

835 This Week in *Science*

Editorial

837 Hybrid Corn

Policy Forum

839 Education and Human Resources at the National Science Foundation: E. BLOCH

Letters

843 Affordability of Science: G. M. CARROW ■ "Purposeful Evolution": J. L. CAREW ■ The Old Puritanism?: G. B. GORI ■ Electricity Use: T. M. BESMANN ■ "Life" in an Abstract World: A. M. RUSSELL ■ Asbestos and Carcinogenicity: J. C. McDONALD AND A. D. McDONALD

News & Comment

848 Bloch Leaves NSF in Mainstream ■ Leadership with an Industrial Flavor ■ Magnet Lab: Science to the Highest Bidder?
852 FDA Publishes Bovine Growth Hormone Data ■ Europe: Bovine Growth Hormone in a Political Maze
853 Greens Make Physicists See Red
854 *Briefings*: Cold Unit Takes a Powder ■ Sellers' Market Looms for Professors ■ Good Times for Santa Fe Think Tank ■ DOE Delays Reporting the Cost of the SSC ■ Harvard Trades Debt for Scholars ■ Ocean Video ■ Lizzie, Queen of Scots ■ Economist to Head IIASA

Research News

856 The Mind Revealed?
858 A New Wave in Applied Mathematics
860 After Loma Prieta Uncertainty Remains ■ Worse News for the Bay Area
861 Hot Young Stars
862 Putting SQUIDs to Work

Articles

863 Quaternary Deepwater Paleooceanography: E. A. BOYLE
870 Seeing Phenomena in Flatland: Studies of Monolayers by Fluorescence Microscopy: C. M. KNOBLER
875 Bovine Growth Hormone: Human Food Safety Evaluation: J. C. JUSKEVICH AND C. G. GUYER

Research Article

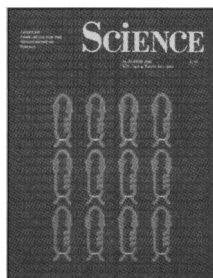
884 De Novo Design, Expression, and Characterization of Felix: A Four-Helix Bundle Protein of Native-Like Sequence: M. H. HECHT, J. S. RICHARDSON, D. C. RICHARDSON, R. C. OGDEN

Reports

892 A Network Model of Catecholamine Effects: Gain, Signal-to-Noise Ratio, and Behavior: D. SERVAN-SCHREIBER, H. PRINTZ, J. D. COHEN

■ **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 © 1990 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership and subscription (51 issues): \$80. Domestic institutional subscription (51 issues): \$150. Foreign postage extra: Canada \$46, other (surface mail) \$46, air mail via Amsterdam \$85. First class, airmail, school-year, and student rates on request. **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 1723, Riverton, NJ 08077. **Single copy sales:** Current issue, \$3.50; back issues, \$5.00; Biotechnology issue, \$6.00 (for postage and handling, add per copy \$0.50 U.S., \$1.00 all foreign); Guide to Biotechnology Products and Instruments, \$20 (for postage and handling add per copy \$1.00 U.S., \$1.50 Canada, \$2.00 other foreign). 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 the base fee of \$1 per copy plus \$0.10 per page is paid directly to CCC, 27 Congress Street, Salem, Massachusetts 01970. The identification code for *Science* is 0036-8075/83 \$1 + .10. *Science* is indexed in the *Reader's Guide to Periodical Literature* and in several specialized indexes.

■ The American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objectives are to further the work of scientists, to facilitate cooperation among them, to foster scientific freedom and responsibility, to improve the effectiveness of science in the promotion of human welfare, to advance education in science, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.



COVER Artistic representation of the secondary structure prediction from a neural network analysis of the principal neutralization determinant of HIV-1. The β sheets are shown by arrows and α helices by spirals. See page 932. [Illustration by Elizabeth Bothwell, Gregory LaRosa, and Scott Putney; neural network analysis by L. Howard Holley and Martin Karplus]

