NEWS & COMMENT

Can Meta-Analysis Make Policy? 960
Is the Vote Count Biased? 961
The Power of Positive Thinking 962
White House Ponders Increase for DOE Labs 963
Neutron Source Fights for Its Life 963
Plant Biotechnology: Lay U.K. Panel Savors Debate 964
Italian Universities: Corruption Scandal Reaches Academe 965
First Biotech Safety Rules Don’t Deter Chinese Efforts 966
Peer Review in Cyberspace 967

RESEARCH NEWS

Glia: The Brain’s Other Cells 970
High-Energy Physics: Making the Stuff of the Early Universe 972
Possible New Test Found for Alzheimer’s Disease 973
Finding the Most Distant Galaxies 974
Mapping Our Galactic Neighborhood 974
Second Thoughts About Shoemaker-Levy Impact 975

PERSPECTIVES

On the Path to Computation with DNA 993
D. K. Gifford

Neuroscience enters cyberspace

Neuroscience on the Net 994
P. T. Fox and J. L. Lancaster

Conversion of L- to D-Amino Acids: 996
A Posttranslational Reaction G. Kreil

ARTICLES

Simulations of Gas-Phase Chemical Reactions 998
Applications to S_n,2 Nucleophilic Substitution W. L. Hase

Electrical Turbulence in Three-Dimensional Heart Muscle 1003
A. T. Winfree

RESEARCH ARTICLE

Isolation of Components of the Chloroplast Protein Import Machinery D. J. Schnell, F. Kessler, G. Blobel

REPORTS

Conducting Carbon Wires in Ordered, Nanometer-Sized Channels C.-G. Wu and T. Bein

Precipitation Hardening in the First Aerospace Aluminum Alloy: The Wright Flyer Crankcase F. W. Gayle and M. Goodway

Probing Individual Molecules with Confocal Fluorescence Microscopy 1018
S. Nie, D. T. Chiu, R. N. Zare

DEPARTMENTS

THIS WEEK IN SCIENCE 949
EDITORIAL 951
MULTIDISCIPLINARY RESEARCH 959
LETTERS 953
BOOK REVIEWS 1085

Lysenko and the Tragedy of Soviet Science, reviewed by K. Rossianov • Developmental Biology of Ascidians, D. Epel • Other Books of Interest • Vignettes

PRODUCTS & MATERIALS 1095

B. Terracini, E. Paci, C. Perucci, L. Tomatis

Board of Reviewing Editors

Frederick W. Alt
Don L. Anderson
Michael Ashburner
Stephen J. Benkovic
David E. Bloom
Floyd E. Bloom
Piet Borst
Henry R. Bourne
Michael S. Brown
James J. Bul
Kathryn Calame
C. Thomas Caskey
Denise W. Cho
John M. Coffin
F. Peming Crim
Paul J. Crutzen
James E. Dahlberg
Robert Damsonne
Bruce F. Eldridge
Paul T. Englund
Richard G. Fairbanks
Douglas T. Fearon
Harry A. Fozard
Klaus Friedrich
Theodore H. Geabale
John C. Gerhart
Roger I. M. Glass
Stephen P. Gold
Peter N. Goodfellow
Corey S. Goodman
Ira Herskowitz
Eric F. Johnson
Stephen M. Kosslyn
Michael LaBarbera
Nicole Le Douarin
Charles S. Levinger
Alexander Levitzki
Harvey F. Lodish
Richard Losick
Reinhard Lührmann
Dane Mathis
Anthony R. Means
Shigetada Nakashima
Roger A. Nicoll
Stuart L. Pinn
Yoshinori Pocker
Dennis A. Powers
Ralph S. Quintero
V. Ramanathan
Douglas C. Rees
T. M. Rice
David G. Ruble
Erkki Ruusaleh
Gottfried Schatz
Jozef Schell
Ronald H. Schiwa
Terrence J. Segovis
Ellen Solomon
Thomas A. Steitz
Michael P. Stryker
Robert T. N. Tjian
Emil R. Unanue
Geerat J. Vermeij
Bert Vogelstein
Harold Varmus
Arthur Weiss
Zena Werb
George M. Whitesides
Owen N. Witte
William A. Wulf
A male long-tailed manakin. In this species alpha and beta males cooperate in dual-mate courtship displays, but only the alpha partner mates during the partnership, which may last for several years. Long-term field data and genetic analysis of relatedness were used to exclude the two leading explanations for such cooperation—kin selection and reciprocity. Instead, the cooperation is a form of mutualism, with direct but long-delayed benefits to the nominating beta males. See page 1030. [Photo: Richard LaVal]

Molecular Computation of Solutions to Combinatorial Problems 1021
L. M. Adleman

Efficient Neutralization of Primary Isolates of HIV-1 by a Recombinant Human Monoclonal Antibody 1024

Crystal Structure of β-D-Cellobetaetraose Hemihydrate with Implications for the Structure of Cellulose II 1027

Cooperative Display and Relatedness Among Males in a Lek-Mating Bird 1030
D. B. McDonald and W. K. Potts

Molecular Maps of Red Cell Deformation: Hidden Elasticity and in Situ Connectivity 1032
D. E. Discher, N. Mohandas, E. A. Evans

Identification of Two GTP-Binding Proteins in the Chloroplast Protein Import Machinery 1035
F. Kessler, G. Blobel, H. A. Patel, D. J. Schnell

Prevention of T Cell Anergy by Signaling Through the γ Chain of the IL-2 Receptor 1039

Interaction of IL-2Rβ and γ Chains with Jak1 and Jak3; Implications for XSCID and XCID 1042


Role of TCR z Chain in T Cell Development and Selection 1047
E. W. Shires, K. Huang, T. Tran, E. Lee, A. Grinberg, P. E. Love

A Potential Noninvasive Neurobiological Test for Alzheimer’s Disease 1051
L. F. M. Scinto, K. R. Daffner, D. Dressler, B. I. Ransil, D. Rentz, S. Weintraub, M. Mesulam, H. Potter

Coding of Visual Space by Premotor Neurons 1054
M. S. A. Graziano, G. S. Yap, C. G. Gross

Horizontal Propagation of Excitation in Rat Visual Cortical Slices Revealed by Optical Imaging 1057
M. Tanifuji, T. Sugiyama, K. Murase

A Molecular Determinant for Submillisecond Desensitization in Glutamate Receptors 1059
J. Mosbacher, R. Schoepfer, H. Monyer, N. Burnashev, P. H. Seeburg, J. P. Ruppersberg

GDNF: A Potent Survival Factor for Motoneurons Present in Peripheral Nerve and Muscle 1062

Functional Consequences of Posttranslational Isomerization of Ser46 in a Calcium Channel Toxin 1065

Spermine and Spermidine as Gating Molecules for Inward Rectifier K+ Channels 1068
E. Ficker, M. Tagliafate, B. A. Wible, C. M. Henley, A. M. Brown

TECHNICAL COMMENTS
Stellar Variability and Global Warming 1072
R. R. Radick; P. Foukal

1065
Toxic configurations

AAAS Board of Directors

Indicates accompanying feature

© 1994 by the American Association for the Advancement of Science.

AAAS, the AAAS logo, Science, the Science logo, and ScienceTimes are registered trademarks of the AAAS.

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 43302-2033. 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 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, MA 01970. The identification code for Science is 0036-8078/83 $1.00. Science is indexed in the Reader’s Guide to Periodical Literature and in several specialized indexes.