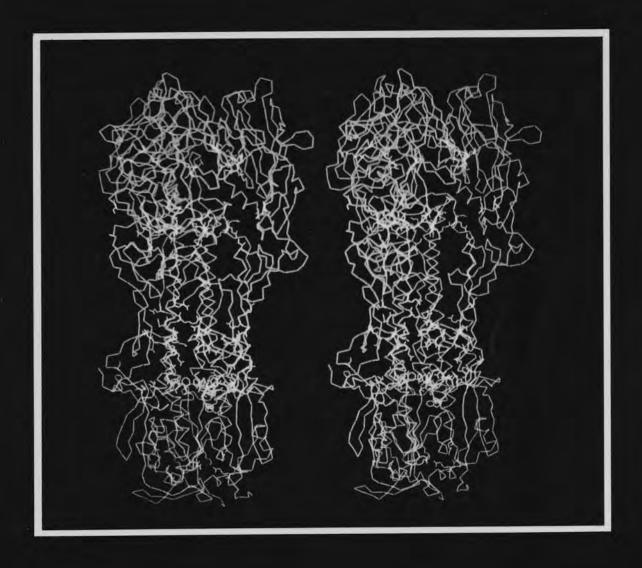


Volume 40 Number 2

February 1985



# Cell

**Editor** 

Benjamin Lewin

European Editor Peter W. J. Rigby

Reviews Editor
Paula A. Kiberstis

Senior Staff Editor Genevieve MacLellan

Staff Editors Vicki Hengen Michelle Hoffman

Editorial Assistant Elizabeth Salvucci

Advertising Manager BethAnn Rosner

**Associate Editors** 

Sidney Altman
Michael Ashburner
Richard Axel
Piet Borst
Jeremy Brockes
George Brownlee
Nicholas Cozzarelli
Igor Dawid
Gary Felsenfeld
Werner Franke
Joe Goldstein
Thomas Graf

Jan Klein Ron Laskey Peter Lawrence Elias Lazarides Nicole Le Douarin Anthony Mahowald Tom Maniatis

Tony Hunter

Richard Hynes

George Khoury

Marc Kirschner

Howard Nash Kim Nasmyth Mary Osborn William Paul Robert Perry Charles Radding Martin Raff James Rothman Joe Sambrook Walter Schaffner Robert Schimke Phillip Sharp **David Sherratt** Frank Solomon George Stark Peter Starlinger

Joan Steitz
George Vande Woude
Harold Varmus
Harold Weintraub
Robin Weiss
Irving Weissman
Charles Weissmann
William Wood

#### **Editorial Office**

Cell 292 Main Street Cambridge, Massachusetts 02142 USA 617-253-2890 Telex 314765

#### **European Office**

Cancer Research Campaign
Eukaryotic Molecular Genetics Group
Department of Biochemistry
Imperial College of Science
and Technology
London SW7 2AZ, England
01-584-9913

**Cell** is published monthly from January to November and twice monthly in December by The MIT Press, Cambridge, Massachusetts, and London, England. Subscriptions are available by the calendar year. The order rate direct from the publisher is \$225 (USA and Canada) or \$245 (elsewhere) for 1985 (volumes 40–43). Back issue rates for 1982–1984 are available on request. Subscription correspondence should be addressed to: The MIT Press Journals Department, 28 Carleton Street, Cambridge, Massachusetts 02142 (617-253-2889).

A charge of \$35 per page is made for publication. Inability to pay will not influence decisions on acceptance, and authors unable to meet this charge should make the reason known upon publication. Copyright © 1985 by the Massachusetts Institute of Technology. Second class postage paid at Boston, Massachusetts, and additional mailing offices. Postmaster: send address changes to Cell (ISSN 0092-8674), 28 Carleton Street, Cambridge, Massachusetts 02142.



# Cell

Commentary		
Molecular Development: Is There a Light Burning in the Hall?	P. A. Lawrence	221
Minireview		
mRNA Cap Binding Proteins: Essential Factors for Initiating Translation	A. J. Shatkin	223–224
Review		
T Cell Antigen Receptors and the Immunoglobulin Supergene Family	L. Hood, M. Kronenberg and T. Hunkapiller	225–229
Book Reviews		
A Retrospective Look at the Problem of Antibody Diversity	E. S. Golub	231–232
Little Light Shed on Photosynthesis	R. C. Prince	232–233
Little Things That Develop	W. F. Loomis	233–234
Books Received		234–235
Articles		
The Isolation and Sequence of the Gene Encoding T8: A Molecule Defining Functional Classes of T Lymphocytes	D. R. Littman, Y. Thomas, P. J. Maddon, L. Chess, and R. Axel	237–246
Cell Surface Expression of an In Vitro Recombinant Class II/Class I Major Histocompatibility Complex Gene Product	J. McCluskey, R. N. Germain, and D. H. Margulies	247–257
Structure, Organization, and Somatic Rearrangement of T Cell Gamma Genes	A. C. Hayday, H. Saito, S. D. Gillies, D. M. Kranz, G. Tanigawa, H. N. Eisen, and S. Tonegawa	259–269
Developmentally Controlled and Tissue-Specific Expression of Unrearranged $V_{H}$ Gene Segments	G. D. Yancopoulos and F. W. Alt	271–281
A Single Rearrangement Event Generates Most of the Chicken Immunoglobulin Light Chain Diversity	CA. Reynaud, V. Anquez, A. Dahan, and JC. Weill	283–291
Role of Chromosomal Rearrangement in N. gonorrhoeae Pilus Phase Variation	E. Segal, E. Billyard, M. So, S. Storzbach, and T. F. Meyer	293–300
Menkes' Disease: Abnormal Metallothionein Gene Regulation in Response to Copper	A. Leone, G. N. Pavlakis, and D. H. Hamer	301–309
Effects of Temperature and Single-Stranded DNA on the Interaction of an RNA Polymerase III Transcription Factor with a tRNA Gene	D. J. Stillman, P. Caspers, and E. P. Geiduschek	311–317

