# **SCIENCE**

# **CONTENIDO**

# VOLUME 330 No. 6008, NOVEMBER 2010

# **EDITORIAL**

1155 Protect U. S. Science Funding. *Alan I. Leshner.* 

# NEWS OF THE WEEK

- 1162 New Republicans Could Revise Party Line on Research Funding.
- 1163 Roche Exits RNAi Field, Cuts 4800 Jobs.
- 1164 Excavation Yields Tantalizing Hints of Earliest Marine Reptiles.
- 1164 From the *Science* Policy Blog.
- 1165 From Science's Online Daily News Site.
- 1166 Oversight But No Strict Rules for Synthetic Biology.
- 1166 Collins Endorses Merger of U.S. Addiction Research Programs.
- 1167 New Clues About What Makes the Human Brain Special.

### NEWS FOCUS

- Bacteria and Asthme: Untangling the Links.
- 1170 The Fight for Yasuni.
- 1172 Diseases in a Dish Take Off. Stem Cells for Sale. >> Science Podcast
- 1174 Preserving African Cultural Heritage Meeting. Archaeologist, or Activist? Early Dates for Diepkloof Latter-Day Livingstone Digs Along the Congo.

### LETTERS

1176 Make Way for Ethanol. L. R. Lynd and C. H. de Brito Cruz. Permafrost and Wetland Carbon Stocks. *E. A. Davidson.* 

Response. *P. B. Reich*.

Life in Science: Lab Family Feud. *D. A. Chamovitz.* 

# BOOKS ET AL.

- 1178 The climate Fix. *R. Pielke Jr.;*Hack the Planet. *E. Kintisch, Reviewed by K. E. Trenberth.*
- 1180Claude Lévi-Strauss.<br/>P. Wilcken, reviewed by P. Shankman.

## **POLICY FORUM**

1181The Energy-Poverty-Climate Nexus.C. E. Castillo and D. M. Kammen.

## PERSPECTIVES

- Puzzled by PML.
  B. Culijkovic-Kraljacic and K. L. B. Borden.
  >> Report p. 1247
- 1184 Cosmic Rays from Cosmic Birth. *T. Ray.* >>Report p. 1209
- 1185 The Case for RNA. C. C. Liu and A. P. Arkin. >> Report p. 1251
- 1187Intermediate Steps.D. P. Devos and E. G. Reynaud.
- 1188 Quantum Measurement and Control of Single Spins in Diamond.
   *G. J. Milburn.* >> Report p. 1212

#### 1189 Lynx for Braking Plasticity. M. J. Higley and S. M. Strittmetter. >> Report p. 1238

1191Retrospective: Paul F. Barbara (1953-2010).P. J. Rossky and G. C. Walker.

#### SCIENCE PRIZE ESSAY

1192 Got a Question? "Ask A Biologist". *C. Kazilek.* 

#### REVIEW

1198 From the Connectome to the Synaptome: An Epic Love Story. *J. De Felipe*.

# **RESEARCH ARTICLES**

1203 Crystal Structure of the Eukaryotic Ribosome.
 *A. Ben-Shem et al.* The structure of the 805 ribosome from yeast has been determined at 4.15 angstrom resolution.

# REPORTS

1209 A Magnetized Jet from a Massive Protostar. C. Carrasco-González et al. Observations reveal polarized synchrotron emission from the jet of a young stellar object. >> Perspective p. 1184 1212 Spin-Light Coherence for Single-Spin Measurement and Control in Diamond. B. B. Buckley et al. Optical pulses were used to nondestructively probe and manipulate the spin state of nitrogen vacancy defects in diamond. >> Perspective p. 1188 1216 The Evolution of Maximum Body Size of Terrestrial Mammals. F. A. Smith et al.

Maximum mammal size increased at the beginning of the Cenozoic, then leveled off after about 25 million years.

1219 Modular Organic Structure-Directing Agents for the Synthesis of Zeolites. *R. Simancas et al.* 

Phosphazene molecules enable the synthesis of a rare naturally occurring zeolite.

1222 Renewable Chemical Commodity Feedstocks from Integrated Catalytic Processing of Pyrolysis Oils. *T. P. Vispute et al.* 

The addition of hydrogen helps boots the yield of useful commodity compounds from pyrolized biomass.

1227 The Core Structure of Basal Dislocations in Deformed Sapphire ( $\alpha$ -Al<sub>2</sub>O<sub>3</sub>).

## A. H. Heuer et al.

Sophisticated imaging is used to determine the behavior of aluminum and oxygen ions in the cores of dislocations in sapphire.

#### 1231 How Cats Lap: Water Uptake by *Felis catus*. *P. M. Reis et al.*

Cats use fluid inertia to generate a liquid column that they catch in their mouths before gravity destroys it.

# 1234 Reducing the Gender Achievement Gap in College Science: A Classroom Study of Values Affirmation.

#### A. Miyake et al.

A writing exercise improves the performance of female physics students. >> *Science Podcast* 

#### 1238 Lynx1, a Cholinergic Brake, Limits Plasticity in Adult Visual Cortex. *H. Morishita et al.*

A gene identified in the mouse may show the way to improved treatments for amblyopia, a condition of indistinct vision. >> *Perspective p. 1189* 

# 1240 Motor Control by Sensory Cortex.

### F. Matyas et al.

Mouse whisker movements are controlled by both the sensory and motor cortex for navigation in complex environment.

# 1244 Poly(A) Tail Recognition by a Viral RNA Element Through Assembly of a Triple Helix.

#### R. M. Mitton-Fry et al.

A hairpin structure within a viral noncoding RNA protects its poly(A) tail from degradation.

# 1247 PML Regulates Apoptosis at Endoplasmic Reticulum by Modulating Calcium Release.

#### C. Giorgi et al.

The promyelocytic leukemia protein likely influences apoptosis by influencing a calcium channel in the endoplasmic reticulum. >> *Perspective p. 1183* 

# 1251 Reprogramming Cellular Behavior with RNA Controllers Responsive to Endogenous Proteins.

#### S. J. Culler et al.

Cells engineered to detect a cancer-associated marker produce a protein that sensitizes them to an anticancer drug. >> *Perspective p. 1185* 

### DEPARTMENTS

- 1152 This Week in *Science*
- 1156 Editors' Choice

- 1158 Science Staff
- 1161Random Samples
- 1195 AAAS News & Notes
- 1256 New Products
- 1257 Science Careers

## COVER

A domestic cat (*Felis catur*) laps milk by lowering its tongue to touch the liquid surface and then rapidly pulling it up, creating a liquid column, the top of which the animal captures in its mouth before gravity draws it down. Measurements of lapping frequency in domestic and wild cats suggest that this mechanism is conserved among felines and that lapping frequency is tuned to maximize the ingested volume per lap. See page 1231. *Photo: Micaela Pilotto, Pedro Reis, Roman Stocker.*