

EDITORIAL

- 1071 Much More Than a Telescope
Michael S. Turner

NEWS OF THE WEEK

- 1076 A roundup of the week's top stories

NEWS & ANALYSIS

- 1079 U.S. to Leave Consortium and Go It Alone After 2013
- 1080 Cambridge Seeks Global Reach, Says University Head
- 1081 Hayabusa Gets to the Bottom of Deceptive Asteroid Cloaking
>> *Report p. 1121*
- 1083 8.7 Million: A New Estimate for All the Complex Species on Earth

NEWS FOCUS

- 1084 Who Were the Denisovans?
A Denisovan Legacy in the Immune System?
>> *Science Express Report by L. Abi-Rached et al.; Science Podcast*
- 1088 Mending the Youngest Hearts
- 1090 Europe's Innovation Engine, Eager to Grow, Faces Criticism

LETTERS

- 1092 Endangered Wolves Fall Prey to Politics
B. J. Bergstrom
Predators' Effects on Ecosystem Entropy
W. T. Flueck
Looking to NSF as an NIH Model
W. A. Yost
- 1093 TECHNICAL COMMENT ABSTRACTS
- 1093 CORRECTIONS AND CLARIFICATIONS

BOOKS ET AL.

- 1094 The Changing Body
R. Floud et al., reviewed by L. Haddad
- 1095 Cricket Radio
J. Himmelman, reviewed by M. Berenbaum

EDUCATION FORUM

- 1096 Drawing to Learn in Science
S. Ainsworth et al.
>> *Science Podcast*

PERSPECTIVES

- 1098 Bringing Part of an Asteroid Back Home
A. N. Krot
>> *Reports pp. 1113, 1116, 1119, 1121, 1125, and 1128*
- 1099 Arranging a Cellular Checkerboard
W. Choi and M. Peifer
>> *Report p. 1144*
- 1100 How Great Wings Can Look Alike
S. B. Carroll
>> *Report p. 1137*
- 1102 Another NOTCH for Cancer
R. H. Brakenhoff
>> *Reports pp. 1154 and 1157*
- 1103 A Window on the Sophistication of Plants
R. A. Jorgensen
>> *Report p. 1141*
- 1104 Architecturally Complex Polymers with Controlled Heterogeneity
K. Matyjaszewski

SCIENCE PRIZE ESSAY

- 1106 Astronomical Perspectives for Young Children
C. J. Ödman-Govender and D. Kelleghan

CONTENTS continued >>



page 1084



page 1095

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COVER

False-colored backscattered electron image of a small rocky particle, 150 micrometers in size, recovered from the surface of near-Earth asteroid 25143 Itokawa by the Japanese spacecraft Hayabusa. Mineralogy and chemistry of the particle indicate that the asteroid consists of very primitive solar system material and has had a complex formation history. See the series of Reports beginning on page 1113.

Image: Japanese Aerospace Exploration Agency

DEPARTMENTS

- 1067 This Week in *Science*
- 1072 Editors' Choice
- 1074 *Science* Staff
- 1108 AAAS News & Notes
- 1167 New Products
- 1168 *Science* Careers

REVIEW

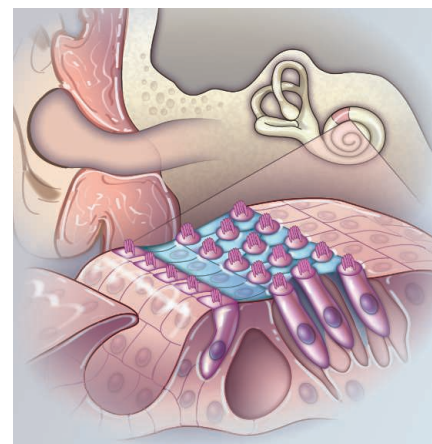
- 1109 Mitochondria and the Autophagy–Inflammation–Cell Death Axis in Organismal Aging
D. R. Green et al.

