

359 This Week in *Science*

Editorial

361 Excessive Fear of PCBs

Letters

366 HIV Research and *nef* Alleles: W. A. HASELTINE; J. A. LEVY ■ LBL Helmsman: C. V. SHANK

ScienceScope

371 Ground-breaking on research ice-breaker; poking holes in EMF studies; etc.

News & Comment

- 372 OSI Investigator "Reined In"
373 Hope From a Hot Little Motor
Thumbs Up for Two Detectors
374 Images of Conflict: MEG vs. EEG
376 Report Card on the Genome Project
Germany Grows Too Big for Its Budget
377 A Unique Lab Design Fits the British to a Tea
378 Small Is Beautiful: Microlivestock to Feed the Third World?
379 *Briefings*: Abortion Law Fallout ■ Genes Score a New Point in Alcoholism ■ Keeping Textbook Babble at Bay ■ Johnson vs. Darwin

Research News

- 380 Seeing Stars in a Handful of Dust ■ Scooping Starstuff From a Comet
382 New 3-D Protein Structures Revealed: The Shape of Cholera ■ First Protein Kinase Structure
384 Mix Well, Then Apply: Math Meeting in D.C.: Goodbye Assembly Line ■ Curse Foiled—Again ■ Microbial Math
385 A Most Improbable Planet
386 A Mountaintop Cliffhanger of an Eclipse
387 The Small Wonders of Microengineering

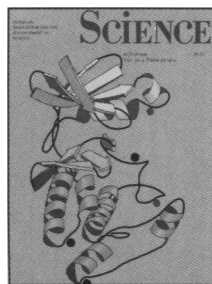
Articles

- 390 Statistical Data Analysis in the Computer Age: B. EFRON AND R. TIBSHIRANI
395 Enols and Other Reactive Species: Y. CHIANG AND A. J. KRESGE
401 Protein Tyrosine Phosphatases: A Diverse Family of Intracellular and Transmembrane Enzymes: E. H. FISCHER, H. CHARBONNEAU, N. K. TONKS

Research Articles

- 407 Crystal Structure of the Catalytic Subunit of Cyclic Adenosine Monophosphate-Dependent Protein Kinase: D. R. KNIGHTON, J. ZHENG, L. F. TEN EYCK, V. A. ASHFORD, N.-H. XUONG, S. S. TAYLOR, J. M. SOWADSKI
414 Structure of a Peptide Inhibitor Bound to the Catalytic Subunit of Cyclic Adenosine Monophosphate-Dependent Protein Kinase: D. R. KNIGHTON, J. ZHENG, L. F. TEN EYCK, N.-H. XUONG, S. S. TAYLOR, J. M. SOWADSKI

- 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 © 1991 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): \$82 (\$47 allocated to subscription). Domestic institutional subscription (51 issues): \$150. 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 88122. 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 43305-2003. 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, Massachusetts 01970. The identification code for Science is 0036-8075/93 \$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 Ribbon diagram of the conserved catalytic core shared by all known eukaryotic protein kinases. The crystal structure of the catalytic subunit of cyclic adenosine monophosphate-dependent protein kinase provided the template for the core. The amino terminus of the protein (shades of brown) is associated with magnesium adenosine triphosphate binding, and the carboxyl terminus (purple) with peptide binding. Catalysis occurs in the cleft between the two lobes. Insertions at the sites indicated by dots (blue-green, more than 70 residues; violet, more than 25 residues) occur in some members of the protein kinase family. See pages 407 and 414. [Source: S. S. Taylor; illustration by Diana DeFrancesco]

