NEWS & COMMENT

Genetic Testing Set for Takeoff 464

NIH Grants: Peer Review Reforms Get Good Review 467

Cancer Treatment: Will History Repeat for Boron Capture Therapy? 468

Mikulski Boosts NSF Budget 469

Space Science: A Rejuvenated Companion for Ida? 470

RESEARCH NEWS

The Chemistry of Life at the Margins 471
Mathematicians Get an On-Line Fingerprint File 473
Time-Reversed Sound Waves Resonate Among Physicists 474
E. coli Scare Spawns Therapy Search 475

PERSPECTIVE

Searching for the Quark-Gluon Plasma 480
G. F. Bertsch

ARTICLES

Lunar Laser Ranging: A Continuing 482
Legacy of the Apollo Program

Mobile Point Defects and Atomic Basis for Structural Transformations of a Crystal Surface
I. S. Hwang, S. K. Theiss, J. A. Golovchenko

REPORTS

Magmatic Vapor Source for Sulfur 497
Dioxide Released During Volcanic Eruptions: Evidence from Mount Pinatubo
P. J. Wallace and T. M. Gerlach

Evidence from Paleosols for the Geological Antiquity of Rain Forest
G. J. Retallack and J. German-Heins

DEPARTMENTS

THIS WEEK IN SCIENCE 453
EDITORIAL 455
The Spousal Abuse Problem

LETTERS 457
Biological Diversity and Agriculture: C. R. Magules and K. J. Gaston; K. H. Redford and E. Dinerstein; M. Hunter • Omission of References: L. B. McGowan and G. Li

SCIENCESCOPE 463

RANDOM SAMPLES 476
Psychology in Crisis? • Professors Have Their Say

PRODUCTS & MATERIALS 554
Motions of atoms on a germanium surface showing the fundamental excitations from crystalline order that bring about transformations of solids. The interstitial-like (lower left) and vacancy-like (middle right) excitations correspond to those responsible for mass transport, many phase transitions, and catalysis. This atomic-scale view of such dynamic phenomena is made possible by the tunneling microscope. See page 490. [Illustration: Jeff Knight]

Fabrication of Atomic-Scale Structures on Si(001) Surfaces
C. T. Salling and M. G. Lagally

Fluctuations and Supercooling of DNA
J. F. Marko and E. D. Sigcia

Engineered Biosynthesis of a Complete Macrolactone in a Heterologous Host
C. M. Kao, L. Katz, C. Khosla

Creation of Liquid Crystal Waveguides with Scanning Force Microscopy
M. Rüetschi, P. Grüter, J. Fünschilling, H.-J. Güntherodt

Measurement of Laser-Plasma Electron Density with a Soft X-ray Laser Deflectometer

Contribution of Early Cells to the Fate Map of the Zebrafish Gastrula
K. A. Helde, E. T. Wilson, C. J. Cretekos, D. J. Grunwald

The High-Resolution Crystal Structure of a Parallel-Stranded Guanine Tetraplex

The Three-Dimensional Crystal Structure of the Catalytic Core of Cellobiohydrolase I from Trichoderma reesei

Fas and Perforin Pathways as Major Mechanisms of T Cell–Mediated Cytotoxicity
D. Kägi, F. Vignaux, B. Ledermann, K. Burk, V. Depaertere, S. Nagata, H. Hengartner, P. Golstein

Interaction of Rac with p67phox and Regulation of Phagocytic NADPH Oxidase Activity
D. Diekmann, A. Abo, C. Johnston, A. W. Segal, A. Hall

14-3-3 Protein Homologs Required for the DNA Damage Checkpoint in Fission Yeast
J. C. Ford, F. Al-Khodairy, E. Fotou, K. S. Shieldrick, D. J. F. Griffiths, A. M. Carr

Association of Polyomavirus Middle Tumor Antigens with 14-3-3 Proteins
D. C. Pallas, H. Fu, L. C. Haehnel, W. Weller, R. J. Collier, T. M. Roberts

Sensing Starvation: A Homoserine Lactone–Dependent Signaling Pathway in Escherichia coli
G. W. Huisman and R. Kolter

Direct Cortical Representation of Drawing
A. B. Schwartz

Endothelial NOS and the Blockade of LTP by NOS Inhibitors in Mice Lacking Neuronal NOS

TECHNICAL COMMENTS

Cortical Reorganization and Deafferentation in Adult Macaques
J. P. Lund, G.-D. Sun, Y. Lamarre; T. P. Pons

Cellular fate in zebrafish

517

AAAS Board of Directors
Eloise E. Clark
Retiring President, Chairman
Francisco J. Ayala
President
Rita R. Colwell
President-elect
William A. Lester Jr.
Simon A. Levin
Anna C. Roosevelt
Alan Schrieheim
Jeanne M. Struve
Chang-Lin Tien
Warren M. Washington
Nancy S. Wexler
William T. Golden
Treasurer
Richard S. Nicholson
Executive Officer

SCIENCE (ISSN 0036-8075) is published weekly on Friday, except the last week in December, by the American Association for the Advancement of Science, 1333 H Street, NW, Washington, DC 20005. Second-class postage (publication No. 484460) paid at Washington, DC, and additional mailing offices. Copyright © 1994 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership and subscription (1 issue): $82 (50% allocated to subscription). Domestic institutional subscription (51 issues): $215. Foreign postage extra: Mexico, Caribbean (surface mail) $50; other countries (air assist delivery) $95. First-class, airmail, student and emeritus rates on request. Canadian rates with GST available upon request. GST #1254 681/22. Printed in the U.S.A.

Change of address: allow 6 weeks, giving old and new address and 11-digit account number. Postmaster: Send change of address to Science, P.O. Box 2033, Marion, OH 43305-2033. Single copy sales: $6.00 per issue prepaid includes surface postage. Guide to Biotechnology Products and Instruments, $20. Bulk rates on request. Authorization to photocopy material for internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act is granted by AAAS to libraries and users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the base fee of $1 per copy plus $0.10 per page is paid directly to CCC, 27 Congress Street, Salem, MA 01970. The identification code for Science is 0036-8075/033 $1 +.10. Science is indexed in the Reader’s Guide to Periodical Literature and in several specialized indexes.
Editor's Summary

This copy is for your personal, non-commercial use only.

**Article Tools**  Visit the online version of this article to access the personalization and article tools:
http://science.sciencemag.org/content/265/5171

**Permissions**  Obtain information about reproducing this article:
http://www.sciencemag.org/about/permissions.dtl