REPORTS

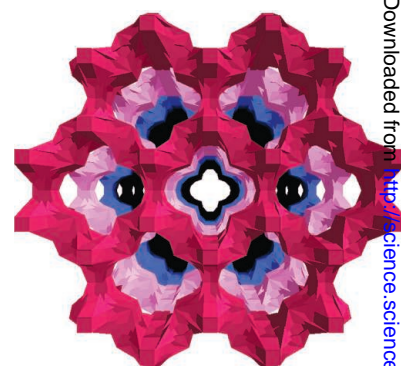
- 1113 Itokawa Dust Particles: A Direct Link Between S-Type Asteroids and Ordinary Chondrites
T. Nakamura et al.
>> *Science Podcast*
- 1116 Oxygen Isotopic Compositions of Asteroidal Materials Returned from Itokawa by the Hayabusa Mission
H. Yurimoto et al.
- 1119 Neutron Activation Analysis of a Particle Returned from Asteroid Itokawa
M. Ebihara et al.
- 1121 Incipient Space Weathering Observed on the Surface of Itokawa Dust Particles
T. Noguchi et al.
>> *News story p. 1081*
- 1125 Three-Dimensional Structure of Hayabusa Samples: Origin and Evolution of Itokawa Regolith
A. Tsuchiyama et al.
- 1128 Irradiation History of Itokawa Regolith Material Deduced from Noble Gases in the Hayabusa Samples
K. Nagao et al.
Laboratory analysis of samples returned from an asteroid establishes a direct link between asteroids and meteorites and provides clues to the complex history of the asteroid and its surface.
>> *Perspective p. 1098*
- 1131 Synthesis and Structure Determination of the Hierarchical Meso-Microporous Zeolite ITQ-43
J. Jiang et al.
A zeolite with microporous channels (6 to 7 angstrom diameter) and mesoporous channels (~2-nanometer diameter) was made.
- 1134 Unraveling the Perplexing Structure of the Zeolite SSZ-57
C. Baerlocher et al.
X-ray analysis reveals a zeolite structure in which 10-sided channels are periodically disrupted by 12-sided channels.

- 1137 *optix* Drives the Repeated Convergent Evolution of Butterfly Wing Pattern Mimicry
R. D. Reed et al.
Heliconius butterfly wing pattern mimicry is driven by cis-regulatory variation of the *optix* gene.
>> *Perspective p. 1100*
- 1141 Chaperonins Facilitate KNOTTED1 Cell-to-Cell Trafficking and Stem Cell Function
X. M. Xu et al.
Active transfer of a transcription factor between plant cells is required for stem cell maintenance.
>> *Perspective p. 1103*
- 1144 Nectins Establish a Checkerboard-Like Cellular Pattern in the Auditory Epithelium
H. Togashi et al.
Interactions between adhesion molecules support the checkerboard-like patterning of cells in the cochlea.
>> *Perspective p. 1099*
- 1147 Impacts of Fishing Low-Trophic Level Species on Marine Ecosystems
A. D. M. Smith et al.
High harvest levels of low-trophic level fishes may have cascading marine ecosystem effects.
- 1151 Expanding the Genetic Code of *Escherichia coli* with Phosphoserine
H.-S. Park et al.
Engineered bacterial translation can be used to direct site-specific insertion of an amino acid into proteins.
- 1154 Exome Sequencing of Head and Neck Squamous Cell Carcinoma Reveals Inactivating Mutations in *NOTCH1*
N. Agrawal et al.
- 1157 The Mutational Landscape of Head and Neck Squamous Cell Carcinoma
N. Stransky et al.
The mutational profile of head and neck cancer is complex and may pose challenges to the development of targeted therapies.
>> *Perspective p. 1102*
- 1161 *MED23* Mutation Links Intellectual Disability to Dysregulation of Immediate Early Gene Expression
S. Hashimoto et al.
A single missense mutation is linked to intellectual impairment.

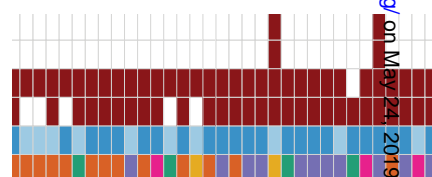
CONTENTS continued >>



pages 1099 & 1144



page 1131



pages 1102, 1154, & 1157

SCIENCEONLINE

SCIENCEEXPRESS

www.sciencexpress.org

Promoting the Peace Process by Changing Beliefs About Group Malleability

E. Halperin et al.

A belief that the beliefs of other groups are changeable rather than fixed is conducive to negotiation.

10.1126/science.1202925

The Shaping of Modern Human Immune Systems by Multiregional Admixture with Archaic Humans

L. Abi-Rached et al.

Viral defense and embryo implantation mechanisms have been shaped by contributions from Neandertal and Denisovan genes.

10.1126/science.1209202

>> *News story p. 1084*

MED12, the Mediator Complex Subunit 12 Gene, Is Mutated at High Frequency in Uterine Leiomyomas

N. Mäkinen et al.

Uterine fibroids frequently harbor mutations in a specific gene that has been implicated in transcriptional regulation.

10.1126/science.1208930

Transformation of a Star into a Planet in a Millisecond Pulsar Binary

M. Bailes et al.

Timing observations of a millisecond pulsar reveal a planet that is far denser than any known planet.

10.1126/science.1208890

A Reservoir of Ionized Gas in the Galactic Halo to Sustain Star Formation in the Milky Way

N. Lehner and J. C. Hawk

Clouds of ionized gas located inside our galaxy provide a major supply of matter for fueling ongoing star formation.

