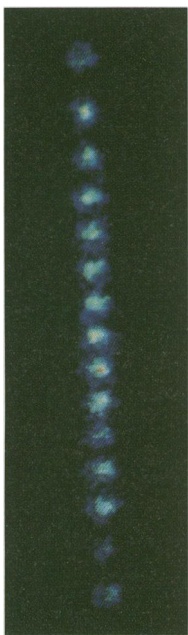
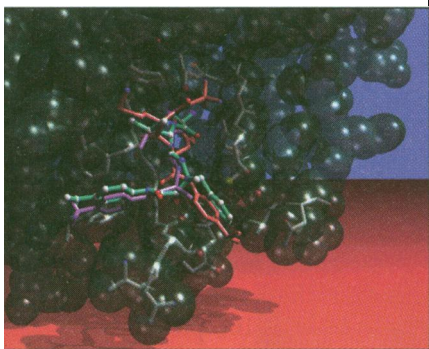


SCIENCE



28
Computing with
atoms



66
Peptidomimetic inhibitors

NEWS & COMMENT

- Is Science Lobbying an Oxymoron? **20**
Dissecting a Biomedical Victory **21**
- France: Budget Ax to Spare Research? **22**
- Court Upholds Need to Protect Habitat **23**
- Italy: Returning Émigrés Add New Luster to AIDS Research **24**
Private Institute Sparks "The Return of the Brains" **25**
- Japan: Universities Yank Welcome Mat for Longtime Foreign Faculty **26**
- Russia: Anthropology Institute Accused of Racism **27**

RESEARCH NEWS

- A Quantum Leap for Computers? **28**
Keeping Secrets Safe From Quantum Code-Cracking **29**
- Cell Movement Tale Told by Bacterial Tail Protein **30**
- Fifty Shades of Rain-Forest Green **31**
- A High Glacier Opens a View of the Ice Age Tropics **32**

PERSPECTIVES

- Hydrogeochemical Anomalies and the 1995 Kobe Earthquake **38**
C.-Y. King, N. Koizumi, Y. Kitagawa
- The Complexities of Conception **39**
R. J. Aitken

ARTICLE

- Sex Differences in Mental Test Scores, Variability, and Numbers of High-Scoring Individuals **41**
L. V. Hedges and A. Nowell

RESEARCH ARTICLE

- Late Glacial Stage and Holocene Tropical Ice Core Records from Huascarán, Peru **46**
L. G. Thompson, E. Mosley-Thompson, M. E. Davis, P.-N. Lin, K. A. Henderson, J. Cole-Dai, J. F. Bolzan, K.-b. Liu

REPORTS

- Liquid to Hexatic to Crystalline Order in Langmuir-Blodgett Films **51**
R. Viswanathan, L. L. Madsen, J. A. Zasadzinski, D. K. Schwartz
- Synthesis and Structure of an Iron(III) Sulfide-Ferritin Bioinorganic Nanocomposite **54**
T. Douglas, D. P. E. Dickson, S. Betteridge, J. Charnock, C. D. Garner, S. Mann

DEPARTMENTS

THIS WEEK IN SCIENCE	9	Prohaska; Z. H. Levine • Corrections
EDITORIAL	11	SCIENCESCOPE 19
High Technology and Trade		RANDOM SAMPLES 33
LETTERS	13	BOOK REVIEWS 109
Funding of NIH Grant Applications: Update: H. G. Mandel • Regulation of Human Gene Therapy: G. A. Chase <i>et al.</i> • Ph.D. Education: E. Augenbraun; H. V. B. Hirsch and H. Ghiradella; A. Firmenich, S. Hays, E. Kerr, D. Lashkari, S.		<i>Scientist Fiction</i> , by K. Livingston • Books Received • Vignettes
		PRODUCTS & MATERIALS 112

Board of Reviewing Editors

Frederick W. Alt Don L. Anderson Michael Ashburner Stephen J. Benkovic David E. Bloom Piet Borst Henry R. Bourne Michael S. Brown James J. 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. Geballe Roger I. M. Glass Stephen P. Goff Peter N. Goodfellow Corey S. Goodman Ira Herskowitz Tomas Hökfelt Eric F. Johnson	Stephen M. Kosslyn Michael LaBarbera Nicole Le Douarin Charles S. Levings III Alexander Levitzki Harvey F. Lodish Richard Losick Reinhard Lührmann Diane Mathis Anthony R. Means	Shigetada Nakanishi Roger A. Nicoll Stuart L. Pimm Yeshayau Pocker Dennis A. Powers Ralph S. Quatrano V. Ramanathan Douglas C. Rees T. M. Rice David C. Rubie	Erkki Ruoslahti Gottfried Schatz Jozef Schell Ronald H. Schwartz Terrence J. Sejnowski Ellen Solomon Thomas A. Steitz Michael P. Stryker Robert T. N. Tjian Emil R. Unanue	Geerat J. Vermeij Bert Vogelstein Arthur Weiss Zena Werb George M. Whitesides Owen N. Witte William A. Wulf
---	--	---	---	--	---	---