Reports

- 421 High-Pressure Chemistry of Hydrogen in Metals: In Situ Study of Iron Hydride: J. V. BADDING, R. J. HEMLEY, H. K. MAO
- 424 Commensurability and Mobility in Two-Dimensional Molecular Patterns on Graphite: J. P. RABE AND S. BUCHHOLZ
- 427 Dislocations and Flux Pinning in $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$: S. JIN, G. W. KAMMLOTT, S. NAKAHARA, T. H. TIEFEL, J. E. GRAEBNER
- 429 Order and Disorder in C_{60} and K_xC_{60} Multilayers: Direct Imaging with Scanning Tunneling Microscopy: Y. Z. LI, M. CHANDER, J. C. PATRIN, J. H. WEAVER, L. P. F. CHIBANTE, R. E. SMALLEY
- 433 Density-Dependent Natural Selection and Trade-Offs in Life History Traits: L. D. MUELLER, P. GUO, F. J. AYALA
- 435 Conversion of Ectoderm to Mesoderm by Cytoplasmic Extrusion in Leech Embryos: B. H. NELSON AND D. A. WEISBLAT
- 438 The 2.3 Angstrom X-ray Structure of Nitrite Reductase from *Achromobacter cycloclastes*: J. W. GODDEN, S. TURLEY, D. C. TELLER, E. T. ADMAN, M. Y. LIU, W. J. PAYNE, J. LEGALL
- 442 Recognition of a Cell-Surface Oligosaccharide of Pathogenic *Salmonella* by an Antibody Fab Fragment: M. CYGLER, D. R. ROSE, D. R. BUNDLE
- 445 Solution Structure of Kistrin, a Potent Platelet Aggregation Inhibitor and GP IIb-IIIa Antagonist: M. ADLER, R. A. LAZARUS, M. S. DENNIS, G. WAGNER
- 448 Identification of a Mutation in Porcine Ryanodine Receptor Associated with Malignant Hyperthermia: J. FUJII, K. OTSU, F. ZORZATO, S. DE LEON, V. K. KHANNA, J. E. WEILER, P. J. O'BRIEN, D. H. MACLENNAN

Technical Comment

- 452 The Spectrum of Comet Austin: T. G. SLANGER; J. GREEN, W. CASH, T. COOK, S. A. STERN

Inside AAAS

- 454 Scientists Invited to Join Teachers in Fight Against Scientific Illiteracy ■ 1991 Bell Atlantic-AAAS Institute Teachers ■ AAAS Fellows Learn EPA Ways ■ In Memory of Arthur Herschman ■ Reviewers Wanted ■ Call for SLAAS Delegate

Book Reviews

- 457 The Unfolding of a Philosophy, reviewed by A. E. SHAPIRO ■ A Cultural Transplant, B. MOLONY ■ Approaches to Systematics, J. G. LUNDBERG AND L. A. MCDADE ■ Beneath the Continents, P. G. SILVER

Products & Materials

- 465 DNA Probes ■ Software for Numerical Taxonomy ■ Gel Blotting Papers ■ Small Soakable Video Camera ■ Hand-Held Computer System ■ Enzyme Cleaner for Fermentation Residues ■ Literature

Board of Directors

Donald N. Langenberg
Retiring President,
Chairman

Leon M. Lederman
President

F. Sherwood Rowland
President-elect

Mary Ellen Avery
Francisco J. Ayala
Eugene H. Cota-Robles
Robert A. Frosch
Joseph G. Gavin, Jr.
Florence P. Haseltine
Jeanne M. Shreeve
Warren M. Washington

William T. Golden
Treasurer

Richard S. Nicholson
Executive Officer

Editorial Board

Charles J. Arntzen
Elizabeth E. Bailey
David Baltimore
William F. Brinkman
E. Margaret Burbidge
Pierre-Gilles de Gennes
Joseph L. Goldstein
Mary L. Good
Harry B. Gray
John J. Hopfield
F. Clark Howell
Paul A. Marks
Yasutomi Nishizuka
Helen M. Ranney
Robert M. Solow
Edward C. Stone
James D. Watson

Board of Reviewing Editors

John Abelson
Frederick W. Alt
Don L. Anderson
Stephen J. Benkovic
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

Douglas T. Fearon
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
Anthony R. Means
Mortimer Mishkin
Roger A. Nicoll
William H. Orme-Johnson III
Yeshayau Pocker

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

Science

253 (5018)

Science **253** (5018), 359-465.

ARTICLE TOOLS

<http://science.sciencemag.org/content/253/5018>

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. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title *Science* is a registered trademark of AAAS.