10.1126/science.1209069

TECHNICALCOMMENTS

Comment on "Drought-Induced Reduction in Global Terrestrial Net Primary Production from 2000 Through 2009"

A. Samanta et al.

Full text at www.sciencemag.org/cgi/content/ful/333/6046/1093-c

Comment on "Drought-Induced Reduction in Global Terrestrial Net Primary Production from 2000 Through 2009"

B. E. Medlyn

Full text at www.sciencemag.org/cgi/content/ful/333/6046/1093-d

Response to Comments on "Drought-Induced Reduction in Global Terrestrial Net Primary Production from 2000 Through 2009"

M. Zhao and S. W. Running

Full text at www.sciencemag.org/cgi/content/ful/333/6046/1093-e

SCIENCENOW

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Highlights From Our Daily News Coverage

'Eco-Friendly' Chilean Sea Bass

May Not Be So Green

A genetic study finds the first evidence of mislabeling in fish certified as sustainable.

<http://scim.ag/ecoseabass>

Immune System Protects Female Bedbugs From Traumatic Sex

Insects anticipate infections from violent male insemination.

<http://scim.ag/bedbugbacteria>

Lager Beer's Mystery Yeast

Scientists identify a microbe that is key to the brewing process.

<http://scim.ag/lageryeast>

SCIENCE SIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

23 August issue: <http://scim.ag/ss082311>

RESEARCH ARTICLE: Tumor Progression Locus 2 Mediates Signal-Induced Increases in Cytoplasmic Calcium and Cell Migration

M. Hatziafentou et al.

The kinase Tpl2 triggers calcium signaling and cell migration downstream of various receptors implicated in cancer and inflammation.

PERSPECTIVE: TBK1 Mediates Crosstalk Between the Innate Immune Response and Autophagy

H. Weidberg and Z. Elazar

Phosphorylation of an autophagy adaptor by a kinase involved in innate immune responses limits pathogenic bacterial growth.

PODCAST

H. D. Mansvelder and A. M. VanHook

β 2 subunit-containing nicotinic acetylcholine receptors in the prefrontal cortex are sufficient for acetylcholine-mediated enhancement of attentional focus.

SCIENCE CAREERS

www.sciencereers.org/career_magazine

Free Career Resources for Scientists

Experimental Error: This Is Only a Test

A. Rubin

As we are training to become fully fledged scientists, we ourselves are the test subjects.

http://scim.ag/EE_Testing

Creating Your Own Job: From Engineer to Entrepreneur

S. A. Holgate

A layoff set engineer Diana Hodgins on a new career path, leading eventually to managing her own company.

http://scim.ag/Diana_Hodgins

In Person: A Sabbatical in Namibia

L. A. Levin and D. M. Checkley

On the heels of our feature on doing science in Namibia, two scientists describe their sabbatical experiences there.

http://scim.ag/Namibia_Sabbatical

SCIENCE TRANSLATIONAL MEDICINE

www.sciencetranslationalmedicine.org

Integrating Medicine and Science

24 August issue: <http://scim.ag/stm082411>

COMMENTARY: Herding CATS

G. A. Petsko

The National Center for Advancing Translational Sciences seems primed to polarize scientists while possibly failing to drive biomedical research and development forward.

RESEARCH ARTICLE: Long-Term Persistence of a Polyclonal T Cell Repertoire After Gene Therapy for X-Linked Severe Combined Immunodeficiency

H. B. Gaspar et al.

RESEARCH ARTICLE: Hematopoietic Stem Cell Gene Therapy for Adenosine Deaminase-Deficient Severe Combined Immunodeficiency Leads to Long-Term Immunological Recovery and Metabolic Correction

H. B. Gaspar et al.

PERSPECTIVE: A Tale of Two SCIDS

K. L. Shaw and D. B. Kohn

Gene therapy can restore immune and metabolic function in immunodeficient patients.

PERSPECTIVE: A Tale of Two SCIDS

K. L. Shaw and D. B. Kohn

Gene therapy can restore immune and metabolic function in immunodeficient patients.

RESEARCH ARTICLE: Potent Kinetic Stabilizers That Prevent Transthyretin-Mediated Cardiomyocyte Proteotoxicity

M. M. Alhamadshah et al.

A screen for transthyretin ligands that inhibit protein aggregation identifies agents that prevent amyloid toxicity in cardiomyocytes.

SCIENCEPODCAST

www.sciencemag.org/multimedia/podcast

Free Weekly Show

On the 26 August *Science* Podcast: dust particles from asteroid Itokawa, new insights into the Denisovans, drawing to learn in science, and more.

SCIENCEINSIDER

news.sciencemag.org/scienceinsider

Science Policy News and Analysis

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