Pinnacles of ice and rock on Nevado Taulliraju (5830 meters above sea level) guarding extensive ice fields in the Cordillera Blanca, Peru. Two ice cores from an ice field on the col of Huascarán provide a perspective of climate and the environment in the tropics back to

glacial times. These frozen archives are disappearing rapidly under the present climate conditions. See page 46 and the News story on page 32. [Photo: Lonnie G. Thompson]



Dynamics of Carbonium Ions Solvated by Molecular Hydrogen: $\text{CH}_5^+(\text{H}_2)_n$ ($n = 1, 2, 3$) 57
D. W. Boo, Z. F. Liu, A. G. Suits, J. S. Tse, Y. T. Lee

Ground-Water Radon Anomaly Before the Kobe Earthquake in Japan 60
G. Igarashi, S. Saeki, N. Takahata, K. Sumikawa, S. Tasaka, Y. Sasaki, M. Takahashi, Y. Sano

Precursory Chemical Changes in Ground Water: Kobe Earthquake, Japan 61
U. Tsunogai and H. Wakita

Dissecting Amazonian Biodiversity 63
H. Tuomisto, K. Ruokolainen, R. Kalliola, A. Linna, W. Danjoy, Z. Rodriguez

Interaction of a Peptidomimetic Aminimide Inhibitor with Elastase 66
E. Peisach, D. Casebier, S. L. Gallion, P. Furth, G. A. Petsko, J. C. Hogan Jr., D. Ringe

Rational Design of Peptide Antibiotics by Targeted Replacement of Bacterial and Fungal Domains 69
T. Stachelhaus, A. Schneider, M. A. Marahiel

Conversion of Bacteriorhodopsin into a Chloride Ion Pump 73
J. Sasaki, L. S. Brown, Y.-S. Chon, H. Kandori, A. Maeda, R. Needleman, J. K. Lanyi

The TBP-TFIIA Interaction in the Response to Acidic Activators in Vivo 75
L. A. Stargell and K. Struhl

Constitutively Activated Jak-STAT Pathway in T Cells Transformed with HTLV-I 79
T.-S. Migone, J.-X. Lin, A. Cereseto, J. C. Mulloy, J. J. O'Shea, G. Franchini, W. J. Leonard

Enhanced DNA-Binding Activity of a Stat3-Related Protein in Cells Transformed by the Src Oncoprotein 81
C.-L. Yu, D. J. Meyer, G. S. Campbell, A. C. Larner, C. Carter-Su, J. Schwartz, R. Jove

Interaction of a Tyrosine Kinase from Human Sperm with the Zona Pellucida at Fertilization 83
D. J. Burks, R. Carballada, H. D. M. Moore, P. M. Saling

Tissue- and Species-Specific Expression of sp56, a Mouse Sperm Fertilization Protein 86
L. H. Bookbinder, A. Cheng, J. D. Bleil

In Vivo Transfer of GPI-Linked Complement Restriction Factors from Erythrocytes to the Endothelium 89
D. L. Kooyman, G. W. Byrne, S. McClellan, D. Nielsen, M. Tone, H. Waldmann, T. M. Coffman, K. R. McCurry, J. L. Platt, J. S. Logan

HERG, a Human Inward Rectifier in the Voltage-Gated Potassium Channel Family 92
M. C. Trudeau, J. W. Warmke, B. Ganetzky, G. A. Robertson

Spatial Memory of Body Linear Displacement: What Is Being Stored? 95
A. Berthoz, I. Israël, P. Georges-François, R. Grasso, T. Tsuzuku

Disruption of Retinal Axon Ingrowth by Ablation of Embryonic Mouse Optic Chiasm Neurons 98
D. W. Sretavan, E. Puré, M. W. Siegel, L. F. Reichardt

TECHNICAL COMMENTS

On Low-Barrier Hydrogen Bonds and Enzyme Catalysis 102
A. Warshel, A. Papazyan, P. A. Kollman; W. W. Cleland and M. M. Kreevoy; P. A. Frey

p34^{cdc2} and Apoptosis 106
S. J. Martin, A. J. McGahon, W. K. Nishioka, D. La Face, X. Guo, J. Th'ng, E. M. Bradbury, D. R. Green; A. H. Greenberg and D. W. Litchfield

AAAS Board of Directors

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

William A. Lester Jr.
Simon A. Levin
Michael J. Novacek

Anna C. Roosevelt
Alan Schriesheim
Jean E. Taylor
Chang-Lin Tien
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 © 1995 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): \$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 directly to CCC, 27 Congress Street, Salem, MA 01970. The identification code for *Science* is 0036-8075/83 \$3.00. *Science* is indexed in the *Reader's Guide to Periodical Literature* and in several specialized indexes.

Indicates accompanying feature

86

Sperm-egg recognition

Science

269 (5220)

Science **269** (5220), 9-113.

ARTICLE TOOLS

<http://science.sciencemag.org/content/269/5220>

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 © 1995 The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works.