NEWS & COMMENT

Bacterial Genome Sequence Bagged  468
Homing In on the Human Genome  469

R&D Budget Takes Shape in Congress, Piece by Piece  471

Building a Wall Against Toxic Waste  473

From Russia With Love: U.S. Cloud Data  473

Japan Picks First Centers of Excellence  474

RESEARCH NEWS

“Obese” Protein Slims Mice  475

New Foot Steps Into Walking Debate  476

At Quadrennial Geophysics Fest, Earth Scientists Think Globally  477

Researchers Build a Secure Plasma Prison  478
A Reprieve for Princeton Tokamak?  479

Developmental Biology: In Toulouse, the Weather—and the Science—are Hot  480

Random Samples

Deliberate Poisoning at NIH? • Blood Woes in Canada • Stop Worrying and Love the Bomb • Ocean Crackup  483

Perspectives

One Signal, Two Body Axes  489

K. Anderson

Perspective

Urban Ozone Control and Atmospheric Reactivity of Organic Gases  491

A. Russell, J. Milford, M. S. Bergin, S. McBride, L. McNair, Y. Yang, W. R. Stockwell, B. Croes

Research Article

Whole-Genome Random Sequencing  496


Departments

THIS WEEK IN SCIENCE  457
EDITORIAL  459
LETTERS  461
Soil Erosion Estimates and Costs: P. Crosson; D. Pimentel, C. Harvey, P. Resosudarmo, K. Sinclair, D. Kurz, M. McNair, S. Crist, L. Shpritz, L. Fitton, R. Saffouri, R. Blair

INSIDE AAAS  572
PRODUCTS & MATERIALS  576

Random Samples

Deliberate Poisoning at NIH? • Blood Woes in Canada • Stop Worrying and Love the Bomb • Ocean Crackup

BOOK REVIEWS

Rethinking Objectivity and Telling the Truth About History, reviewed by P. Forman • Vignettes • Books Received • Publishers’ Addresses  565

Board of Reviewing Editors

Frederick W. Alt
Don L. Anderson
Michael A. Bishop
Stephen J. Benkovic
David E. Bloom
Pere Borst
Henry R. Bourne
Michael S. Brown
James I. Bull
Kathryn Calame
C. Thomas Caskey
Dennis W. Choi
John M. Coffin
F. Fleming Crim
Paul J. Crutzen
James E. Dahlberg
Robert Desimone
Paul T. Englund
Richard G. Fairbanks
Douglas T. Fearon
Harry A. Fozzard
Klaus Friedrich
Theodore H. Geisballe
Roger I. M. Glass
Stephen P. Goff
Peter N. Goodfellow
Corey S. Goodman
Ira Herskowitz
Tomas Héklett
Eric F. Johnson
Stephen M. Kosslyn
Michael LaBarbera
Nicole Le Douarin
Charles S. Leveings III
Alexander Levitzki
Harvey F. Lodish
Richard Losick
Richard Lührmann
Diane Mathis
Anthony R. Means
Shigetada Nakashima
Roger A. Nicoll
Stuart L. Pimm
Yehshayu Pocker
Dennis A. Powers
Ralph S. Quistreper
V. Ramanathan
Douglas C. Rees
T. M. Rice
David G. Rubie
Erkki Ruoslahti
Gottfried Schatz
Jozef Scholl
Ronald H. Schwartz
Terrence J. Sejnowski
Ellen Solomon
Thomas A. Steitz
Michael P. Streyker
Robert T. N. Tian
Emil R. Unanue
Geerat J. Vermeij
Bert Vogelstein
Arthur Weiss
Zena Werb
George M. Whitesides
Owen N. Witte
William A. Wulf

Board of Reviewing Editors

Published by the American Association for the Advancement of Science
Circular representations of the Haemophilus influenzae Rd genome, which has now been sequenced and assembled. The illustration depicts the locations of genes color coded by their role in the organism, the underlying clone scaffolding used to confirm the structure, locations of ribosomal RNA operons, and other global characteristics of the DNA sequence. See page 538 and the related News story (page 468) and Research Article (page 496). [Image: A. R. Kerlavage]

reports

Force Fluctuations in Bead Packs
C.-h. Liu, S. R. Nagel, D. A. Schecter, S. N. Coppersmith, S. Majumdar, O. Narayan, T. A. Witten