(continued)



Genetically Separable Functional Elements Mediate the Optimal Expression and Stringent Regulation of a Bacterial tRNA Gene	A. I. Lamond and A. A. Travers	319–326
Molecular Genetics of the achaete-scute Gene Complex of D. melanogaster	S. Campuzano, L. Carramolino, C. V. Cabrera, M. Ruíz-Gómez, R. Villares, A. Boronat, and J. Modolell	327–338
Sex-Specific Regulation of Yolk Protein Gene Expression in Drosophila	J. M. Belote, A. M. Handler, M. F. Wolfner, K. J. Livak, and B. S. Baker	339–348
Remote Regulatory Sequences of the Drosophila Glue Gene sgs3 as Revealed by P-Element Transformation	M. Bourouis and G. Richards	349–357
DNA Repair in an Active Gene: Removal of Pyrimidine Dimers from the DHFR Gene of CHO Cells Is Much More Efficient than in the Genome Overall	V. A. Bohr, C. A. Smith, D. S. Okumoto, and P. C. Hanawalt	359–369
The Tetrahymena rRNA Intron Self-Splices in E. coli: In Vivo Evidence for the Importance of Key Base-Paired Regions of RNA for RNA Enzyme Function	R. B. Waring, J. A. Ray, S. W. Edwards, C. Scazzocchio, and R. W. Davies	371–380
Mitotic Stability of Yeast Chromosomes: A Colony Color Assay That Measures Nondisjunction and Chromosome Loss	P. Hieter, C. Mann, M. Snyder, and R. W. Davis	381–392
Genetic Analysis of the Mitotic Transmission of Minichromosomes	D. Koshland, J. C. Kent, and L. H. Hartwell	393–403
Phenotypic Analysis of Temperature-Sensitive Yeast Actin Mutants	P. Novick and D. Botstein	405–416
5-Azacytidine Permits Gene Activation in a Previously Noninducible Cell Type	CP. Chiu and H. M. Blau	417–424
Cell Migration Pathway in the Intestinal Epithelium: An In Situ Marker System Using Mouse Aggregation Chimeras	G. H. Schmidt, M. M. Wilkinson, and B. A. J. Ponder	425–429
Fusion Mutants of the Influenza Virus Hemagglutinin Glycoprotein	R. S. Daniels, J. C. Downie, A. J. Hay, M. Knossow, J. J. Skehel, M. L. Wang, and D. C. Wiley	431–439
Cellular Site and Mode of Fv-2 Gene Action	R. R. Behringer and M. J. Dewey	441–447
Movement of Organelles Along Filaments Dissociated from the Axoplasm of the Squid Giant Axon	R. D. Vale, B. J. Schnapp, T. S. Reese, and M. P. Sheetz	449–454
Single Microtubules from Squid Axoplasm Support Bidirectional Movement of Organelles	B. J. Schnapp, R. D. Vale, M. P. Sheetz, and T. S. Reese	455–462



(continued)

Attachment of Terminal N-Acetylglucosamine to Asparagine-Linked Oligosaccharides Occurs in Central Cisternae of the Golgi Stack W. G. Dunphy, R. Brands, and J. E. Rothman

463-472

Letter to the Editor

Correction: Apparent Alteration in Properties of Arl Mutants of E. coli

J. B. Hays and B. E. Korba

473

**Positions Available** 

**Announcements** 

**Directory of Advertisers** 

The cover shows (in stereo) single amino acid substitutions that alter the membrane fusion activity of the influenza hemagglutinin. For details see the article by Daniels et al. in this issue. (The figure was produced by Hydra, a graphics program written by Rod Hubbard.)



# DOCKET

# Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

# **Real-Time Litigation Alerts**



Keep your litigation team up-to-date with **real-time** alerts and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## **Advanced Docket Research**



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

# **Analytics At Your Fingertips**



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

### API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

#### **LAW FIRMS**

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

#### **FINANCIAL INSTITUTIONS**

Litigation and bankruptcy checks for companies and debtors.

### **E-DISCOVERY AND LEGAL VENDORS**

Sync your system to PACER to automate legal marketing.

