The Hubble Constant Takes the Low Road Again
Chasing Shadows on the Sun
U.S.–Russian Team Solves Arctic Mystery

PERSPECTIVES
The Challenge of Malaria
L. H. Miller
Mosquito Molecular Genetics: The Hands That Feed Bite Back
A. A. James

ARTICLE
Chance and Statistical Significance in Protein and DNA Sequence Analysis
S. Karlin and V. Brendel

RESEARCH ARTICLES
Neurexins: Synaptic Cell Surface Proteins Related to the x-Latrotoxin Receptor and Laminin
Y. A. Ushkaryov, A. G. Petrenko, M. Geppert, T. C. Südhof

Chaotic Evolution of the Solar System
G. J. Sussman and J. Wisdom

DEPARTMENTS
THIS WEEK IN SCIENCE
EDITORIAL
LETTERS
BOOK REVIEWS
PRODUCTS & MATERIALS

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

33 & 56
Chaos in the solar system

13
AAAS MEETING
Human Genome '92
14–17 October
Nice, France

Call for Abstracts
Hotel and Advance Registration Forms

AAAS Board of Directors
Board of Reviewing Editors
Sectors of a tobacco leaf infiltrated with the plant pathogenic bacterium *Erwinia amylovora* or harpin, a protein isolated from it, show collapsed tissue (dark spots); sectors infiltrated with *E. amylovora* mutants that lack harpin have not collapsed. *Erwinia amylovora* causes fire blight, a severe disease of apple and pear trees; harpin appears to be responsible for the collapse of infiltrated tissue and is required for the development of the disease. See page 85. [Photograph: K. Loeffler]

---

**REPORTS**

Picoscend Optical Switching Based on 63
Biphotonic Excitation of an Electron Donor-Acceptor Donor Molecule 63

A High-Pressure Test of Birch’s Law 66
A. J. Campbell and D. L. Heinz

Chemiluminescence of Anodized and Etched Silicon: Evidence for a Luminescent Siloxene-Like Layer on Porous Silicon 68
P. McCord, S.-L. Yau, A. J. Bard

Induction of Pre-Infection Thread Structures in the Leguminous Host Plant by Mitogenic Lipo-Oligosaccharides of *Rhizobium* 70
A. A. van Brussel, R. Bakuizen, P. C. van Sproens, H. P. Spanik, T. Tak, B. J. J. Lugtenberg, J. W. Kijne

Fatty Acid Biosynthesis Redirected to 72
Medium Chains in Transgenic Oilseed Plants
T. A. Voelker, A. C. Worrell, L. Anderson, J. Bleibaum, C. Fan, D. J. Hawkins, S. E. Radke, H. M. Davies

Evidence That Eukaryotes and Eocyte Prokaryotes Are Immediate Relatives 74
M. C. Rivera and J. A. Lake

Conformation of the TAR RNA-Arginine Complex by NMR Spectroscopy 76
J. D. Puglisi, R. Tan, B. J. Calnan, A. D. Frankel, J. R. Williamson

An Unlikely Sugar Substrate Site in the L.65 A Structure of the Human Aldose Reductase Holoenzyme Implicated in Diabetic Complications 81
D. K. Wilson, K. M. Bohren, K. H. Gabbay, F. A. Quiocho

---

Harpin, Elicitor of the Hypersensitive 85
Response Produced by the Plant Pathogen *Erwinia amylovora*

Increased Osteoclast Development After 88
Estrogen Loss: Mediation by Interleukin-6

Expression of a Ryanodine Receptor–Ca2+ Channel That Is Regulated by TGF-β 91
G. Giannini, E. Clementi, R. Ceci, G. Marziali, V. Sorrentino

No Requirement for p56lck in the Antigen-Stimulated Clonal Deletion of Thymocytes 94
K.-i. Nakayama and D. Y. Loh

In Vivo Calcium Elevations in Thymocytes with T Cell Receptors That Are Specific for Self Ligands 96

Selection of Drug-Resistant Bone Marrow Cells in Vivo After Retroviral Transfer of Human MDR1 99
B. P. Sorrentino, S. J. Brandt, D. Bodine, M. Gottesman, I. Pastan, A. Cline, A. W. Nienhuis

Infection of *Macaca nemestrina* by 103
Human Immunodeficiency Virus Type-1

Distributed Neural Network Underlying 106
Musical Sight-Reading and Keyboard Performance
J. Sergent, E. Zuck, S. Terriah, B. MacDonald

---

*

Indicates accompanying feature

---

*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 © 1992 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): $87 ($47 allocated to subscription). Domestic institutional subscription (51 issues): $195. 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 43005-2033. 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 0036-8075/83 $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 promoting the 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.

---

103

The pigtail macaque: a new model for HIV infection
Science 257 (5066), 7-114.