Total Alignment of Calcite at Acidic Polydiacetylene Films: Cooperativity at the Organic-Inorganic Interface
A. Berman, D. J. Ahn, A. Lio, M. Salmeron, A. Reichert, D. Charych

Direct Observation of Dislocation Core Structures in CdTe/GaAs(001)
A. J. McGibbon, S. J. Pennycook, J. E. Angelo

Sterkfontein Member 2 Foot Bones of the Oldest South African Hominid
R. J. Clarke and P. V. Tobias

Synthesis and Application of Modulated Polymer Gels
Z. Hu, X. Zhang, Y. Li

Importance of Historical Contingency in the Stereochemistry of Hydratase-Dehydratase Enzymes
J. R. Mohrig, K. A. Moerke, D. L. Cloutier, B. D. Lane, E. C. Person, T. B. Onasch

Interaction of Papillomavirus E6 Oncoproteins with a Putative Calcium-Binding Protein
J. J. Chen, C. E. Reid, V. Band, E. J. Androphy

Unimpaired Thymic and Peripheral T Cell Death in Mice Lacking the Nuclear Receptor NGFI-B (Nur77)

A Role for CD5 in TCR-Mediated Signal Transduction and Thymocyte Selection
A. Tarakhovsky, S. B. Kanner, J. Hombach, J. A. Ledbetter, W. Muller, N. Killeen, K. Rajewsky

Frequency and Distribution of DNA Uptake Signal Sequences in the Haemophilus influenzae Rd Genome
H. O. Smith, J.-F. Tomb, B. A. Dougherty, R. D. Fleischmann, J. C. Venter

Effects of the obese Gene Product on Body Weight Regulation in ob/ob Mice
M. A. Pellemounter, M. J. Cullen, M. B. Baker, R. Hecht, D. Winters, T. Boone, F. Collins

Weight-Reducing Effects of the Plasma Protein Encoded by the obese Gene

Recombinant Mouse OB Protein: Evidence for a Peripheral Signal Linking Adiposity and Central Neural Networks
L. A. Campfield, F. J. Smith, Y. Guisez, R. Devos, P. Burn

Induction of MHC Class I Genes in Neurons
H. Neumann, A. Cavalié, D. E. Jenne, H. Wekerle

Monitoring Release of Neurotrophic Activity in the Brains of Awake Rats
C. Humpel, E. Lindqvist, S. Söderström, A. Kyllberg, T. Ebendal, L. Olson

Activation of Yeast PBS2 MAPKK by MAPKKKs or by Binding of an SH3-Containing Osmosensor
T. Maeda, M. Takekawa, H. Saito

Cover

AAAS Board of Directors

Francisco J. Ayala
Rita R. Colwell
Jane Lubchenco
President-elect

President

vice President

Anna C. Roosevelt
Alan Siersbheim
Jean E. Taylor
Chang Lin Tien
Nancy S. Wesler
William T. Golden
Richard S. Nicholson
Treasurer
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 © 1995 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic subscription rate and subscription (1 year): $97.50 allocated to subscription). Domestic institutional subscription (51 issues): $228. Foreign postage extra: Mexico, Caribbean (surface mail): $53; other countries (air assist delivery): $93. First class, airmail, student and emeritus rates on request. Canadian rates with GST available upon request, GST #1254 88122. Printed in the U.S.A.

Change of address: allow 6 weeks, giving old and new addresses and 11-digit account number. Postmaster: Send change of address to Science, P.O. Box 2033, Marion, OH 43305-2033. Single copy sales: $7.00 per issue prepaid includes surface postage: 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 other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that $3.00 per article is paid to CCC, 27 Congress Street, Salem, MA 01970. The identification code for Science is 0036-8075/95 $3.00. Science is indexed in the Reader's Guide to Periodical Literature and in several specialized indexes.

475, 540, 543 & 546
OB protein weighs in

Indicates accompanying feature
Science 269 (5223), 457-577.