- 895 The C_7 Cluster: Structure and Infrared Frequencies: J. R. HEATH, R. A. SHEEKS, A. L. COOKSY, R. J. SAYKALLY
- 897 Tunable Far-IR Laser Spectroscopy of Jet-Cooled Carbon Clusters: The ν_2 Bending Vibration of C_3 : C. A. SCHMUTTENMAER, R. C. COHEN, N. PUGLIANO, J. R. HEATH, A. L. COOKSY, K. L. BUSAROW, R. J. SAYKALLY
- 900 Ungrouped Iron Meteorites in Antarctica: Origin of Anomalously High Abundance: J. T. WASSON
- 902 Slow Mortality Rate Accelerations During Aging in Some Animals Approximate That of Humans: C. E. FINCH, M. C. PIKE, M. WITTEN
- 906 Endogenous Reproductive Rhythms in a Tropical Bird: E. GWINNER AND J. DITTAMI
- 908 Increased Life-Span of *age-1* Mutants in *Caenorhabditis elegans* and Lower Gompertz Rate of Aging: T. E. JOHNSON
- 912 Suppression of Human Colorectal Carcinoma Cell Growth by Wild-Type p53: S. J. BAKER, S. MARKOWITZ, E. R. FEARON, J. K. V. WILLSON, B. VOGELSTEIN
- 915 A β_3 Integrin Mutation Abolishes Ligand Binding and Alters Divalent Cation-Dependent Conformation: J. C. LOFTUS, T. E. O'TOOLE, E. F. PLOW, A. GLASS, A. L. FRELINGER III, M. H. GINSBERG
- 918 Presentation of Exogenous Antigen with Class I Major Histocompatibility Complex Molecules: K. L. ROCK, S. GAMBLE, L. ROTHSTEIN
- 921 The Role of B Cells for in Vivo T Cell Responses to a Friend Virus-Induced Leukemia: K. R. SCHULTZ, J. P. KLARNET, R. S. GIENI, K. T. HAYGLASS, P. D. GREENBERG
- 924 Inhibition of Leishmanias But Not Host Macrophages by the Antitubulin Herbicide Trifluralin: M. M.-Y. CHANG AND D. FONG
- 926 Cell Alignment Required in Differentiation of *Myxococcus xanthus*: S. K. KIM AND D. KAISER
- 928 Interphase and Metaphase Resolution of Different Distances Within the Human Dystrophin Gene: J. B. LAWRENCE, R. H. SINGER, J. A. MCNEIL
- 932 Conserved Sequence and Structural Elements in the HIV-1 Principal Neutralizing Determinant: G. J. LAROSA, J. P. DAVIDE, K. WEINHOLD, J. A. WATERBURY, A. T. PROFY, J. A. LEWIS, A. J. LANGLOIS, G. R. DREESMAN *et al.*

Book Reviews

- 937 Dirac, reviewed by M. DRESDEN ■ Monte Verde, R. E. MORLAN ■ Books Received

Products & Materials

- 940 Scientific Word Processing Software ■ Magnetic Isolation of DNA ■ Programmable Wavelength HPLC Detector ■ Fourier Transform Mass Spectrometer ■ Top-Loading Balances ■ Automated Biopurification ■ Microscope Stage Warming Plate ■ Literature

Board of Directors

Richard C. Atkinson
*Retiring President,
Chairman*

Donald N. Langenberg
President

Leon M. Lederman
President-elect

Mary Ellen Avery
Francisco J. Ayala
Eugene H. Cota-Robles
Robert A. Frosch
Joseph G. Gavin, Jr.
John H. Gibbons
Beatrix A. Hamburg
Florence P. Haseltine
William T. Golden
Treasurer

Richard S. Nicholson
Executive Officer

Editorial Board

Elizabeth E. Bailey
David Baltimore
William F. Brinkman
E. Margaret Burbidge
Pierre-Gilles de Gennes
Joseph L. Goldstein
Mary L. Good
F. Clark Howell
James D. Idol, Jr.
Leon Knopoff
Oliver E. Nelson
Yasutomi Nishizuka
Helen M. Ranney
David M. Raup
Howard A. Schneiderman
Larry L. Smarr
Robert M. Solow
James D. Watson

Board of Reviewing Editors

John Abelson
Don L. Anderson
Stephen J. Benkovic
Gunter K-J Blobel
Floyd E. Bloom
Henry R. Bourne
James J. Bull
Kathryn Calame
Charles R. Cantor
Ralph J. Cicerone
John M. Coffin
Robert Dorfman
Bruce F. Eldridge
Paul T. Englund
Fredric S. Fay
Harry A. Fozzard

Theodore H. Geballe
Roger I. M. Glass
Stephen P. Goff
Corey S. Goodman
Stephen J. Gould
Eric F. Johnson
Stephen M. Kosslyn
Konrad B. Krauskopf
Charles S. Levings III
Richard Losick
Joseph B. Martin
John C. McGiff
Anthony R. Means
Mortimer Mishkin
Roger A. Nicoll
William H. Orme-Johnson III
Carl O. Pabo
Yeshayau Pocker

Dennis A. Powers
Erkki Ruoslahti
Thomas W. Schoener
Ronald H. Schwartz
Terrence J. Sejnowski
Robert T. N. Tjian
Virginia Trimble
Emil R. Unanue
Geerat J. Vermeij
Bert Vogelstein
Harold Weintraub
Irving L. Weissman
Zena Werb
George M. Whitesides
Owen N. Witte
William B. Wood
Keith Yamamoto

Science

249 (4971)

Science **249** (4971), 835-940.

ARTICLE TOOLS

<http://science.sciencemag.org/content/249/4971>

PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. The title *Science* is a registered trademark of AAAS.

Copyright © 1990 The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works.