREERS

www.sciencereers.org/career_magazine

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>

SCIENCE PODCAST

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Free Weekly Show

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

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